

VOL. 16 No. 26

July 1, 1966

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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Contidions

ARMYWORM moth catches heavy in Illinois and Missouri. May mean trouble later in other areas. (p. 621). CORN EARWORM infestations high in corn in some areas; adults appearing Delaware and Indiana. CORN LEAF APHID heavy in sorghum and corn in Oklahoma and Kansas. (p. 599). BUDWORMS more damaging to tobacco in Virginia than for past 4 years; moderate to heavy in Georgia. EUROPEAN CORN BORER whorl infestations increasing in Maryland, egg laying underway in Minnesota, hatching in Michigan and Massachusetts; moth emergence complete in areas of Illinois. (p. 600). WIREWORMS damaging corn in North Carolina and Rhode Island. (p. 601).

GRASSHOPPERS threatening to very severe in Oregon, some counts high; damaging crops in Oklahoma; outbreaks reported in Utah. (pp. 616, 617). CEREAL LEAF BEETLE larval counts high in Michigan; economic on oats in Indiana. (p. 617). JAPANESE BEETLE adults reported in several Southern and Eastern States. (p. 618).

FALSE CHINCH BUGS causing concern on rangeland in Utah (p. 602), and damaging potatoes in Colorado (p. 608).

Heavy ALFALFA WEEVIL damage reported in some Western and Eastern States; may be problem in Connecticut. (p. 603). MEADOW SPITTLEBUG adults abundant in legumes in Maryland, Ohio and Iowa. YELLOW-STRIPED ARMYWORM economic on soybeans in Arkansas. (p. 605).

BOLL WEEVIL egg laying continues high in Alabama; infestations heavy on cotton in areas of Mississippi. (p. 605). Adults of a LEAF ROLLER MOTH abundant in cotton in Shafter area of California; may indicate serious outbreak. (p. 606).

SUGAR-BEET ROOT MAGGOT, BEET LEAF MINER and BEET WEBWORM causing concern on sugar beets. (p. 607). MEXICAN BEAN BEETLE increasing on beans in Colorado and Maryland, severe on field peas in Georgia. (p. 608). ORIENTAL FRUIT MOTH larval injury to peaches more severe than past 4 years in Connecticut. (p. 609).

A PAMPHILIID SAWFLY expected to defoliate several thousand acres of red oak in Pennsylvania. (p. 614). MOSQUITOES heaviest in decade at Madison, Wisconsin. (p. 614). HORN FLY continues problem on cattle in several States. (p. 615).

Detection

- ORIENTAL FRUIT FLY (Dacus dorsalis) male trapped in Los Angeles County, California. (p. 616).
- MEDITERRANEAN FRUIT FLY situation Brownsville, Texas. (p. 618).

For additional new county records see page 620.

Special Reports

Guide to Survey for Wheatgrass Bugs. (pp. 623, 624).

Reports for this issue are for week ending June 24 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	599
Insects Affecting	
Corn, Sorghum, Sugarcane.....	600
Cucurbits.....	608
Small Grains.....	601
General Vegetables.....	609
Turf, Pastures, Rangeland.....	602
Small Fruits.....	611
Forage Legumes.....	603
Ornamentals.....	612
Soybeans.....	605
Forest and Shade Trees.....	612
Cotton.....	605
Man and Animals.....	614
Sugar Beets.....	607
Households and Structures.....	615
Potatoes, Tomatoes, Peppers.....	607
Beans and Peas.....	608
Beneficial Insects.....	616
Federal-State Plant Protection Programs.....	616
Status of the Screw-worm in the Southwest.....	619
Hawaii Insect Report.....	620
Insect Detection.....	620
Light Trap Collections.....	621
Wheatgrass Bugs (<u>Labops</u> spp.).....	623

WEATHER OF THE WEEK ENDING JUNE 27

HIGHLIGHTS: (1) Heat wave North Central and Northeast. (2) Much sunny, dry weather but local downpours northern plains.

TEMPERATURE: Large persistent high over the Southern Appalachians brought a week long heat wave to the Eastern half of the Nation. Skies were clear, winds were light and humidity high. Temperatures climbed to the 90's from the central Rockies to the Atlantic Ocean. Pueblo, Colorado, registered 96° on Friday. Temperatures reached the 90's on 5 days at Traverse City, Michigan, and on 6 days at Pittsburgh, Pennsylvania. In much of the Northeast last week was the hottest week of the year and in Pennsylvania the hottest week since 1964. With stagnant conditions the lower atmosphere became very hazy reminding one of autumn conditions. In north central areas only, the hot weather was interrupted by cool Canadian air. West of the Rockies temperatures were moderate. Except rather cool in the Idaho area.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - MARYLAND - Larvae nearly full grown and heavily damaging 6 acres of oats near Centerville, Queen Annes County. (U. Md., Ent. Dept.). MINNESOTA - Moths continued to appear in light traps; counts highest in Fergus Falls area. Few larvae found in Rock County oat field. Growers should check fields. (Minn. Ins. Rpt.). MISSOURI - Pupation nearly complete in northeast. Damage very light; few heads clipped in wheat. (Houser).

CORN EARWORM (Heliothis zea) - DELAWARE - Adults present in blacklight traps in Sussex County. (Burbutis, Davis). MARYLAND - Light whorl infestations occurring in sweet corn on lower Eastern Shore. (U. Md., Ent. Dept.). VIRGINIA - Late-stage larvae noted in field of early corn in Isle of Wight County. Damaging corn in Scott County. (Isakson, Reynolds). INDIANA - First adult of season captured in blacklight trap, Posey County, June 12. (Huber). ALABAMA - Larvae quite heavy on corn in St. Clair County and in roasting ears in home gardens in Lee County. (Jackson et al.). MISSISSIPPI - Infesting approximately 30 percent of corn ears in Yazoo County. Third-stage larvae present. (Dinkins). OKLAHOMA - Present in 70 percent of corn terminals and 5 percent of grain sorghum terminals in Jackson County. (Okla. Coop. Sur.). KANSAS - Larvae feeding on 60-80 percent in whorls of sweet corn at Wichita. (Eshbaugh). ARIZONA - Continues light in alfalfa and sorghum in Graham and Cochise Counties. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEVADA - Increasing on grain in Lovelock, Pershing County. Some fields heavily infested, but no controls applied. (Martinelli). OKLAHOMA - Present in almost every terminal of grain sorghum in Jackson County; moderate in Okfuskee and Rogers Counties. Ranged up to 400 per plant in occasional plants in Texas County. (Okla. Coop. Sur.). KANSAS - Light to moderate in young sorghum plants in Dickinson, McPherson and Rice Counties. (Wilde, Simpson). High in sorghum and corn, Montgomery, Cherokee and Crawford Counties. Light in corn in northeast and east central districts. (Gates, Brooks, June 20). MISSOURI - Only occasional specimen found in corn and grain sorghum in central and north central areas. (Houser). INDIANA - Alates observed on corn in New Albany area. This is first report of season. (Everly, Saugstad).

GREENBUG (Schizaphis graminum) - MINNESOTA - Counts per 100 sweeps in small grain as follows: Southwest 77, south central 26, southeast 2, northwest trace. (Minn. Ins. Rpt.). NORTH DAKOTA - Adults and nymphs averaged 22 per 100 sweeps in small grain in Ransom, Sargent and Dickey Counties. (Brandvik).

HORNWORMS (Manduca spp.) - DELAWARE - *M. sexta* adults taken in blacklight traps in Sussex County. (Burbutis, Davis). VIRGINIA - *Manduca* spp. very light to date on tobacco in Pittsylvania County. (Domnick). GEORGIA - *M. quinquemaculata* light on tomatoes, Spalding County. (Dupree).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Increasing on alfalfa over State; 8 per sweep near Cambridge, Dorchester County. Adults and nymphs heavy in large plantings of snap beans near Mardella, Wicomico County. (U. Md., Ent. Dept.). DELAWARE - Adults and nymphs on lima beans in most areas of State; common on some potatoes in New Castle County. (Burbutis, Davis). ILLINOIS - Adults 0-280 per 100 sweeps in first-crop alfalfa in northwest; 650-1,350 per 100 sweeps in northeast. (Ill. Ins. Rpt.). MISSOURI - Adults and nymphs light on alfalfa in northeastern and north central areas. Ranged 5-20 per 20 sweeps in second-cutting alfalfa. (Houser). WISCONSIN - Nymphs appearing in alfalfa and beans in central counties. Counts of 1 per sweep reported in Ashland County alfalfa. (Wis. Ins. Sur.). MINNESOTA - Counts per 100 sweeps as follows in alfalfa: Southeast 11, south central 17, west central 15, northwest trace. (Minn. Ins. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Trace numbers on matrimony-vine; 10 per 100 sweeps at Monte Vista, Rio Grande County. None taken at other locations in San Luis Valley. (Jenkins).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - MINNESOTA - Counts per 100 sweeps in small grains as follows: Southwest 293, south central 120, southeast 7, west central 40, northwest 25. (Minn. Ins. Rpt.). NORTH DAKOTA - Remained at low levels, 1 per 100 sweeps in western counties. (Brandvik).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Light populations show slight increase in alfalfa in Yuma, Cochise and Graham Counties. (Ariz. Coop. Sur.). UTAH - Population still low in southern counties. (Knowlton). ARKANSAS - First of season observed in Crawford County; about 50 in 100 sweeps of 15-inch net. (Boyer, Roberts, Wylie). KANSAS - High populations in Rice and McPherson Counties, 0-20 per 10 sweeps; 5-15 per 10 sweeps in Decatur, Norton and Phillips Counties. Lady beetle populations low. (Wilde, DePew, Simpson).

BUDWORMS (*Heliothis* spp.) - GEORGIA - Moderate to heavy across tobacco belt. (French). VIRGINIA - Light to medium on tobacco in Pittsylvania County. Damage more common than at anytime during past 4 years. (Dominick).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MASSACHUSETTS - Eggs hatching; sprays required for 2-3 weeks. (Crop Pest Conf. Mess., June 20). NEW YORK - Moth emergence from caged material continued June 15; moths readily flushed from weeds along field margins. (N. Y. Wkly. Rpt.). MARYLAND - Whorl infestations increasing in eastern and southern sections; ranged 5-40 percent in early field and sweet corn. (U. Md., Ent. Dept.). VIRGINIA - Fourth to fifth-stage larvae infesting 10 percent of whorls of early field corn in Isle of Wight County. (Isakson). Almost every stalk damaged in field in Scott County. (Isakson, Reynolds). MICHIGAN - First eggs observed hatching June 14 in Wayne County. (Newman, Kidd). ILLINOIS - Percent pupation 100 in west, central, east, west-southwest, southwest and southeast districts; northwest 95, northeast 90. Percent moth emergence 100 in central, west-southwest, southwest and southeast districts; east 90, west 80, northeast 30, northwest 27. Egg masses 0-30 per 100 corn plants 32-53 inches high in central section, 3 percent hatched; 0-20 percent of plants infested by small larvae. (Moore). Egg masses 0-30 per 100 corn plants 37 inches high in east-southeast district, 0-20 percent hatched; 0-20 percent of plants infested by first-stage larvae. In northeast section, on corn 41 inches high, egg masses 20 per 100 plants; none hatched. No egg masses found on corn 39-48 inches high in eastern section. In northeast section, on corn 32-40 inches high, egg masses 0-20 per 100 plants; 0-10 percent hatched; 0-10 percent of plants infested by small larvae. In west district on corn 45-52 inches extended leaf height, no egg masses found but 0-40 percent of plants infested by first-stage larvae. (Ill. Ins. Rpt.). MISSOURI - Leaf feeding damage observed on 60 percent of plants in northwestern area with 0-12 first and second-stage borers per infested plant. Egg masses 2 per 100 plants. (Thomas). IOWA - First adult caught in Columbus Junction light trap June 2. (Iowa Ins. Inf.). MINNESOTA - Moth emergence and egg laying underway in southwest, south central and southeast districts. Egg mass counts low; present only on corn 20 inches or more high. Pupation ranges 40-60 percent in southern counties. (Minn. Ins. Rpt.).

SOUTHWESTERN CORN BORER (*Zeadiatrea grandiosella*) - ALABAMA - Larvae of various sizes severe on stalks and whorls of pretassel corn in field in Winston County. Older larvae bored into stalks and smaller larvae feeding in whorls. (Richardson). MISSISSIPPI - Infestation 10-20 percent in several fields in Itawamba County. Late-stage larvae and pupae present. (Dinkins).

STALK BORER (*Papaipema nebris*) - WISCONSIN - Larvae infesting corn seedlings in Dane and Sauk Counties. (Wis. Ins. Sur.). MINNESOTA - Margins of corn fields showing damage. (Minn. Ins. Rpt.). KANSAS - Less than 5 percent of plants infested with larvae in border rows in northeast, east central and southeast districts. (Gates, Brooks).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - CALIFORNIA - Larvae medium in cornstalks in Blythe, Riverside County. (Cal. Coop. Rpt.).

BLACK CUTWORM (Agrotis ipsilon) - OHIO - Larvae damaging corn in Wayne County. Approximately 7-10 percent of corn in one field destroyed. (Barry). WISCONSIN - Light damage to corn in Dodge County; stand reduced 25 percent in Barron County field. (Wis. Ins. Sur.).

CUTWORMS - IOWA - Damaged corn in Mills and Fayette Counties; 20 acres replanted in Fayette County. (Iowa Ins. Inf.). ALABAMA - Heavy and extremely damaging below ground line to field of corn in Cleburne County. (Ventress).

SOD WEBWORMS (Crambus spp.) - MARYLAND - Heavily injured several fields of young corn after sod in Montgomery and Frederick Counties. (U. Md., Ent. Dept.).

WIREWORMS - RHODE ISLAND - Agriotes sp. and Melanotus sp. causing significant injury to large acreages of silage corn in Little Compton, Newport County, and to smaller plantings in Warren, Bristol County. (Mathewson, King). NORTH CAROLINA - M. communis causing considerable damage to corn in Burke and McDowell Counties. About 0.5 acre in each of two 7-acre fields in Burke County largely destroyed; 15 percent of corn in 7.5-acre field and 10 percent of stand in 5-acre field damaged in McDowell County. Corn in these fields 6 inches high and many larvae still feeding; no pupation observed. (Mount et al., June 17).

CORN ROOTWORMS (Diabrotica spp.) - ILLINOIS - Larvae found in Mercer County; exact species not determined. (Ill. Ins. Rpt.). MISSOURI - Seventy-five percent of D. virgifera eggs hatched in northwestern district; 25 percent of larvae moved into root zone. Larvae 0-6 per plant in untreated corn. (Houser). COLORADO - D. virgifera severely damaged corn in Yuma County; field replanted, corn now 4-6 inches high; controls may be tried. (Carson).

WHITE GRUBS - MINNESOTA - Damaged corn in Redwood and Watonwan Counties. One field so severely damaged replanting necessary. (Minn. Ins. Rpt.).

CHINCH BUG (Blissus leucopterus) - KANSAS - Damaging sorghum in Dickinson and Harvey Counties. (Gates, Brooks). OKLAHOMA - Heavy in grain sorghum in Mayes and McIntosh Counties. (Okla. Coop. Sur.).

SAY STINK BUG (Chlorochroa sayi) - ARIZONA - Building up on sorghums in Graham County. Very little damage as yet. (Ariz. Coop. Sur.).

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Total of 656 caught on 9 sticky board traps at Cedarville June 23. (Ins.-Dis. Newsltr.).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - MISSOURI - Random fields in Saline and Carroll Counties 100 percent infested; 12-20 mines in lower leaves, 1-2 mines in upper leaves (Peters, Craig); 1-5 mines per corn plant observed in northeastern and north central areas (Houser).

THRIPS - MARYLAND - Populations high and causing conspicuous streaking of young corn in many areas. (U. Md., Ent. Dept.). INDIANA - Common on corn in south central and southwestern zones; up to 80 per plant. (Huber). KANSAS - Heavy in west central and northwest; 1,000 per 10 sweeps. (Wilde, Simpson).

GARDEN SYMPHYLAN (Scutigerella immaculata) - VIRGINIA - Apparently stunting 25-33 percent of corn plants in 50-acre field in Culpepper County; 30-40 noted on single plant. (Isakson, Heltzel).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OHIO - Low on small grains. (Rose). WISCONSIN - Low in central area, 3 per sweep; 1 per sweep in the northeast. (Wis.

Ins. Sur.). MINNESOTA - Counts per 100 sweeps in small grains as follows: South-west 66, south central 36, southeast 6, west central 40, northwest trace. (Minn. Ins. Rpt.). NORTH DAKOTA - Remains low in most areas. (Brandvik).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Adults migrating into barley fields. Marginal counts in Barnes, Ransom, Sargent, Dickey, McIntosh, Stutsman and La Moure Counties averaged 1 per plant. (Brandvik).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Few adults found in wheat in Bowman, Billings and McKenzie Counties. (Brandvik).

WHEAT WIREWORM (Agriotes mancus) - PENNSYLVANIA - Moderately heavy on oats in Erie County. (Adams).

CHINCH BUG (Blissus leucopterus) - KANSAS - Populations high in Clay, Dickinson, Harvey, Sedgwick and Sumner Counties. (Simpson).

SAY STINK BUG (Chlorochroa sayi) - UTAH - Infested 70 acres of small grain in Beryl area, Iron County. (Sjoblom, Knowlton).

BROWN WHEAT MITE (Petrobia latens) - WASHINGTON - Heavy in some fields of winter wheat in Douglas County. (Johnson, June 20).

TURF, PASTURES, RANGELAND

GRASS BUGS - UTAH - Irbisia spp. seriously discolored 300 acres of intermediate wheatgrass at about 7,000 feet elevation in mountains east of Petersen, Morgan County. Leptopterna ferrugata and L. dolabrata common throughout State; conspicuously spotting limited amounts of wheatgrasses, Great Basin ryegrass, barley, wheat and rye. Damage small compared to extensive damage from several species comprising "black grass bug" complex in State this season. (Knowlton). Grass bugs caused light damage to wheatgrasses and grains in the Alpine-American Fork area, Utah County. Damage from Irbisia-type bugs in Hatton area of Millard County only 5 percent as severe as that of 1965. Discoloration moderate at Scipio. (Knowlton, June 24).

A PLANT BUG (Hoplomachus moerens) - CALIFORNIA - Nymphs and adults heavy on pasture grasses in Yreka, Siskiyou County. (Cal. Coop. Rpt.).

FALSE CHINCH BUG (Nysius spp.) - UTAH - Numerous in several areas on farms, rangelands and about homes. In grass-sage area 2 miles north of Hatch, Garfield County, N. ericae estimated at 2,000 per square foot over sizable area. Causing ranchers some concern. (Lindsay, Knowlton). Very numerous on some alfalfa seed farms in east Millard County. (Knowlton).

CHINCH BUG (Blissus leucopterus) - SOUTH CAROLINA - Heavy on centipede grass lawn in Conway, Horry County; caused considerable damage. (Nettles et al., June 21). CONNECTICUT - Starting to feed on lawns. (Savos).

GREEN JUNE BEETLE (Cotinis nitida) - SOUTH CAROLINA - First of season noted at Liberty, Pickens County. Extremely numerous on pastures. (Nettles et al., June 21).

A BILLBUG (Sphenophorus venatus vestitus) - FLORIDA - Generally infesting zoysia grass at grass farm in Gillett, Manatee County; required treatment. (Bickner, June 14).

PAINTED LADY (Vanessa cardui) - WASHINGTON - Larvae defoliating Canada thistle in Rockford area, Spokane County; infestation reported to Idaho border and several miles to north and west. Also reported in Okanogan and Whitman Counties. (Neu, Harwood, June 20). IDAHO - Larval activity continues throughout State. (Portman et al., June 17). NEVADA - Larval numbers light to heavy and spotted on Scotch thistle, a noxious weed, in Dry Creek Canyon, Washoe County. (Sutton, June 17).

THRIPS (*Chirothrips* spp.) - ARIZONA - Damaging numbers appearing in seed heads of Bermuda grass in Wellton and Roll areas of Yuma County. (Ariz. Coop. Sur., June 10).

A CRICKET (*Nemobius fasciatus*) - ALABAMA - Extremely high numbers of adults and nymphs observed in grass sod in large pasture in Lowndes County; 1-15 per square yard. (Woodruff et al.).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - VERMONT - Building up in Addison County; most untreated fields show 100 percent tip injury. Larvae 35-45 per sweep. (Nielsen, June 20). MASSACHUSETTS - Larvae 300-2,600 and adults 3-47 per 100 sweeps in Hampshire and Berkshire Counties; many fields with frosty appearance. Larvae 180-411 and adults 10 per 100 sweeps in Worcester County; damage not heavy. Larvae 300-450 and adults 1-2 per 100 sweeps in Bristol and Plymouth Counties; damage light to heavy but no fields appear frosty. (Miller, June 20). CONNECTICUT - May be problem on second cutting; severe injury found in field cut 2 weeks ago; 4 adults and over 150 larvae collected in 20 sweeps. (Savos). MARYLAND - Adults and larvae moderate on stubble and second-growth alfalfa in central and western sections. (U. Md., Ent. Dept.). ALABAMA - Adult and larval numbers high on breeding plots of several unreleased varieties of vetch on Agriculture Experiment Stations at Camden, Wilcox County, and at Windfield, Marion County, and on standard varieties at Auburn, Lee County, during mid-May. Damage questionable. (King, Donnelly, Bass, et al.). OHIO - Damage severe in the southeastern half of State this season. (Flessel). INDIANA - New county records Newton, Lake, Steuben and Allen. (Huber). Larvae 1-6 per 10 sweeps on second-growth alfalfa in west central area, 2-6 per 10 sweeps in southwest. (White). ILLINOIS - None found in Rock Island, Mason, Warren, Henderson and Mercer Counties. (Ill. Ins. Rpt.). NORTH DAKOTA - Larvae up to 1,000 (average 320) per 100 sweeps in irrigated alfalfa in Yellowstone River Valley near East Fairview, McKenzie County. Adults up to 30 (average 13) per 100 sweeps in same fields. Found for first time in Billings, Hettinger, Mercer, McKenzie and Williams Counties. (Brandvik). KANSAS - Adults light in Kearny, Haskell and Finney Counties; 1-50 per 10 sweeps. (Wilde, DePew, Simpson).

COLORADO - Heavy damage in some Larimer County alfalfa fields. Populations of *Bathyplectes curculionis* (an ichneumon wasp) tapering off. (Simpson). Caused severe damage in some Mesa, Delta and Montrose County fields where controls not applied on first cutting. Few weevils noted on second growth. (Bulla). Larvae in second cutting in Gilcrest area, Weld County. Fields not treated after first cutting, but necessary now. (Kindsfater, Urano). WYOMING - Hatching in western area alfalfa. Counts per 10 sweeps by county as follows: Uinta 9 adults, 12 larvae; Lincoln 9 adults, 16 larvae; Teton 8 adults, 11 larvae; Sublette 7 adults, 7 larvae; Sweetwater 5 adults, no larvae. (Marks). UTAH - Outbreaks generally severe in Iron County. (Sjoblom, Knowlton). Much alfalfa land bare; held back by larvae in areas of Beaver County and in east Millard County localities. Adults severely damaged several hundred acres of alfalfa in Flowell area, Millard County. Even where only dry stalks standing, dozens of adults per plant present; large numbers on soil. Growth completely held back in most damaged fields now; growers greatly concerned. Thousands of adults migrated from nearby heavily infested alfalfa to foundations, walls, and entered homes at Flowell. Total of 9,000 acres of alfalfa treated by aircraft in Beaver County. Effectiveness varied, but mostly adequate. Untreated fields show extreme damage; no new growth in many fields. (Knowlton). ARIZONA - Adults 5-15 and larvae 40-100 per 25 sweeps in alfalfa checked near Chama, Rio Arriba County. Damage very pronounced. Counts at Espanola, Rio Arriba County, lighter; 5-10 larvae per 25 sweeps. (Heninger, Kloepper). IDAHO - Very large larval populations present in first-crop alfalfa hay fields in southern and eastern areas. (Portman et al., June 17). OREGON - Damage moderate to serious in untreated fields in areas of State where this insect established. All larval stages and pupae found in Crook County, June 17. Heavy infestations reported in Klamath County. (Every).

CLOVER LEAF WEEVIL (Hypera punctata) - VERMONT - Severely damaging stands of trefoil by feeding on buds and terminals. (Nielsen, June 20). UTAH - Adults severely damaged several hundred acres of alfalfa in Flowell area, Millard County. Injury common to sweetclover foliage in many localities throughout State. (Knowlton).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Medium to heavy on alfalfa in Sutter, Sutter County. (Cal. Coop. Rpt.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - MINNESOTA - Leaf feeding severe on new seeding of sweetclover in northwest district. Numerous fields will be killed out by this weevil. (Minn. Ins. Rpt.).

A BLISTER BEETLE (Lytta reticulata) - OKLAHOMA - Large numbers taken on native legume near Eva, Texas County, June 21. This new county record and second record for State. (Okla. Coop. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NORTH DAKOTA - Trace numbers found in alfalfa near Fort Clark in Oliver County. This first record for Oliver County. (Brandvik).

ALFALFA CATERPILLAR (Colias eurytheme) - WISCONSIN - Larvae 3 per 10 sweeps in several alfalfa fields in Marquette and Waushara Counties. (Wis. Ins. Sur.). ILLINOIS - Larvae 0-20 per 100 sweeps in northwest district alfalfa. (Ill. Ins. Rpt.). NEW MEXICO - Larvae 3-5 per 25 sweeps in alfalfa in Chama area, Rio Arriba County, and 4-6 per 25 sweeps at Peralta, Valencia County. (Kloepfer, Heninger).

GARDEN WEBWORM (Loxostege similalis) - ARKANSAS - Ranged 150-200 per 100 sweeps in Crawford County alfalfa. (Boyer, Roberts, Wylie).

A BUDWORM (Heliothis sp.) - NEW MEXICO - Heavy on alfalfa seed crop, feeding on blooms and pods, in Hatch area, Dona Ana County. (Durkin).

PEA APHID (Acyrtosiphon pisum) - MARYLAND - Averaged 5-45 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.). INDIANA - Building up rapidly on second-growth alfalfa in northern third of State; 40-80 per sweep in most fields, some fields wilting. (Huber). ILLINOIS - Averaged 300 (range 400-5,000) per 100 sweeps in alfalfa in northwest district. (Moore). WISCONSIN - Low in alfalfa; 3-4 per sweep. High counts, 100 per sweep in fields of vetch. Parasitism continues high in most fields. (Wis. Ins. Sur.). MINNESOTA - Counts per 100 sweeps in alfalfa as follows: Southwest 1,272, south central 950, southeast 261, west central 290, northwest 475. (Minn. Ins. Rpt.). ARKANSAS - Counts 300-400 per sweep in Crawford County alfalfa. (Boyer, Roberts, Wylie). Somewhat higher than normal for time of year, probably due to relatively cool weather. (Ark. Ins. Sur.). OKLAHOMA - Continues heavy in alfalfa in Sequoyah County; 1 per 10 sweeps in alfalfa in Texas County. (Okla. Coop. Sur.). NEW MEXICO - Light in alfalfa near Chama and Espanola, Rio Arriba County. (N. M. Coop. Rpt.). COLORADO - Building up in few fields prior to first cutting in Mesa, Delta and Montrose Counties; 1,000-1,500 per 100 sweeps, increase expected on second cutting. (Bulla). WYOMING - Small numbers found in western area alfalfa; adults and nymphs per 10 sweeps by county: Uinta 16-20, Lincoln 12-18, Teton 16-19, Sublette 24-26, Sweetwater 8-10. (Marks). WASHINGTON - Ranged 30-50 per sweep in alfalfa seed field near Lowden, Walla Walla County. (Johansen, Eves, June 20).

PLANT BUGS - VERMONT - Lygus lineolaris and Adelphocoris lineolatus 3-4 per sweep on trefoil. (Nielsen, June 20). WISCONSIN - L. lineolaris, A. lineolatus and A. rapidus numerous in most alfalfa throughout southern and central areas. (Wis. Ins. Sur.). INDIANA - A. lineolatus nymphs 40-400 per 100 sweeps on alfalfa in northern half of State; heaviest in northern quarter. (Huber, White). ILLINOIS - In northwest district alfalfa, L. lineolaris adults 10-200 and A. lineolatus adults 0-120 per 100 sweeps. (Ill. Ins. Rpt.). ARKANSAS - L. lineolaris decreased in Crawford

County alfalfa; 50-75 in 100 sweeps. (Boyer). OKLAHOMA - Lygus spp. 6 per 10 sweeps in Texas County alfalfa. (Okla. Coop. Sur.). NEW MEXICO - Lygus spp. per 25 sweeps, 10-24 at Chama, Rio Arriba County. (Heninger, Kloefer). UTAH - Adults and nymphs, largely L. elisus, moderate on unsprayed alfalfa in areas of Millard County. (Knowlton). WYOMING - Lygus spp. adults and nymphs light in western area alfalfa; 6-10 per 10 sweeps in alfalfa in Uinta, Lincoln, Teton, Sublette and Sweetwater Counties. (Marks). WASHINGTON - Lygus spp. adults 2-3 per sweep in alfalfa seed field near Lowden, Walla Walla County. (Johansen, Eves, June 20).

MEADOW SPITTLEBUG (Philaeus spumarius) - MARYLAND - Adults 2-20 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.). OHIO - Adults 11 per sweep on legume forage over most of State. (Rose). IOWA - Abundant on red and sweetclover in Dubuque County June 11. (Iowa Ins. Inf.).

LEAFHOPPERS - INDIANA - Adults 40-350 per 100 sweeps on second-growth alfalfa and 70-700 per 100 sweeps in first-growth alfalfa in northern half of State. (Huber). KANSAS - Ranged up to 100 per 10 sweeps in many fields in southwestern area. (Wilde, Simpson). ARIZONA - Empoasca mexara heavy in Yuma County alfalfa; 500 per 100 sweeps. (Ariz. Coop. Sur.).

THRIPS - KANSAS - Heavy in alfalfa in west central and northwest districts; well over 1,000 per 10 sweeps. (Wilde, Simpson). NEVADA - Frankliniella occidentalis light to medium on seed alfalfa in Lovelock, Pershing County. (MartineII).

GARDEN SPRINGTAIL (Bourletiella hortensis) - OHIO - Unusually high populations reported in 2 fields of alfalfa in Ottawa and Wood Counties in CEIR 16(22):483, determined this species by D. L. Wray. (PPC).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - IDAHO - Large population severely stunted and discolored 20-acre alfalfa seed field at Wilder, Canyon County. (Linford, June 17).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light on soybeans in Bleckley County (Lawson, French); adults and larvae heavy in Appling County (Purdom).

BLISTER BEETLES (Epicauta sp.) - OKLAHOMA - Moderate and damaging soybeans in Craig County. (Okla. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARKANSAS - One larvae per 1.5 row feet, field wide, on soybeans in Mississippi County field. Infestation on small plants considered economic, treatment recommended. (Miner). Spotted infestations common, but field-wide infestations rare in State. (Forest).

CUTWORMS - MISSOURI - Destroyed 1-3 feet of row in random soybean fields in Grand River bottoms of Carroll County. (Thomas).

A THRIPS (Sericothrips variabilis) - DELAWARE - Continues to increase on soybeans in many areas of State. (Burbutis, Davis).

COTTON

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Counts show up to 80 percent of early squares punctured by weevils emerging from winter quarters. (Cott. Ltr. June 20). More weevils collected this year than in 1965 in trap plot at Florence. Larval infestation 2-11.5 percent in treated plots and 32-36 percent in untreated plots. (Taft et al., June 22). ALABAMA - Egg laying by overwintered adults continues high in Montgomery, Greene, Perry, Dallas, Monroe, Conecuh and other southern counties. Emergence of first-generation weevils should begin next week in central and south sections in older cotton. Live weevils still found in north

section, but egg laying light due to lateness of square formation. (McQueen). GEORGIA - Emergence continues light in Putnam County (Beckham); overwintering weevils heavy in one field in Bleckley County (Lawson). MISSISSIPPI - Heavy in Pontotoc, Tallahatche and Panola Counties. Light in Coahoma, Marshall and De Soto Counties. No increase in numbers noted in Itawamba, Chickasaw and Noxubee Counties. Increasing in Yazoo County with 6-10 percent of squares punctured in some fields. (Dinkins). TENNESSEE - Weevils becoming harder to find as plants become larger throughout regularly infested portion of cotton-growing area. (Locke). LOUISIANA - Weevils observed in 6 of 50 fields checked; ranged 26-52 per acre in Madison Parish. (Cleveland et al., June 23). TEXAS - Activity remains light in McLennan and Falls Counties. Infestation in 16 treated fields averaged 0.5 percent punctured squares (maximum 1.7). Infestation in 18 untreated fields averaged 1.2 percent (maximum 14.5). No weevils emerged from hibernation cages and none collected on flight screens. (Cowan et al.).

For Boll Weevil in Texas High Plains, see page 617.

FLEA BEETLES - TENNESSEE - Continue to cause isolated damage to late cotton over area. (Locke).

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Total of 6 *H. zea* collected in light trap at Florence; no *H. virescens*. (Taft et al., June 22). ALABAMA - Moth flights and larvae decreased throughout State. Predators and parasites very effective in lowering high infestation of first and second-instar larvae during last 15 days. (McQueen). GEORGIA - Light in Bleckley County cotton. (Lawson, French). MISSISSIPPI - *H. zea* and *H. virescens* eggs scattered, up to 5 per terminal. Larvae light in Itawamba County. Infestation approximately 4 percent in several Yazoo County cotton fields. (Dinkins). LOUISIANA - Larvae found in 5 of 11 fields checked in Madison Parish. (Cleveland et al., June 23). TEXAS - Infestation light in Falls and McLennan Counties; no damage at this time. (Cowan et al.). ARIZONA - *H. zea* continues light on cotton in Yuma and Maricopa Counties. No controls necessary. (Ariz. Coop. Sur.). CALIFORNIA - Few larvae detected in Shafter area. (Deal, June 21).

CABBAGE LOOPER (*Trichoplusia ni*) - OKLAHOMA - Larvae 54 and eggs 22 per 500 feet of row in Jackson County cotton. (Okla. Coop. Sur.). CALIFORNIA - Larvae abundant in Shafter area; 1 per plant. (Deal, June 21).

A LEAF ROLLER MOTH (*Platynota stultana*) - CALIFORNIA - Moths abundant in cotton in area north of Shafter; may be forerunner of serious outbreak. (Deal, June 21).

FLEAHOPPERS - MISSISSIPPI - *Psallus seriatus* light in cotton in Pontotoc, Marshall, Itawamba, Chickasaw and Noxubee Counties; heavy in Coahoma, Panola and Yazoo Counties. (Dinkins). OKLAHOMA - *P. seriatus* averaged 1 per 100 feet of row in Jackson County cotton; moderate in Caddo County. (Okla. Coop. Sur.). TEXAS - *P. seriatus* nymphs heavy in McLennan and Falls Counties. (Cowan et al.). ARIZONA - Light to moderate *P. seriatus* populations causing light damage to cotton in Yuma, Maricopa and Pinal Counties. Moderate populations of *Spanogonicus albofasciatus* damaging cotton squares in Yuma, Maricopa, Pinal and Graham Counties. Controls required only on few heavily infested fields. (Ariz. Coop. Sur.).

PLANT BUGS - (*Lygus* spp.) - MISSISSIPPI - *L. lineolaris* light in Pontotoc, Marshall, Itawamba, Chickasaw and Noxubee Counties. Heavy in Coahoma, Panola, and Yazoo Counties. (Dinkins). ARIZONA - *Lygus* spp. increasing on cotton in Yuma, Maricopa, Pinal and Graham Counties. Square damage 15-20 percent except in Graham County where only 5 percent of squares damaged. (Ariz. Coop. Sur.). CALIFORNIA - *Lygus* spp. moving from safflower, alfalfa and weeds to cotton. Counts in Shafter area range from lows of 2-3 per 50 sweeps to 20 per 50 sweeps. Counts as high as 13-15 per 50 sweeps in Westside area. (Deal, June 21).

APHIDS - CALIFORNIA - Aphids severe in some fields in Shafter area; severe stunting evident in some fields. (Deal, June 21). TEXAS - Occasionally light in McLennan and Falls Counties. (Cowan et al.). OKLAHOMA - *Aphis gossypii* very light on

cotton in Washita and Jackson Counties. (Okla. Coop. Sur.). MISSOURI - A. gossypii economic in small area throughout "delta" region. (Jones). SOUTH CAROLINA - Unspecified species damaging young cotton plants in nearly all sections of State. (Cott. Ltr., June 20).

THRIPS - SOUTH CAROLINA - Heavy on cotton in Chesterfield, Union and York Counties. (Cott. Ltr., June 20). TENNESSEE - Continue to cause moderate to severe damage to late planted cotton. (Locke). GEORGIA - Moderate in Spalding County. (Beckman). ALABAMA - Damage light in Madison, Colbert, Calhoun and other northern counties where cotton still small. (McQueen). OKLAHOMA - Frankliniella spp. infestations decreased in Jackson County cotton; currently 100-150 per 20 plants. Moderate in Caddo and Bryan Counties. (Okla. Coop. Sur.). MISSOURI - Sufficiently heavy in spots in random cotton fields throughout "delta" area of southeastern area to require treatment. (Jones).

SPIDER MITES - SOUTH CAROLINA - Reported on cotton in ridge and Piedmont counties and from several lower Savannah Valley counties. (Cott. Ltr., June 20). ALABAMA - Light with some increases noted in Colbert, Calhoun, Monroe and Cherokee Counties. (McQueen). GEORGIA - Moderate in Blackley County cotton. (Lawson, French). MISSOURI - Mostly Tetranychus atlanticus reported as problem in small areas and on individual plants in marginal rows of cotton in southeastern area. (Jones). CALIFORNIA - Unspecified species evident in many fields in Shafter, Corcoran, Visalia and Five Points areas. (Deal, June 21). Tetranychus urticae medium on cotton plantings in Clovis, Fresno County. (Cal. Coop. Rpt.).

SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeiformis) - COLORADO - Causing considerable loss in Weld and Larimer Counties; 3-50 percent in many fields; higher in several fields. (Jenkins). NORTH DAKOTA - Adults continue to buildup in Pembina and Walsh Counties. (Dogger).

BEEF LEAF MINER (Pegomya betae) - MINNESOTA - Eggs and larvae appearing on sugar beets in Polk County again this year. Eggs found on nearly every plant examined. Hatching and leaf mining very evident. (Minn. Ins. Rpt.).

BEEF WEBWORM (Loxostege sticticalis) - UTAH - Moth numbers below normal in northern area. (Knowlton). COLORADO - Larvae 1-2 per 10 plants on sugar beets in Baca County. Economic in some fields; controls applied. Economic levels reached in Logan County past week. Still low in Kit Carson, Yuma, Phillips and Sedgwick Counties. (Jenkins). In Weld County, larval numbers low, not sufficient to warrant control; hatch delayed by rains and hail. Fields should be checked closely for eggs and larvae. (Urano).

FLEA BEETLES - MINNESOTA - Damage on sugar beets very evident in Polk County; "shot hole" feeding present on most plants. (Minn. Ins. Rpt.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MASSACHUSETTS - Laying eggs where not controlled. Egg laying heavy and larval populations high in some fields. Many second and third-stage larvae badly damaged potatoes in fields not treated. (Crop Pest Cont. Mess., June 20). RHODE ISLAND - Adults appear somewhat less abundant than same date last year. Ovipositing in fields in Washington County; little hatch observed. (Mathewson). CONNECTICUT - Larvae and adults are attacking tomatoes in Coventry. (Savos). DELAWARE - Larvae common on tomatoes in areas of New Castle and Kent Counties; rather high on some commercial potatoes in eastern New Castle County. (Burbutis, Davis).

THREE-LINED POTATO BEETLE (Lema trilineata) - TENNESSEE - Adults feeding on potatoes, weeds and other vegetation in Morgan Community of Monroe County. (Williams et al., June 17).

FLEA BEETLES - MASSACHUSETTS - Still prevalent and damaging potatoes. (Crop Pest Cont. Mess., June 20). DELAWARE - Epitrix cucumeris adults abundant, causing rather heavy injury in some New Castle County potato fields. (Burbutis, Davis). IOWA - E. cucumeris active in all parts of State; "shot holes" in leaves of potatoes and tomatoes. (Iowa Ins. Inf., June 20).

FALSE CHINCH BUG (Nysius ericae) - COLORADO - Abundant; damaging potatoes in Rio Grande and Conejos Counties. Controls underway. (Hantsbarger).

POTATO APHID (Macrosiphum euphorbiae) - COLORADO - Colonies abundant with high populations on wild rose in Rio Grande County. (Jenkins). VIRGINIA - Appear rather general on tomatoes on Eastern Shore, requiring treatment in some cases. (Hofmaster).

LOOPERS - GEORGIA - Moderate on tomatoes in Tift County. (French). MICHIGAN - Trichoplusia ni adult female taken June 18 in Berrien County blacklight trap. New record for early collection date in State. (Newman, Gomulinski).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - COLORADO - Increasing on beans in Weld County; chemical control started. (Counter). MARYLAND - Adults and larvae building up on snap and lima beans in several areas of State. (U. Md., Ent. Dept.). GEORGIA - Severe on southern peas, Dodge County. (Martin). ALABAMA - Larvae medium to heavy on snap beans in home gardens in central section, especially in Crenshaw County where pupation of second generation beginning. (Knox et al.).

PEA WEEVIL (Bruchus pisorum) - IDAHO - Control in commercial pea fields at Moscow, Latah County, completed. Adults laying eggs in untreated peas. (Manis, Portman, June 17).

LESSER CORNSTALK BORER (Elasmopalus lignosellus) - GEORGIA - Severe on southern peas, Liberty County. (Peebles).

CUCURBITS

CUCUMBER BEETLES - OKLAHOMA - Diabrotica undecimpunctata howardi and Acalymma vittatum moderate and damaging commercial cucumbers in Choctaw County. (Okla. Coop. Sur.). NEW YORK - A. vittatum severe in some cucumber fields. (N. Y. Wkly. Rpt.).

SQUASH VINE BORER (Melittia cucurbitae) - GEORGIA - Heavy in Tift County. (French).

WHITE-LINED SPHINX (Celerio lineata) - OREGON - Large numbers of larvae, probably this species, moved from weedy rye field into 20-acre planting of cucumbers in Washington County. Some damage resulted before control measures taken. (Every).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Ranged 5-10 per plant in Washita County; moderate on squash and melons in McIntosh and Bryan Counties; light in Choctaw County. (Okla. Coop. Sur.).

SEED-CORN MAGGOT (Hylemya platura) - NEW YORK - Damaging cucumbers in Niagara, Genesee and Orleans Counties. (N. Y. Wkly. Rpt.).

GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - RHODE ISLAND - Both C. asparagi and C. duodecimpunctata numerous on asparagus in Peace Dale, Washington County. (Mathewson).

BULB MITE (Rhizoglyphus echinopus) - CALIFORNIA - Medium on asparagus plantings in Santa Ana, Orange County. (Cal. Coop. Rpt.).

EGGPLANT FLEA BEETLE (Epitrix fuscula) - MARYLAND - Adults heavy on large planting of eggplant near Severn, Anne Arundel County. (Univ. Md., Ent. Dept.).

ONION MAGGOT (Hylemya antiqua) - UTAH - Damaging onions in Ogden and Marriott areas, Weber County. (Knowlton). WISCONSIN - General infestation in onions in home gardens. (Wis. Ins. Sur.). NEW JERSEY - Total of 191 caught on 7 sticky board traps at Cedarville June 23. (Ins.-Dis. Newsltr.).

SPINACH LEAF MINER (Pegomya hyoscyami) - IOWA - Larvae and pupae reported in spinach June 15 in Spirit Lake and garden beets in Cedar Rapids. (Iowa Ins. Inf.).

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - WISCONSIN - Counts high in few home gardens in southern counties. (Wis. Ins. Sur.).

A THRIPS (Frankliniella sp.) - NEW JERSEY - Severely damaging young asparagus in Salem County. (Ins.-Dis. Newsltr.).

DECIDUOUS FRUITS AND NUTS

APHIDS - GEORGIA - Heavy on pecan trees in Bleckley County. (French, Barber). ALABAMA - Myzocallis caryaefoliae becoming heavy on pecans in Mobile County and in Wilcox and Elmore Counties. (Vickery, Morriss, Hardy).

ROSY APPLE APHID (Dysaphis plantaginea) - CONNECTICUT - Still very abundant in New Haven and few reported from Bantam. (Savos). OHIO - Persists over most of State. (Forsythe, Rose).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Damage to apple trees widespread and severe in Tallapoosa, St. Clair, Coosa and other counties. (Jackson, Webb et al.).

APPLE APHID (Aphis pomi) - VERMONT - Noticeable on terminals of unsprayed trees. (Nielsen, June 20). MASSACHUSETTS - Small numbers found in many orchards. (Crop Pest Cont. Mess., June 20). CONNECTICUT - Building up in all parts of State. (Savos). OHIO - Persists over most of State. Infestations of varying degrees observed in Mahoning and Licking Counties. Some leaf curling evident. (Forsythe, Rose). WISCONSIN - Small colonies appearing on apple leaves in Dane County. (Wis. Ins. Sur.). MISSOURI - Still found on water sprouts; these will probably be present all summer. (Wkly. Rpt. Fr. Grs., June 22).

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Required controls in many apple orchards in northern area and present in most. (Hill, Rock).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - OHIO - Appearing in Lake County. (Still, June 17). MICHIGAN - Adult emergence occurred in Benzie and Manistee Counties, June 15. (Gardner).

CODLING MOTH (Carpocapsa pomonella) - MISSOURI - In areas where broods seem distinct, first brood now over. In other areas, all sizes of larvae found and some full-grown larvae leaving apples. (Wkly. Rpt. Fr. Grs., June 22). INDIANA - Bait trap collections low; five adults captured during week. (Dolphin, June 20). OHIO - First-generation larvae completing development at Wooster, Wayne County. Injury is becoming more apparent on apples. (Forsythe). MICHIGAN - Adults emerging in Kent County June 22. (Gilmore). NEW YORK - Eggs hatching June 14 in Ulster County. (N.Y. Wkly. Rpt.). NEW JERSEY - Total of 5

trapped at Hurffville June 20 and 23. (Ins.-Dis. Newsltr.). CONNECTICUT - Adults collected June 21 in Storrs and New Haven indicating activity continues. (Savos). MASSACHUSETTS - Four moths caught in blacklight trap in East Wareham, Plymouth County. (Tomlinson, June 17). Active for over a week; very little egg-laying has taken place. (Crop Pest Cont. Mess., June 20). VERMONT - Egg laying started with warm night temperatures of past week. (Nielsen, June 20).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - RHODE ISLAND - Infesting peach in Allenton, Washington County. (Mathewson, June 17). CONNECTICUT - Injury to peach terminals more severe than for past 4 years in New Haven. (Savos). NEW JERSEY - Total of 73 trapped at Pitman and Glassboro June 20 and 23. (Ins.-Dis. Newsltr.). INDIANA - Adult collections declined from 30 to 22 during week. (Dolphin, June 20). MISSOURI - Few new entries into peach terminals noted in Portageville area. (Wkly. Rpt. Fr. Grs., June 22).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Broods in webs continue light and widespread throughout State and causing some concern on pecans in Washington and Dale Counties. (Estes). OKLAHOMA - Small webs noted on pecan trees in Pottawatomie and Lincoln Counties; first activity of year. (Okla. Coop. Sur.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MISSOURI - Adults emerging near Kansas City. In Columbia area, adults in flight past week. (Wkly. Rpt. Fr. Grs., June 22). INDIANA - First-generation adults collected in lesser numbers; 13 for week compared to 23 previous week. Small larvae seen feeding on apple foliage. (Dolphin, June 20). VIRGINIA - Larvae and pupae very light in peach orchards in northern area. (Hill, Rock).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - Larvae have reached full growth and began emerging from dropped plums in Wayne County. (Forsythe, June 20). MASSACHUSETTS - Still active in some places, especially on peaches. (Crop Pest Cont. Mess., June 20). RHODE ISLAND - Can still be jarred from trees in Kingston, Washington County. (Mathewson, June 17). VERMONT - Activity now over. (Nielsen, June 20).

SAWFLIES - CONNECTICUT - Hoplocampa testudinea very severely injured unsprayed trees in Storrs. Larvae left fruit to pupate in New Haven and Storrs. (Savos). RHODE ISLAND - Hoplocampa sp. larvae recovered from apple in Allenton, Washington County. (Mathewson, June 17).

PEAR SAWFLY (Hoplocampa brevis) - PENNSYLVANIA - Adults taken on sticky board traps in Lehigh County orchard. This new county record. (Raub).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First-generation larvae heavy on pecans in southeast and central areas; 40-84 percent of nut clusters being destroyed on unsprayed trees. Larvae heavy in Mayes and Cotton Counties; light in Marshall County. (Okla. Coop. Sur.). ALABAMA - Light to medium damage continues to small nuts in St. Clair and Choctaw Counties. (Sexton, Jackson). GEORGIA - Heavy in Ware County. (Voigt).

PECAN PHYLLOXERA (Phylloxera devastatrix) - OKLAHOMA - Heavy on pecan trees in Lincoln County. (Okla. Coop. Sur.).

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Light to moderate numbers damaging pecan trees in Pottawatomie and Lincoln Counties. (Okla. Coop. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - MISSOURI - Light to threatening populations reported on apples and peaches throughout State. About 5-6 per leaf in central area. (Wkly. Rpt. Fr. Grs., June 22). INDIANA - Leaf counts of 12 adults, 45 nymphs and 49 eggs per leaf present in Vincennes area apple orchard where no control measures taken. (Dolphin, June 20). MICHIGAN - Eggs and nymphs continue to build up in fruit areas. (Wooley). NEW YORK - Hatching in Ulster, Columbia, Clinton and Essex Counties. (N.Y. Wkly. Rpt.). VERMONT - Not troublesome except in 2 areas. (Nielsen, June 20). CONNECTICUT - Still low throughout

most of State; however, recent eggs hatched in Storrs and populations beginning to increase. (Savos). VIRGINIA - Populations somewhat below normal for this date on apples in northern area, probably due to cool weather. (Hill).

SPIDER MITES (Tetranychus spp.) - MASSACHUSETTS - Moving up into trees; several infestations of mites and eggs in Worcester County area. (Crop Pest Cont. Mess., June 20). INDIANA - Tetranychus urticae in apple orchard where no specific mite control measures taken; leaf counts show 0.2 adult, 1.2 nymphs and 2.4 eggs per leaf. (Dolphin, June 20). MISSOURI - Counts of 3-4 per leaf in most orchards indicate slow buildup. (Wkly. Rpt. Fr. Grs., June 22).

CITRUS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Damaged new growth of citrus in area of Yuma County; controls necessary. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Moderate numbers continue to damage new growth of citrus in Yuma and Maricopa Counties. Control still necessary. (Ariz. Coop. Sur.).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - All stages infesting 5 percent of 5,000 citrus nursery plants at Groveland, Lake County; 200 trees refused certification because of heavy infestation. (Henderson).

SMALL FRUITS

WEEVILS - OREGON - Peritelinus oregonus caused significant damage to strawberry planting in Linn County. Adults, pupae and a few larvae present May 27. Nemocestes spp. damaging strawberry fields in Washington County. Several adults, larvae and pupae present June 8. (Every). CALIFORNIA - Brachyrhinus sulcatus heavy and damaging strawberry plants in Quincy, Plumas County. (Cal. Coop. Rpt.).

A SAP BEETLE (Stelidota octomaculata) - MICHIGAN - Adults caused severe injury to ripe strawberries in Berrien County June 15. (Carpenter).

ROSE CHAFER (Macrodactylus subspinosus) - CONNECTICUT - Damaging strawberries in eastern part of State. (Savos). TENNESSEE - Adults numerous on grapes, Knox County. (Williams et al.).

CHERRY FRUITWORM (Grapholitha packardi) - MASSACHUSETTS - Moths active in blueberry fields on warm nights in Plymouth and Barnstable Counties. (Tomlinson, June 17).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Moths active in blueberry fields and increasing in cranberry bogs in Plymouth and Barnstable Counties. (Tomlinson, June 17).

ROUGH-SKINNED CUTWORM (Proxenus mindara) - CALIFORNIA - Larvae medium on strawberry plants; damaging leaves and fruit in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

CRANBERRY GIRDLER (Crambus topiarius) - MASSACHUSETTS - Moth flights extremely heavy on bogs infested in 1965 in Plymouth County. (Tomlinson, June 17).

CURRENT APHID (Cryptomyzus ribis) - UTAH - Conspicuously curling red currant foliage at Beaver, Beaver County, and Nephi, Juab County. Curling apical currant foliage at Scipio, Millard County. (Knowlton).

BLUEBERRY MAGGOT (Rhagoletis mendax) - NEW JERSEY - First adults caught on baited sticky board traps June 15, but catch not appreciable until June 18. Flies ready to lay eggs; should be present in field by June 28. (Ins.-Dis. Newsltr.).

RASPBERRY SAWFLY (Monophadnoides geniculatus) - MINNESOTA - Severely damaged raspberries in Aitkin area. (Minn. Ins. Rpt.).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Serious post-harvest problem on strawberries at Glendale, Prince Georges County. (Univ. Md., Ent. Dept.).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Moderate to heavy on junipers in Okmulgee and Stephens Counties. (Okla. Coop. Sur.). OHIO - Larvae damaging some juniper plantings in Muskingum and Franklin Counties. (Walker, Barth). NORTH CAROLINA - Bags 0.2-0.4 inch long on arborvitae in Wake County June 13; first report of season. (Mount).

AZALEA LEAF MINER (Gracillaria azaleella) - CALIFORNIA - Medium on azalea nursery stock in San Marcos, San Diego County. (Cal. Coop. Rpt.).

PAINTED LADY (Vanessa cardui) - UTAH - Larval damage to hollyhock foliage common in Millard, Cache and Utah Counties. (Knowlton).

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - Emergence underway; will soon be numerous. (Crop Pest Cont. Mess., June 20). RHODE ISLAND - Adults present in large numbers throughout State. (Mathewson et al., June 17). CONNECTICUT - Emerged and feeding on many flowers. (Savos et al.). MICHIGAN - First adult activity of season reported in Gratiot County. (Bierlein).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - MICHIGAN - Adults emerging from yews in Calhoun and Wayne Counties. (Wallner). OHIO - Severe on yews in Franklin County; most serious damage resulted from larvae feeding on roots. (Walker).

HOLLYHOCK WEEVIL (Apion longirostre) - UTAH - Moderately numerous and mating at Beaver, Beaver County. This is new county record. (Knowlton).

ROSE LEAFHOPPER (Edwardsiana rosae) - UTAH - Causing moderate to severe discoloration of rose foliage at Beaver, Beaver County. (Knowlton).

EUONYMUS SCALE (Unaspis euonymi) - MISSOURI - Crawlers reported on euonymus in Columbia area, Boone County. (Houser). DELAWARE - Young scales and few crawlers abundant on euonymus in area, New Castle County. (Burbutis, Davis). GEORGIA - Heavy on euonymus in Spalding County. (Tippins).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - VIRGINIA - Adults and crawlers very heavy on purple leaf plum in Virginia Beach. (Pierce).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Heavy on hibiscus and pelargonium in Ord, Glenn County; medium on fuchsia in San Diego, San Diego County. (Cal. Coop. Rpt.).

SPIDER MITES - MISSOURI - Severe on ornamental sweetpeas in extreme southeast area. (Wkly. Rpt. Fr. Grs., June 22). GEORGIA - Heavy on boxwoods in Chattooga County (Purcell); heavy on crab apple in Clarke County (Coleman). MARYLAND - Tetranychus spp. heavy on hollyhocks and roses at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - OHIO - Damage to taxus noted in Columbus, Franklin County. (Barth).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Situation uncertain, but activity slowed considerably by adequate rainfall this summer. (For. Pest Surv.

Rpt. May Sum.). NORTH CAROLINA - Situation in upper Piedmont still good in comparison with last 2 years. Approximately 1,300 spots located in Davidson, Davie, Forsyth, Guilford, Iredell, Randolph, Rowan and Yadkin Counties by aerial survey completed May 16. Most spots involved few trees and trees infested early last winter; however, some current activity noted. All known active areas in north-eastern quarter of State in 1965 not active at this time. Few small spots found in Vance and Granville Counties; individual outbreaks also reported from Cabarrus and Cleveland Counties. (Mount, June 17). Increases in beetle populations indicated in coastal area of SOUTH CAROLINA and in MISSISSIPPI, LOUISIANA and TEXAS. (South. For. Pest Rptr., June).

ELM LEAF BEETLE (Pyrrhalta luteola) -OREGON - Eggs hatching in Benton County June 7. Extensive larval damage appearing in Umatilla and Jackson Counties June 16. (Every). UTAH - Severely skeletonizing trees at Bluff, San Juan County. (Knowlton, Jones). OKLAHOMA - Moderate to heavy; continues to damage elms in most areas of State. First-generation larvae pupating after causing light damage in Beaver and Texas Counties. (Okla. Coop. Sur.). KANSAS - Second-generation larvae beginning to feed in McPherson County. (Reading). MISSOURI - Except for a few late developing larvae, pupation is complete in southern one-third of State. Larvae, half to fully developed, observed in extreme northern area where infestation is light. (Houser).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) -COLORADO - Not making successful attacks; adults apparently killed by contact on sprayed bark. (Thatcher).

A LEAF-MINING WEEVIL (Odontopus calceatus) -VIRGINIA - Populations reduced due to May freeze; does not appear to be problem this year. (For. Pest Surv. Rpt., May Sum.). Light on yellow-poplar and rare on sassafras throughout southwestern area; adults still feeding and ovipositing. (Kulman).

PALES WEEVIL (Hylobius pales) - NORTH CAROLINA - Continues to present serious problem to pine reproduction in pocosin (swampy) areas of coastal plain. (South. For. Pest Rptr., June).

LOCUST BORER (Megacyllene robiniae) -DELAWARE - Heavy in many black locust trees in area of New Castle County. (Boys).

LOCUST LEAF MINER (Xenochalepus dorsalis) - DELAWARE - Adults heavily feeding on black locust trees in area of New Castle County. (Boys). OHIO - Overwintering adults feeding on foliage of black locust in Holmes County. (Cannon).

FALL CANKERWORM (Alsophila pometaria) - NORTH CAROLINA - Defoliated oaks and other hardwoods on approximately 500 acres near Nags Head. (South. For. Pest Rptr., June). VIRGINIA - Two localized infestations comprising about 400 acres continue in Botetourt and Nelson Counties. (South. For. Pest Rptr., June).

FOREST TENT CATERPILLAR (Malacosoma disstria) - ALABAMA - Indications are that defoliation in Baldwin County will be as extensive as in 1965. (South. For. Pest Rptr., June). LOUISIANA - Buildup of populations occurring in area north of Krotz Springs. (South. For. Pest Rptr., June).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VIRGINIA - More prevalent than usual through State, particularly in southwest area. (For. Pest Surv. Rpt., May Sum.). COLORADO - Numerous on Gambel oak, Quercus gambelii, in area between Denver and Castle Rock. (Thatcher).

SATIN MOTH (Stilpnotia salicis) - VERMONT - Larvae stripping poplars and beginning to pupate at Milton. (Nielsen, June 20). NEW YORK - Larvae defoliating poplar trees in Peru area. (N.Y. Wkly. Rpt., June 20). OREGON - Causing extensive injury to poplar and willow trees in parts of Wallowa County. Adults emerging June 22. (Every).

PINE TIP MOTHS (Rhyacionia spp.) - RHODE ISLAND - R. buoliana larvae injuring

3-needled pine in Little Compton, Newport County. (Mathewson). NEW JERSEY - R. buoliana flying. KANSAS - R. frustrana emerging in Rice, Reno and McPherson Counties. All stages present. (Martinez, Reading). CALIFORNIA - Possibly R. pasadenana locally heavy on pine in Denair, Stanislaus County; medium to heavy on pine in Galt, Sacramento County. (Cal. Coop. Rpt.).

A TORTRICID MOTH (Choristoneura houstonana) - KANSAS - Reported from Phillips County. This is new county record. (Harvey).

MICROBAGWORMS (Astala spp.) - CONNECTICUT - Attracting attention in many parts of State. (Savos et al.). RHODE ISLAND - Observed in rural areas. (Mathewson).

AN OAK LEAF ROLLER (Croesia semipurpurana) - VIRGINIA - Caused severe damage to scarlet oak in James River District of George Washington National Forest for second consecutive year. (South. For. Pest Rptr., June).

WOOLLY ALDER APHID (Prociphilus tessellatus) - VIRGINIA - More common than for several years in Fluvanna County. (Watts).

SPRUCE GALL APHIDS (Adelges spp.) - RHODE ISLAND - Very large number of complaints on A. cooleyi and A. abietinus from throughout State. (Mathewson et al., June 17).

ASH PLANT BUGS (Neoborus spp.) - NEVADA - Infestations continue heavy on ash trees in Las Vegas, Clark County. (Sells, June 17). NORTH DAKOTA - Adults and nymphs causing severe damage to green ash near Killdeer, Dunn County. (Brandvik).

BLACK-HEADED ASH SAWFLY (Tethida cordigera) - IOWA - Larvae fed on ash leaves, leaving only petioles and large veins in Storm Lake, Buena Vista County. (Iowa Ins. Inf., June 20).

A PAMPHILIID SAWFLY (Pamphilius phyllisae) - PENNSYLVANIA - Larvae 3-4 per leaf on red oaks only near Lynn Run, Westmoreland County. Expected to defoliate several thousand acres. (Nichols).

A PINE SAWFLY (Neodiprion pratti pratti) - VIRGINIA - Moderate to severe defoliation around Dulles International Airport. (For. Pest Surv. Rpt., May Sum.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - VERMONT - Eggs hatching at Burlington. (Nielsen, June 20). RHODE ISLAND - Heavy infestation on boxelder in Warwick, Kent County. (Mathewson). UTAH - City spraying all ash trees at Nephi, Juab County. (Knowlton).

MAN AND ANIMALS

MOSQUITOES - NEVADA - Aedes dorsalis and A. nigromaculis adults heavy in Fallon and A. vexans most numerous in Stillwater, Churchill County. (Cooney, June 17). UTAH - Extremely numerous in Clear Lake area and moderately annoying in Delta and Deseret areas of Millard County. (Knowlton). WYOMING - Adults of several species very numerous and annoying to man and animals in meadow areas of Teton, Sublette and Carbon Counties. (Marks). MINNESOTA - During week ending June 18, larval collections totaled 1,021 in Metropolitan Mosquito Control District; Aedes vexans found in 474, Culiseta inornata in 189. In 16 blacklight traps, 812 females taken same period; Aedes abserratus accounted for 219, Anopheles walkeri for 187, C. inornata for 136. In 38 evening (15-minute) bite collections, Aedes excrucians accounted for 18 and A. abserratus for 11 of 48 females collected. In 214 daytime (5-minute) collections, A. excrucians accounted for 460 and A. abserratus for 268 of 1,555 females taken. Daytime bite collections indicate extreme importance of mosquito control in northern areas, especially for this Aedes group. Significant emergence of Mansonia perturbans occurred during week of June 20. During this period, 110 females taken in 10 minutes adjacent to permanent cattail swamp. Predicted emergence of A. vexans occurred on schedule; light trap catches and annoyance increased correspondingly during week of June 20. (Minn. Ins. Rpt.).

WISCONSIN - Numbers caught in mosquito traps at Madison highest recorded in over decade. Aedes vexans main species present. (Wis. Ins. Sur.). IOWA - Still most important pests. From 1-5 inches of rain June 11-12 made conditions ideal. Road ditches and pools around Ames produced 100-500 larvae per dip. (Iowa Ins. Inf.). NORTH CAROLINA - Aedes sticticus adults lighting at rate of 6-7 per minute in Bertie County area June 22; became problem in area June 10 as result of flooding of Chowan River prior to that date. (Ashton). VERMONT - Mosquito populations unusually high, and severely annoying statewide. (Nielsen, June 20).

HORN FLY (Haematobia irritans) - UTAH - Annoying in areas of Millard and Beaver Counties. (Knowlton). NORTH DAKOTA - Adults increased in western counties; up to 400 (average 160) per animal in McKenzie County. (Brandvik). SOUTH DAKOTA - Increased to 250 per side on untreated cattle in Charles Mix County; cattle irritated and bunched. (Kantack, Balsbaugh). KANSAS - Moderate to high in Jackson and Morris Counties; 150-250 per side of animal. (Gates, Brooks). OKLAHOMA - Counts per head 500 on cows and 800 on bulls in McIntosh County; 50-150 in Coal County, up to 50 on steers and cows and 350 on bulls in Cimarron County. Heavy on cattle in Mayes, Cotton, Stephens and Pontotoc Counties; moderate in Bryan and Cleveland Counties. (Okla. Coop. Sur.). MISSOURI - Ranged 100-1,000 per animal in northeastern and north central areas. (Houser). IOWA - Increased on pastured animals. (Iowa Ins. Inf., June 20). ILLINOIS - Abundant on pastured cattle in southern half of State. Appearing in northern half of State. (Ill. Ins. Rpt.). MARYLAND - Ranged 0-16 per head on dairy cattle in Frederick County. (U. Md., Ent. Dept.). ALABAMA - Observed on cattle in St. Clair County. (Jackson).

FACE FLY (Musca autumnalis) - UTAH - Annoyance to livestock becoming more apparent in Cache Valley and Franklin Basin, Cache County. (Knowlton). SOUTH DAKOTA - Extremely low on cattle in south central area compared with 1965. In 7 herds checked in Charles Mix County, 2 found. (Kantack, Balsbaugh). MISSOURI - Ranged 0-5 per face (average 2) on cattle in northeastern and north central areas. (Houser). MARYLAND - Ranged 7-16 per face on dairy cattle in Frederick County. (U. Md., Ent. Dept.).

HOUSE FLY (Musca domestica) - GEORGIA - Large numbers breeding in untreated chicken litter in northern area. (Nolan). SOUTH CAROLINA - Infestations building up rapidly. (Nettles et al., June 21). OKLAHOMA - Heavy around livestock in Pontotoc County; moderate around homes and barns in Cleveland County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Increasing on pastured cattle but numbers still low; less than 3 per animal. On dry-lot herds, 15-30 per animal common. (Ill. Ins. Rpt.). MISSOURI - Ranged 0-50 per animal (average 20) in herds observed in northeastern and north central areas. (Houser). IOWA - Increased on dry-lot cattle and animals on pasture. (Iowa Ins. Inf., June 20). SOUTH DAKOTA - Practically absent in cattle yards checked in Charles Mix County. (Kantack).

CATTLE GRUBS (Hypoderma spp.) - UTAH - In Beaver, Greenville and Minersville meadows, Beaver County, cattle conspicuously annoyed by adults. (Knowlton). NORTH DAKOTA - Adults running range cattle in Dunn County. (Brandvik).

TABANID FLIES - UTAH - Deer flies annoying cattle in Virgin River area. Some tabanids generally annoying in Beaver and Tooele Counties. (Knowlton). NEVADA - Chrysops discalis numerous and biting humans in Lyon and southern Washoe Counties. (Cooney). MARYLAND - Chrysops spp. annoying humans in many area. (U. Md., Ent. Dept.).

HOUSEHOLDS AND STRUCTURES

CARPENTER BEE (Xylocopa virginica) - INDIANA - Statewide infestations more numerous than in recent years. (Chandler, Favinger). CONNECTICUT - Damaging homes in Trumbull, Branford, Norwalk and Glastonbury. (Savos et al.). RHODE ISLAND - Damaging wood in building in Warwick, Kent County. (Hannah, June 17).

WHARF BORER (*Naccerdes melanura*) - INDIANA - Damaging pilings in State Office Building at Indianapolis. (Favinger).

BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults of several species 3-6 per 10 sweeps in western area alfalfa. (Marks). KANSAS - Many species present in large numbers in corn and alfalfa throughout State. (Wilde, DePew, Simpson). MISSISSIPPI - Several species present, approximately one per 20 feet of row in Yazoo County cotton. (Dinkins).

DAMSEL BUGS - UTAH - Largely *Nabis alternatus*, numerous in alfalfa fields in areas of Millard County. (Knowlton). WYOMING - *Nabis* spp. adults 8-14 per 10 sweeps in western area alfalfa. (Marks). WISCONSIN - *Nabis subcoleoptratus* common in alfalfa fields in central sandy areas of State. Counts of 4-5 per sweep were present in some fields. (Wis. Ins. Sur.). MISSISSIPPI - *Nabis* spp. approximately one per 10 feet of row in Yazoo County cotton. (Dinkins).

GREEN LACEWINGS (*Chrysopa* spp.) - INDIANA - Most common predator in apple trees in Vincennes area. (Dolphin).

AN ANTHOMYIID FLY (*Hylemya seneciella*) - OREGON - About 2,000 adults released in Benton County June 21 for biological control of tansy ragwort. (Every).

ALKALI BEE (*Nomia melanderi*) - WASHINGTON - Earliest emerging females renesting in Lowden area, Walla Walla County, June 7. (Eves).

A LEAFCUTTING BEE (*Megachile rotundata*) - IDAHO - Spring emergence underway in winter storages in Moscow, Latah County. Emergence of parasites, *Monodontomerus obscurus* (a Torymid) and *Leucospis affinis* (a leucospid) started June 11; peak emergence now underway. (Manis, June 17).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - CALIFORNIA - Single male fly taken in Steiner trap in sapote tree in Lomita, Los Angeles County, June 21. Det. by D. Estes, verified by M. Wasbauer and R. H. Foote. Lomita near San Pedro harbor. (Cal. Coop. Rpt.).

GRASSHOPPERS - OREGON - Highest count in Union County 4 per square yard 6 miles east of Elgin; second and third-instar *Melanoplus sanguinipes* and *M. packardii*. In Malheur County, 100,000 acres infested, threatening to very severe; hatch incomplete in Jordan Valley area, first and second-instar *M. sanguinipes* about 10 per square yard; may be higher in area when hatch complete. In area of Malheur and Baker Counties from Adrian to Dry Creek and to Jamieson and Huntington, counts very high, 5 to over 100 per square yard. Predominant species *Oedaleonotus enigma*, *Aulocara elliotti* and *M. sanguinipes*; 70 percent adults. (Parkinson). NEVADA - Mostly *Oedaleonotus enigma*, with few *Aulocara elliotti*, *Dissosteira carolina* and *Melanoplus sanguinipes*, 10-15+ per square yard in the "Old Burn" near Orovida and mostly *M. sanguinipes*, with some *A. elliotti*, *O. enigma* and few *D. carolina*, 15-20+ per square yard near Rock Creek Ranch, Humboldt County. (Earnist, June 17). Gravid *Melanoplus bivittatus* and *Oedaleonotus enigma* females present south of Battle Mountain, Lander County. (Earnist, Martineili). UTAH - Moderate to severe over several hundred acres of fields in Kanarraville, Iron County. (Sjblom, Knowlton). Most of heavy outbreak covering 12,100 acres in southern Uintah County and 6,000-acre outbreak in Moab area of Grand County now winged adults, largely on rangelands. (Knowlton). Nymphs extremely numerous about some farms in areas of Millard County. (Knowlton). COLORADO - Mixed populations 20-40 per square yard, with damage around field borders in Garfield County. Controls being applied. (Bulla). OKLAHOMA - Several species 1-10 per square yard on rangeland in northern Cimarron County; *Melanoplus* spp. and *Dactylotum bicolor pictum* common. Damage to rangeland, soybeans and alfalfa reported from most areas of State. Grasshoppers

20-30 per square yard on rangeland in some areas of Roger Mills County. (Okla. Coop. Sur.). KANSAS - Slight damage noted in border rows of corn in Shawnee and Osage Counties. Populations as high as 25 per square yard in Greeley County. (Gates, Brooks). MISSOURI - Melanoplus spp. nymphs, first to third instar, 5-15 per square foot in fence rows and crop margins in "delta" area of southeastern district; damage light. (Jones). Light in central and northern areas. (Houser). SOUTH DAKOTA - Grasshopper hatch continues light in several areas; less than 1 per square yard in alfalfa in Hutchinson, Charles Mix, Stanley, Haakon, Meade and Ziebach Counties. (Jones). Populations highest in area near Wewela, Tripp County; 20 per square yard within alfalfa fields, 25 along margins. In other fields, 5 nymphs per square yard, 10-15 along margins. Species, in order of dominance, include M. bivittatus, M. femurrubrum, M. differentialis. Grasshoppers mostly first to fourth instar in Tripp County area. (Burge). NORTH DAKOTA - Populations remained low throughout State. Marginal counts 3 per square yard in cropland in Golden Valley County. (Brandvik). MINNESOTA - M. bivittatus and M. differentialis hatch light in west, central and southwest districts. Hay removal increased egg development of all species. If warm weather continues, hatch of predominant M. femurrubrum should start June 26 to July 2. Epicauta fabricii (ash-gray blister beetle) present in low numbers. (Minn. Ins. Rpt.).

BET LEAFHOPPER (Circulifer tenellus) - IDAHO - Nymphal surveys during May indicated 42,000 acres infested, but much host plant cover in desert areas drying up outside planned spray area. (PPC West Reg., May Rpt.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Single adult collected in Dickens County in High Plains area. (Parker, Hanna, June 21).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - NEW HAMPSHIRE - Total of 3,017 winter webs cut and destroyed in 9 towns. (PPC East. Reg., May Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae infesting dooryard mango fruit at Miami and Fort Lauderdale. Larvae usually on ripe fruits but 23 adults reared from 2 small green mangoes. This apparently first record of larvae in green mangoes. Larvae also reported in green peaches at Miami. (Fla. Coop. Sur.). Larvae found in Surinam cherry at Grant, Brevard County. (Kendrick, June 17). This is first record for Brevard County. (Fla. Coop. Sur.). Larvae found in few fruits of dooryard grapefruit at Miami Beach (Swanson, June 14); found also on Valencia orange at Miami (Meyer, Swanson, May 25). Adults reared from infested oranges. (Fla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Larvae taken in sweep-net samples increased greatly. One field of oats in Hillsdale County yielded 1 adult per 100 sweeps when sampled in early May; recent recheck showed 226 larvae per 100 sweeps. Highest larval counts recorded per 100 sweeps in oats by county: Clinton 318, Hillsdale 78, Branch 132, Allegan 283, Calhoun 173, Eaton 150, Jackson 600. No summer adults observed in Berrien County research plots; first emergence expected coming week. All larval stages common in oats and late stages found in wheat. Many pupae present in wheat. (Moore, Gomulinski). OHIO - Crop survey in northwestern area indicates low but general infestation. No significant crop damage. (Turner et al.). INDIANA - Economic infestations on oats, 4-7 per stem, present in areas of St. Joseph, La Porte and extreme northern Marshall Counties. Common in oats throughout northern half of north central and northeastern zones. (Huber). ILLINOIS - Single specimens found in 4 locations southeast of Hoopston, Vermilion County, and at one location in Will County. Surveys negative in Cook, Kankakee, Iroquois, Ford, Livingston, McLean and La Salle Counties. (Ill. Ins. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Surveys in Cameron, Hidalgo, Dimmit, Maverick, Zapata and Zavala Counties negative. (PPC South. Reg., May Rpt.).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Active in areas where annual emergence earliest in north central area; Niagara, Monroe, Wayne, Ontario, Seneca, Cayuga and Onandaga Counties and other counties where infestations present.

Third-stage larvae injured roots of leaf lettuce and corn in localized area near Syracuse; fields where injury present in wheat in 1965. More than 50 percent of planting destroyed in one area. (Hamilton, June 22). OHIO - Adult activity began evening of June 22 in Cleveland. (Shepard).

GYPSY MOTH (*Porthetria dispar*) - VERMONT - Larvae active and devouring foliage. (Nielsen, June 20). RHODE ISLAND - Larvae late third instar in North Smithfield, Providence County. (Veilleux, June 17).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - ARKANSAS - Surveys conducted in all infested counties and adjacent areas negative. LOUISIANA - Inspections in 14 parishes showed mounds in Caldwell, Caddo, Lincoln, Morehouse, Natchitoches, Union and Will Parishes. MISSISSIPPI - Found for first time in Tallahatchie County. Inspections in 18 counties showed new infested areas in Attala and Franklin Counties. ALABAMA - Additional infested acreage found in Blount, Etowah, Fayette, Marion, Madison, Morgan and Randolph Counties. FLORIDA - Detection surveys in parts of Orange and Volusia Counties negative; small extension of infested area found in Lake County. GEORGIA - Minor extensions of known infested areas found in Berrien, Chatham, Coffee, Evans, Henry, Liberty, Pierce, Rockdale and Taylor Counties. Delimiting surveys in 21 other counties negative. SOUTH CAROLINA - Several extensions to infested area found in industrial section of Columbia, Richland County. (PPC South. Reg., May Rpt.).

JAPANESE BEETLE (*Popillia japonica*) - Adults active in vicinity of Savannah and Dahlonaga, GEORGIA; Wilmington, NORTH CAROLINA; and Tellico Plains, TENNESSEE. Approximately 35 percent of overwintered larvae pupated by June 20 at Moorestown, NEW JERSEY. (Hamilton, June 22). SOUTH CAROLINA - First adult of season reported in Pickens County. Also noted in upper Greenville County on grapes and vegetables. (Butler). NORTH CAROLINA - First prepupae found in Ashe and Watauga Counties May 27. Overwintering larval populations throughout area comparatively high and heavy; beetle populations will probably occur. First adult in McDowell County noted June 10. (Hamilton, Love). VIRGINIA - Adult observed June 10 in Culpeper County feeding on giant ragweed. (Hutcheson). First adult in southwest area at Damascus, Washington County, feeding on sassafras June 17. (Saunders). Adults also observed in Bedford, Fluvanna, Charlotte, Appomattox and Halifax Counties. (Cunningham, Saucier, Watts). DELAWARE - First adults of season noted on flowering crab apple in New Castle County June 18. (Lake). NEW JERSEY - First report in Wrightstown area, Burlington County. (Ins.-Dis. Newsltr.). RHODE ISLAND - Few isolated adults seen in Lincoln, Providence County. (Mathewson).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - To June 24, total of 12 males trapped in State; 8 in Imperial County; 4 in Riverside County. No field infestations recorded and no larvae taken. (Cal. Coop. Rpt.). ARIZONA - Infestations still found in Maricopa County. Bloom survey in Graham County showed no infested blooms, June 24. (Ariz. Coop. Sur.). TEXAS - Three moths collected at Waco, McLennan County. (Cowan et al.).

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - TEXAS - Adults or larvae collected at 27 sites in city of Brownsville. Approximately 10,000 acres involved. Entire infested area received first application low-volume malathion aerial treatment June 28-29. Positive sites also being treated with ground equipment. Over 2,000 traps in operation in south Texas and adjacent areas of Mexico. The State of Texas has invoked a quarantine to prevent spread. A regulation is in process under provisions of the Federal Plant Pest Act. (PPC, June 30).

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

Total of 24 cases reported in U. S. June 19-25 as follows: TEXAS - Uvalde, Willacy, Bee, De Witt, Caldwell and Live Oak 1 each, Terrell 2, Gonzales 3. ARIZONA - Maricopa 2, Yavapai 1, Gila 1. NEW MEXICO - Hidalgo 1, Dona Ana 1, Eddy 6. CALIFORNIA - Imperial 1. Sterile screw-worm flies released: Texas 19,994,250, Arizona 6,400,000, New Mexico 25,012,000, California 200,000, Mexico 67,934,400.

Current Cumulative Current Cumulative Current Cumulative

Table 1. Comparison of screw-worm samples identified during corresponding weeks in the United States.

Year	Positive Cases		Negative Cases	
1964	9	120	118	3787
1965	54	313	155	2964
1966	24	266	132	1931

Table 2. Comparison of United States screw-worm cases by State.

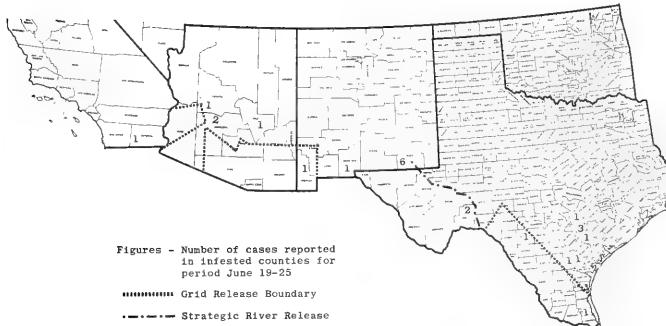
State	1964		1965		1966	
Texas	4	83	39	195	11	117
Ariz.	2	23	14	95	4	122
N.M.	3	4	1	23	8	21
Calif.	0	10	0	0	1	6

Table 3. Comparison of screw-worm cases inside and outside the United States portion of the Barrier Zone.*

Year	Inside Barrier Zone		Outside Barrier Zone	
1965	36	197	18	116
1966	9	195	15	71

Total of 100 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 4, Sonora 58, Chihuahua 17, Nuevo Leon 3, Tamaulipas 18. Total of 319 cases reported from Mexico south of the Barrier Zone.

* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of self-sustaining screw-worm populations in the United States. Effective May 23, 1965, portions of Arizona and California were added to the Barrier Zone. (Anim. Health Div.).



HAWAII INSECT REPORT

Insects of Regional Significance - Adult male GRASSHOPPER (Schistocerca vaga) captured in home at Makaha Valley Farms, Oahu. This first specimen taken in Makaha. Distances to other known infested areas: Waianae, 2 miles; Nanakuli, 7 miles; Sand Island and adjacent areas, 22 miles. (Au). Several adults and a nymph of a STINK BUG (Coptosoma xanthogramma) found on Canavalia cathartica (maunaloa) in Kaaawa, Oahu. This most northerly spread on windward side of island. (Suzukawa) Eggs and larvae of MELON FLY (Dacus cucurbitae) very light in large watermelon and cantaloup field (approximately 200 acres) in Kahuku, Oahu. Infested fruits mostly small. (Haw. Ins. Rpt.).

Corn - CORN PLANTHOPPER (Peregrinus maidis) medium on corn plants in Hilo, Hawaii Island. Cyrtorhinus mundulus, an egg-sucking mirid bug, not observed among plant-hoppers. (Yoshioka). Third to fifth-stage larvae of CORN EARWORM (Heliothis zea) medium to heavy in whorls of mature corn in Waianae, Waimanalo, and Koolauloa areas of Oahu. (Haw. Ins. Rpt.).

Beans, Tomatoes, Peppers - All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) medium in 3 acres of snap beans in Waimanalo, Oahu. Very troublesome despite weekly spraying. On Maui, all stages heavy on tomatoes in Kahului; light in 5,000 square feet of snap beans in Waikapu. (Kubo, Miyahira). Larvae of a LEAF MINER FLY (Liriomyza sp.) medium to heavy in 3 acres of snap beans in Waimanalo, Oahu. (Kubo). Larvae and adults of PEPPER WEEVIL (Anthonomus eugenii) medium in 5 acres of bell peppers in Kahuku, Oahu. All stages light in 1 acre of bell peppers in Kaaawa, Oahu. (Suzukawa, Sato).

Fruits - RED WAX SCALE (Ceroplastes rubens) nymphs heavy and adults light to medium on mango trees in Waimanalo, Oahu. (Haw. Ins. Rpt.). CHINESE ROSE BEETLE (Adoretus sinicus) heavily damaged foliage of young litchi plants in recently developed subdivision in Kaneohe, Oahu. (Misawa).

Shade Trees - All stages of CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) medium on Ficus retusa (Chinese banyan) in Waialae area of Honolulu and light on F. retusa in Kahuku, Oahu. Nymphs and adults of Montandoniola moraguesi (an antho-corid bug) moderate in Waialae and light in Kahuku. M. moraguesi predaceous on G. ficorum. (Haw. Ins. Rpt.).

INSECT DETECTION

New County Records

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Single male in Steiner trap in Los Angeles County. (p. 616).

ALFALFA WEEVIL (Hypera postica) - INDIANA - Newton, Lake, Steuben and Allen. NORTH DAKOTA - Billings, Hettinger, Mercer, McKenzie and Williams Counties. (p. 603).

A BLISTER BEETLE (Lytta reticulata) - OKLAHOMA - Texas County. (p. 604).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NORTH DAKOTA - Oliver County. (p. 604).

PEAR SAWFLY (Hoplocampa brevis) - PENNSYLVANIA - Lehigh County. (p. 610).

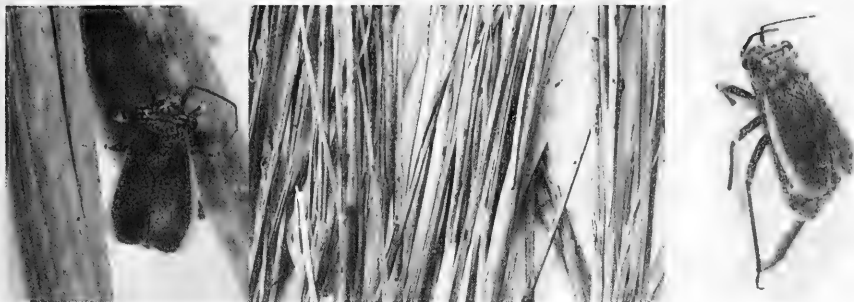
HOLLYHOCK WEEVIL (Apion longirostre) - UTAH - Beaver County. (p. 612).

A TORTRICID MOTH (Choristoneura houstonana) - KANSAS - Phillips County. (p. 614).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Brevard County. (p. 617).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - MISSISSIPPI - Tallahatchie County. (p. 618).

WHEATGRASS BUGS (Labops spp.)



Labops sp. Adults and Damage to Wheatgrass

Economic Importance: Grass bugs have caused important damage to crested wheatgrass and other grasses in western areas of the United States in certain years. This is the fifth consecutive year that severe damage (up to 50 percent) to crested and intermediate wheatgrass has been observed in Utah. In that State, approximately 58,000 acres of planted grass areas have been severely injured in Garfield and Kane Counties this year, while large areas of planted grasses have been moderately injured in Iron County. The insects stunt the growth of wheatgrasses and cause the leaves to turn yellow or white. In addition, a drop in the yield of seed and hay may occur. Serious damage to wheat took place at the edges of the fields when the insects moved from adjacent crested wheatgrass fields in Montana in 1938, 1951 and 1952. In New Mexico, extensive injury to crested wheatgrass in reseeding areas occurred in 1963 in the Santa Fe National Forest. While L. hesperius is apparently the principal species found in these outbreaks, Labops spp., Irbisia spp. and possibly other plant bugs may be involved.

Distribution: L. hesperius has been recorded in Arizona, Colorado, Idaho, Montana, Nebraska, New Mexico, Oregon, South Dakota, Utah, Washington and Wyoming. Canadian records for the species included: Alberta, British Columbia and Yukon Territory. According to Slater (1954), eastern records of this species probably should be referred to as L. hirtus Knight.

Hosts: Crested and intermediate wheatgrasses and other grasses. Wheat, barley and rye also may be attacked.

Life History and Habits: Owing to the lack of biological studies on Labops, no definite information is available. Adults have been collected from early May through late July. They are generally most abundant in Wyoming in May and June. Eggs apparently are deposited from late May on to July. As far as known, overwintering takes place in the egg stage and there is one generation a year. The adults are fast moving and difficult to catch.

Description of L. hesperius: Adults are about 6 mm. long and dull black in color except for a pale streak along the edge of the wing covers and pale spots on the head. The hairs on the hind tibiae do not obscure the true spines. The eyes are large, glossy, and project to the sides on narrow stalks. Some females have abbreviated wings. Fifth-instar nymphs are brownish-yellow in color. The eyes are set on stalks and the head slopes downward as in the adult. Obvious difference between L. hesperius and other North American Labops: This is the only species in

which the two side lobes of the head are swollen so as to obscure the middle lobe when viewed from the side. The projecting eyes are characteristic of the genus.

Guide to Survey for Labops: Look for discoloration in stands of wheatgrasses and other grasses. If Labops are present, close examination of leaves will show yellow and white spotting. Spread a clump of grass and look for brownish-yellow, long-legged nymphs and black adults about 6 mm. long. The large, black eyes of these bugs are a conspicuous aid in field identification (see illustration). The bugs may be found also under debris around the plants. Both adults and nymphs can be collected with a sweep net although the adults move rapidly. If planted fields are not severely infested, the insects may be more easily found in the margins.

Major references:

1. Denning, D. G., 1948, The Crested Wheat Bug, Wyoming Agricultural Experiment Station, Circular 33, 2 pp. Mimeographed
2. Froeschner, R. C., 1966, Personal communication
3. Knowlton, G. F., 1966, USDA Cooperative Economic Insect Report 16(25)
4. Pepper, J. O. et al., 1953, Montana Agricultural Experiment Station, Bulletin 484:8
5. Slater, J. A., 1954, Brooklyn Entomological Society, Bulletin 49(3):57-65; 49(4):89-94

(Pictures of adults through courtesy of Utah State Department of Agriculture.)



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM adult flights heavy in Maryland, Illinois and Wisconsin; larvae moderate in Minnesota. (pp. 627, 657, 658). POTATO LEAFHOPPER adults heavy in some alfalfa. POTATO PSYLLID numerous in potato plantings in Wyoming and Colorado. (p. 628). GRASSHOPPERS continue active on rangeland and crops in some areas. (pp. 653, 654). CHINCH BUG heavy in grains in Texas, Oklahoma and Kansas. (p. 630). SAY STINK BUG heavy and/or damaging several crops in various areas. (pp. 631, 635, 639, 640, 641). RANGE CATERPILLAR of considerable concern to ranchers in New Mexico; other unusual outbreaks of Lepidoptera include WHITE-LINED SPHINX, PAINTED LADY, and a PSYCHID MOTH in some western States. (p. 630, 632).

ALFALFA WEEVIL damaging in New England, and other Eastern States; very heavy on alfalfa in Black Hills area South Dakota. Distribution map. (pp. 632-634). THRIPS damaging peanuts in Oklahoma and North Carolina. (p. 636). BOLL WEEVIL unusually heavy in North Carolina and Alabama for time of year; also heavy in South Carolina and Tennessee. COTTON FLEAHOPPER principal insect damaging cotton in Waco area of Texas; also of concern in Arizona, Oklahoma and Louisiana. TOBACCO FLEA BEETLE adults continue destructive to young tobacco in Maryland. (pp. 636-639).

COLORADO POTATO BEETLE heavy and widespread on potatoes in southwest Idaho; also of concern in some Eastern States. (p. 640). MEXICAN BEAN BEETLE damaging beans in Colorado and Nebraska; also reported in Delaware and Alabama. (p. 641). ONION THRIPS heavy and damaging onions in Idaho and Colorado. (p. 642).

APPLE MAGGOT adults appearing in the East. (p. 644). FOREST TENT CATERPILLAR caused complete defoliation of hardwoods in large area of Minnesota. SATIN MOTH defoliated willows and cottonwoods in Oregon. (p. 647). STABLE FLY increasing and annoying livestock in some areas. (p. 650).

JAPANESE BEETLE adults active in East, emerging in Ohio. First WHITE-FRINGED BEETLE adults of season in Arkansas. (p. 654).

Status reports on FORMOSAN SUBTERRANEAN TERMITE in Texas and Louisiana, and MEDITERRANEAN FRUIT FLY in Brownsville, Texas, (p. 653).

Detection

- CITRUS BLACKFLY infestation found at Matamoros, Mexico; first infestation in this area since eradication in 1956. (p. 652).
- Detection Reminder - Look for these Chafers. (p. 659).

New county records see page 654.

Reports in this issue are for week ending July 1, unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....627

Insects Affecting

Corn, Sorghum, Sugarcane.....	628	Potatoes, Tomatoes, Peppers.....	640
Small Grains.....	631	Beans and Peas.....	641
Turf, Pastures, Rangeland.....	632	Cole Crops.....	642
Forage Legumes.....	632	Cucurbits.....	642
Soybeans.....	636	Deciduous Fruits and Nuts.....	643
Peanuts.....	636	Citrus.....	645
Cotton.....	636	Small Fruits.....	645
Tobacco.....	639	Ornamentals.....	646
Sugar Beets.....	639	Forest and Shade Trees.....	646
Miscellaneous Field Crops.....	640	Man and Animals.....	650

Distribution of Alfalfa Weevil (Map).....633.

Beneficial Insects.....652

Federal-State Plant Protection Programs.....652

Insect Detection.....654

Status of the Screw-worm in the Southwest.....655

Hawaii Insect Report.....656

Light Trap Collections.....657

Look for These Chafers.....659

Corrections.....660

Restoration of Name Chorthippus curtipennis (Harris) (Orthoptera, Acrididae).660

WEATHER BUREAU'S 30-DAY OUTLOOK

JULY 1966

The Weather Bureau's 30-Day Outlook for July calls for temperatures to average above seasonal normals in the northeastern quarter of the Nation. Below normal temperatures are indicated for the Pacific Northwest as well as the southern Plains and the gulf and south Atlantic coastal regions. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal over the Pacific Northwest and also over the western half of the southern Plains, the gulf coast region and the south Atlantic Coast States. Subnormal rainfall is indicated over the Northeast as well as the middle Mississippi Valley while near normal totals are expected in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Continued on page 658.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - MARYLAND - Adults heavy in blacklight trap at Snow Hill, Worcester County. (U. Md., Ent. Dept.). ILLINOIS - Flights heavy in northern area; more than 1,500 taken in light trap each night, June 24 and 25. Small larvae swept from alfalfa and grass in small numbers. (White et al.). WISCONSIN - Blacklight trap catches indicate adult flight increased noticeably at few locations. Small larvae noted in lodged portion of oats in southwest and in a few grassy pea fields. (Wis. Ins. Sur.). MINNESOTA - Appearing in Mower County. Second and third stages moderate in scattered fields. (Minn. Ins. Rpt.).

BEEF LEAFHOPPER (Circulifer tenellus) - NEVADA - Heavy curly top symptoms appeared on up to 10 percent of plants in some sugar beet fields in Lovelock, Pershing County. (Arnett, Lyda). UTAH - Populations at St. George fairly high, 17 adults and 4 nymphs per 25 sweeps June 10; 4 adults and no nymphs in 25 sweeps on Cleome lutea at Gunlock, Washington County. (Knowlton).

BUDWORMS (Heliothis spp.) - GEORGIA - Light to heavy across tobacco belt. (French).

CORN EARWORM (Heliothis zea) - ARIZONA - Light to moderate on sorghum in Maricopa County. Few fields treated. (Ariz. Coop. Sur.). NEW MEXICO - Caused light damage to foliage and whorls of sweet corn near Kirtland, San Juan County. (Heninger, Kloepfer). OKLAHOMA - Larvae moved to ears after causing moderate damage to tassels in Garvin County field corn. Heavy in field corn in Mayes County; 0.75 per stalk in Stephens County. Ranged 1-3 per ear in sweet corn in Marshall County; heavy in Okmulgee and Payne Counties. Light, up to 4 per 10 sweeps, in alfalfa in south central and southwest areas. (Okla. Coop. Sur.). MISSOURI - Very light, less than one percent of plants infested, on field corn in southwest, west central and central districts. (Houser). GEORGIA - Light in sweet corn in Clarke County. (Livingston). NEW JERSEY - Adults appearing throughout central and southern counties; taken in light traps June 27 at Masonville, Aura, Halltown, Seabrook, and Cedarville. (Ins.-Dis. Newsltr.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEVADA - Light to medium on sorghum in Moapa Valley, Clark County. (Cooney). COLORADO - Small numbers observed in some corn in Pueblo, Crowley, Bent and Prowers Counties. Not at economic level to date. (Schweissing). OKLAHOMA - Moderate to heavy in corn, grain sorghum and broomcorn in south central area, but numbers decreasing in many fields as plants begin to mature. Heavy in grain sorghums in Mayes County and in Sudan grass in Payne County; 70-80 per plant in Tillman County grain sorghum. (Okla. Coop. Sur.). KANSAS - Populations very high (500 to 2,000 per plant) in some corn and sorghum in northeast and east central areas. Damage to young sorghum reported in area. This damage in conjunction with lack of rain. (Simpson). NEBRASKA - Moderate on sorghum in Sarpy County. No damage observed. (Lowe, June 24). Building up in south and southeast. High incidence of predators and hot weather expected to help control populations. (Rhine). MISSOURI - Light, 0-10 per plant, in corn and grain sorghum in southwest, west central and central districts. (Houser). ILLINOIS - Few individuals found on corn in northern half of State. (White). Colonies of 25-30 aphids present on sweet corn in East St. Louis area. (Randell). INDIANA - First apterous colonies of season on early corn (shooting tassels) in Vincennes area, Knox County. Colonies averaged 80 aphids per tassel; infestations averaged 4 percent. (Huber).

GREENBUG (Schizaphis graminum) - MINNESOTA - Up to 400 per 100 sweeps in some oats in central district. Counts per 100 sweeps generally as follows: Southeast 4, central 100, south central 15, southwest 46, west central 25, northwest 6. Oats, wheat and barley heading in southern half to two-thirds of State; should escape serious damage. (Minn. Ins. Rpt.). ILLINOIS - Very small numbers remain in oats in northern area. (White).

HORNWORMS (Manduca spp.) - TENNESSEE - Observed on tomatoes in several areas. (Johnson, June 27). OKLAHOMA - M. sexta and M. quinquemaculata light on tomatoes in Payne County. (Okla. Coop. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Adults and nymphs common in alfalfa in southern and southwestern counties. Averaged 1 per 2 sweeps in most alfalfa; as high as 10 per sweep in uncut field near Brodhead. None noted on commercial potatoes in southeast; common on commercial lima beans in Rock County. (Wis. Ins. Sur.). ILLINOIS - Counts per 100 sweeps 300-1,100 adults and 0-400 nymphs in second-crop alfalfa in northern half of State. (White, Kuhlman). MISSOURI - Ranged 15-100 per 20 sweeps in alfalfa in southwest quadrant of State. (Houser). KANSAS - Averaged 10 per 10 sweeps in alfalfa in Marshall, Nemaha, Brown and Jackson Counties. Counts 20-30 per 20 sweeps in soybeans in Brown, Jackson and Pottawatomie Counties. (Simpson). PENNSYLVANIA - Averaged 1 per 10 sweeps in Union County alfalfa. (Gesell). MARYLAND - Ranged 1-14 per sweep on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). DELAWARE - Nymphs building up on lima beans in Kent and Sussex Counties. (Burbutis, Davis).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Numerous in early potato plantings in Gilcrest area, Weld County. Controls applied. (Boyes). Adults 0-9 per 100 sweeps in 28 fields in Otero, Bent and Prowers Counties; less than one in most fields. (Schweissing). WYOMING - Adults 1-2 per 100 sweeps in potato fields in Laramie and Platte Counties. No nymphs found on leaves. Controls recommended in fields where no systemic insecticides used at planting. (Marks).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - MINNESOTA - Increased sharply in small grain in southwest, south central, west central and northwest districts; 225-510 per 100 sweeps. Increased on all flax fields surveyed. (Minn. Ins. Rpt.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WISCONSIN - Continues to increase; 20 per sweep noted in field of regrowth alfalfa near Arena. Winged forms common, present in most oat fields where alfalfa interseeded in sandy areas at Spring Green and Brodhead. (Wis. Ins. Sur.). INDIANA - Building up in Ohio River counties; 2 per 5 sweeps to 19 per sweep on second-growth alfalfa. (Huber). ILLINOIS - Winged and wingless forms ranged 0-1600 per 100 sweeps on second-crop alfalfa in northern half of State. Heaviest on light, sandy soil in northwest. (White). MISSOURI - Counts in alfalfa in southwest quadrant of State variable; 10-150 per 20 sweeps and caused noticeable damage in few fields. (Houser). KANSAS - Ranged 15-20 per 10 sweeps in most alfalfa in Marshall, Nemaha, Brown and Jackson Counties; 0.3 per sweep reported at Fort Hays Experiment Station, Ellis County. (Harvey). ARKANSAS - Extremely heavy on alfalfa in Pulaski County; estimated 1,000 plus collected in 25 sweeps. (Boyer, Barnes). Continued dry weather could contribute to buildup to economic levels in all areas of State. (Ark. Ins. Sur.). OKLAHOMA - Ranged 200-1,000 per 10 sweeps in alfalfa in Garvin, Stephens, Murray, Carter and Bryan Counties; heaviest in Joy area, Murray County, and Yuba area, Bryan County. Ranged 10-30 per 10 sweeps in Tillman County. (Okla. Coop. Sur.). NEW MEXICO - Light in alfalfa near Peralta, Valencia County. (Heninger). WYOMING - Very small numbers found for first time this season in Goshen County alfalfa. Counts per 10 sweeps 4-6 in La Grange area and 3-5 in Lingle area. (Wingfield, Marks).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NORTH DAKOTA - Pupation 83 percent in Cass County. Few moths appeared in light traps. (Brandvik, Kaatz). NEBRASKA - Damage very light in Lincoln, Saunders, Hall and Dawson Counties. Borers about 10-14 days later than normal. (Rhine et al., June 24). KANSAS - Egg hatch complete June 21. Some infestation in most fields in Doniphan, Atchison and Jackson Counties, but less than 5 percent at economic level. (Brooks). MISSOURI - Percent infested plants very light (1-12) in southwest, west central, and central districts; 90 percent of larvae entered stalks in southwest district. Larvae entering stalks and leaf midribs in central district. (Houser). In northwest district, leaf feeding damage noted on 8-80 percent of plants; larvae entering leaf midribs. (Thomas). IOWA - At Ankeny moth emergence 80 percent. In field of knee-high corn, 25 percent of plants showed leaf feeding June 24. (Iowa Ins. Inf.). MINNESOTA - Egg masses restricted to tall corn; counts per 100 plants as follows: Southwest 42, south central 34, west central 22, central trace, southeast trace, northwest zero.

First instars on some plants. Egg masses in southwest district two-thirds in white stage; remainder black stage. (Minn. Ins. Rpt.). WISCONSIN - Eggs hatching; few second-stage larvae present in few southern areas. First-generation populations appear somewhat higher than last season. Larval feeding more evident although freshly laid eggs still present. Percent infestation 20 on early sweet corn 36 inches extended height of Mazomanie; 24 at Jamesville and 12 at Brodhead on field corn 40 inches extended height; 12 at Gratiot on field corn 36 inches extended height. Corn very uneven. As only larger corn examined, most succeeding egg laying will probably occur on more scattered basis; thus populations in any one field should not be too great. (Wis. Ins. Sur.). ILLINOIS - Adult emergence complete except in northwest district where it reached 77 percent June 28. In northwest corn 44-72 inches, counts 0-60 (average 23) egg masses per 100 plants with 76 percent of masses hatched. From 0-50 (average 30) percent of plants infested; averaged 2.5 first to third instars. Populations lower in west, central, east and north-east districts. (White, Kuhlman). INDIANA - In Posey, Vanderburgh and Gibson Counties, infestations range 8-68 percent on corn 30 inches to 4 feet high; second and third instars predominant. In Knox and Sullivan County areas, infestations 4-12 percent with occasional third instar present. (Huber). In west central and northwestern areas, infestations of early instars (mostly whorl feeding) 0-44 percent. (Huber, Matthew).

MICHIGAN - Sizable numbers of adults continue in blacklight traps; eggs and first instars noted June 28 on Wayne County sweet corn. (Newman). TENNESSEE - Infesting corn in several areas. (Johnson, June 27). KENTUCKY - Infestations variable over State. (Miller). VIRGINIA - First-brood larvae "staggered" by weather conditions on Eastern Shore, thus prolonged adult emergence and overlapping of broods will result. Peak should occur about July 10-15. (Hofmaster, June 29). MARYLAND - Numbers generally above normal; whorl infestations of 20-80 percent common in more advanced corn in all sections. (U. Md., Ent. Dept.). DELAWARE - Pupation first noted June 28 in Kent County. (MacCreary). NEW JERSEY - Larvae injuring tassels of sweet corn in Warren and Burlington Counties. (Ins.-Dis. Newsltr.). NEW YORK - Moth emergence, from cage population of about 100, reached 80 June 23; lower numbers of moths seen in fields and few found by beating about 200 feet of fence row at New Paltz. First egg mass noted in Niagara County June 23. (N. Y. Wkly. Rpt.).

GARDEN WEBWORM (*Loxostege similalis*) - MISSOURI - Larvae light to heavy in random fields of corn and sorghum in southeast. (Houser).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - MISSOURI - Occasional larva noted on corn in southwest quadrant of State. (Houser). Economic infestations present in random fields of corn in southwestern "delta" area; lesser numbers present in several other fields. (Jones). MISSISSIPPI - Whorl infestation 5-20 percent in several fields of young corn in Itawamba County. (Dinkins).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Light in corn in Colbert and Morgan Counties; heavy in Geneva, Houston and some other southern counties. (Jones et al.).

STALK BORER (*Papaipema nebris*) - ILLINOIS - Larvae infesting 10 percent of corn plants in marginal rows in northwest district, 4 percent in west district. (White).

CUTWORMS - VERMONT - Activity continues on corn plantings. (Nielsen, June 27). PENNSYLVANIA - *Euxoa messoria* caused considerable damage to corn in Bedford County. (Gesell). OHIO - Moderate *Agrotis ipsilon* infestation involving about 10 percent plant loss noted in field of young corn in Clark County. (Polivka).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - TENNESSEE - Infesting corn in several areas. (Johnson, June 27). ALABAMA - Severe in corn in Lauderdale County. Light in early home garden corn in Morgan County. (Hall et al.). MISSISSIPPI - First-generation adults now in second week of flight. (Dinkins).

A SOD WEBWORM (*Crambus* sp.) - PENNSYLVANIA - Late-stage larvae caused considerable damage to large field corn in Greene County. (Udine, June 28).

A PSYCHID MOTH (*Apterona crenulella*) - IDAHO - Larvae caused considerable damage to field corn south of Hansen, Twin Falls County, June 15. Reported from wide variety of hosts throughout southern area. (Peay, Manis, June 24).

CORN ROOTWORMS (*Diabrotica* spp.) - SOUTH DAKOTA - Hatch progressing in fields; some second instars present. Peak will occur later this year; hatch somewhat delayed compared with 1963 through 1965 seasons. Hatch apparently influenced by cool soil temperatures this spring. Larval numbers still low. Second-stage larvae 3-4 per plant in corn south of Geddes, Charles Mix County. (Kantack). MINNESOTA - Hatching in southern half of State. First and some second instars found on corn roots. Larvae 0-12 per plant in Carver, Hennepin and Wright Counties. Counts low in southwest, south central, west central and southeast districts. First larvae of season found June 28; about one week later than in 1965. Random checks throughout corn fields urged. (Minn. Ins. Rpt.). NEBRASKA - Most larvae in early instars. Degree of infestation varies within fields; no severe feeding observed. (Weekman, June 24). Small larvae to prepupae noted in eastern area. Emergence expected first week of July. (Lawson, Weekman, Munson). KANSAS - Occasional late-stage larva found in treated fields in Jefferson County June 28. Hatch nearly complete. Larval development quite variable in northeast. (Brooks).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - TEXAS - Adults and larvae heavy in corn field beginning to silk in Burnet County. (Sawyer). OHIO - Eggs hatching for some time in western, northwestern and northern areas. Some larvae about half grown; but majority younger. (Poliyva). WISCONSIN - Larvae about half inch long. About 6 per plant noted in field in corn for at least 7 years. Root systems in fair condition despite considerable tunnelling. (Wis. Ins. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - MISSOURI - Larvae 1-17 per root system on corn in northwest district. Majority nearing full growth; pupation underway. (Thomas). SOUTH DAKOTA - Eggs hatching. First-stage larvae collected June 21 in Lincoln, Clay, Yankton and Hutchinson Counties. (Nearman, Kantack).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - SOUTH DAKOTA - Adults on corn near Centerville, Clay County, and alfalfa in Ziebach and Meade Counties. (Jones, Nearman).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Adults 5 per plant on large acreage of field corn near Frederick, Frederick County. (U. Md., Ent. Dept.).

WIREWORMS - SOUTH DAKOTA - Injury reported on untreated sorghum and corn. In fields examined past 10 days, damage extensive enough that fields disked and re-planted. (Jones). NORTH CAROLINA - *Melanotus communis* pupating in Washington County field June 22, but most still larvae. (Mount).

CHINCH BUG (*Blissus leucopterus*) - TEXAS - Heavy around bases of grain sorghum plants in several fields throughout Falls County. (Wood). OKLAHOMA - Ranged 12-15 per linear foot in grain sorghum in Grady County; heavy in Mayes, Tulsa and Payne Counties; moderate in Rogers and Okmulgee Counties. Light on Sudan grass in Payne County; 3-6 per plant on grain sorghum and 1-5 per plant on broomcorn in Garvin County. (Okla. Coop. Sur.). KANSAS - High numbers killing young sorghum plants in fields along line extending from Sumner County to Marshall County. As many as 200 per stalk found in fields adjacent to cut wheat in Marshall, Riley, Pottawatomie, Dickinson, McPherson, Marion and Harvey Counties. Few or no bugs present in fields some distance away from small grains in this area. Controls being applied in many instances with quite variable results, largely dependent on application technique. (Simpson). MISSOURI - Very light, 0-10 per plant, in marginal rows of corn bordering small grains in Rich Hill area, Bates County. (Houser).

FALSE CHINCH BUG (*Nysius ericae*) - TEXAS - Heavy on grain sorghum heads in several fields throughout Guadalupe and Jasper Counties. (New, Richardson).

SAY STINK BUG (Chlorochroa sayi) - ARIZONA - Few heavy infestations found on sorghum in Maricopa County. (Ariz. Coop. Sur.).

THRIPS - MARYLAND - Heavy on corn, causing considerable streaking and curling of lower leaves in all sections. Injury accentuated by dry, hot weather. (U. Md., Ent. Dept.). ILLINOIS - Infesting most corn in State. Light silvering of lower leaves in northern half of State. (White). NEBRASKA - Infesting corn in Red Willow County. (Pruess, June 24).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Adults heavy and depositing eggs on grain sorghum in fields where heads just entering from boot stage in Victoria and Refugio Counties. (Hamman, Hoermann).

SPIDER MITES (Tetranychus spp.) - COLORADO - Continue light on lower corn leaves in many fields in Pueblo, Crowley, Otero, Bent and Prowers Counties. Warm, dry weather provides optimum conditions for increase. Low numbers found on lower leaves of some sorghum throughout Arkansas Valley. (Schweissing).

GARDEN SYMPHYLAN (Scutigerebella immaculata) - OHIO - Reported infesting corn in Auglaize County field. (Blair).

SLUGS - MICHIGAN - Recently injured corn in Lenawee, Clinton, Shiawassee and Eaton Counties. Most severely damaged fields with abundance of decaying organic matter nearby. (Comstock et al.).

SMALL GRAINS

STALK BORER (Papaipema nebris) - MINNESOTA - Caused white heads in small grain in south central and southwest districts. (Minn. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OREGON - Heavy populations reported on barley in Douglas County May 28, reduced to light numbers in unsprayed fields by syrphid flies and other predators. (Vertrees).

SAY STINK BUG (Chlorochroa sayi) - COLORADO - Now more widespread in southeastern area and damaging barley. (Col. Ins. Sur.).

A GRASS BUG (Irbisia pacifica) - UTAH - Probably this species, severely damaged approximately 600 acres of wheat in Sanpete County. (Pernell, Knowlton).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Up to 2 (average less than one) per plant on barley in central, north central and northeastern counties. Adults entered leaf sheaths. Barley in jointing to heading stages. (Brandvik, Kaatz). MINNESOTA - Quite general, but in low numbers throughout northwest district barley fields. (Minn. Ins. Rpt.).

CHINCH BUG (Blissus leucopterus) - NEBRASKA - Light in barley in Gage County area. No economic damage reported. (Reed, June 24).

WHEAT STEM MAGGOT (Meromyza americana) - NEBRASKA - Medium in Cuming County wheat. (Pruess, June 24). MINNESOTA - White heads found in southcentral district. (Minn. Ins. Rpt.).

WHEAT STEM SAWFLY (Cephus cinctus) - OHIO - About 1-3 percent of wheat cut and down in large field in Highland County, probably by this species. Larvae approaching full growth; present at base of stem beneath point where stem cut and breakage occurred. No damage observed in several other fields checked in southern part of State. Wheat ripening and some early combining in progress throughout southern area. (Rose).

TURF, PASTURES, RANGELAND

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Again causing considerable concern to ranchers in Colfax, Union and Harding Counties; serious threat to grama grass in area. Light to heavy infestations found during survey in area to determine extent of infestation. Larvae probably second or third instar. (Heningger, Kloeffer).

WHITE-LINED SPHINX (Celerio lineata) - OREGON - Infestation heaviest in years in several uncultivated, weedy fields of Marion, Benton and Washington Counties. In most cases, larvae migrated into landscaped areas, homes, gardens and few crops causing great concern and some damage. Weeds such as plantain, dock, sorrel and other low-growing herbs, principal hosts. (Larson).

PAINTED LADY (Vanessa cardui) - IDAHO - Larvae extremely abundant in Southwick and other areas of Nez Perce County. Thistle in area completely defoliated; larvae migrating into crops and gardens, causing considerable damage to beans, potatoes, alfalfa and clover. Approximately 50 percent of larvae full grown and pupating; however, many larvae still only half grown. (Geidl, Manis, June 24). As of June 24, nuisance migrations over lawns and buildings occurred in Nezperce, Lewis County, (Dailey); larval populations general in Camas Prairie area, Idaho County. (Mink). OREGON - Second-generation adults appearing throughout Willamette Valley. (Larson).

A PSYCHID MOTH (Apterona crenulella) - UTAH - Larvae moderately numerous, damaging big sage and other range plants in area near Laketown, Rich County. (Knowlton).

NORTHERN-MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Heavy adult numbers attracted to lights on several properties in suburban Prince Georges County. (U. Md., Ent. Dept.).

TEN-LINED JUNE BEETLE (Polyphylla decemlineata) - IDAHO - Larvae killing sections of lawn at Parma, Canyon County. (Walker).

GRASS BUGS - UTAH - Leptoterna ferrugata plus smaller numbers of Irbisia sp. and Labops sp., bleaching color from wheatgrasses in lower Logan Canyon, Cache County. (Knowlton).

A SPITTLEBUG (Prosapia bicincta) - ALABAMA - Adults common and feeding on grass and shrubs throughout central and southern areas. Extremely heavy on lawn in Lee County; controls necessary. (Johnson et al.).

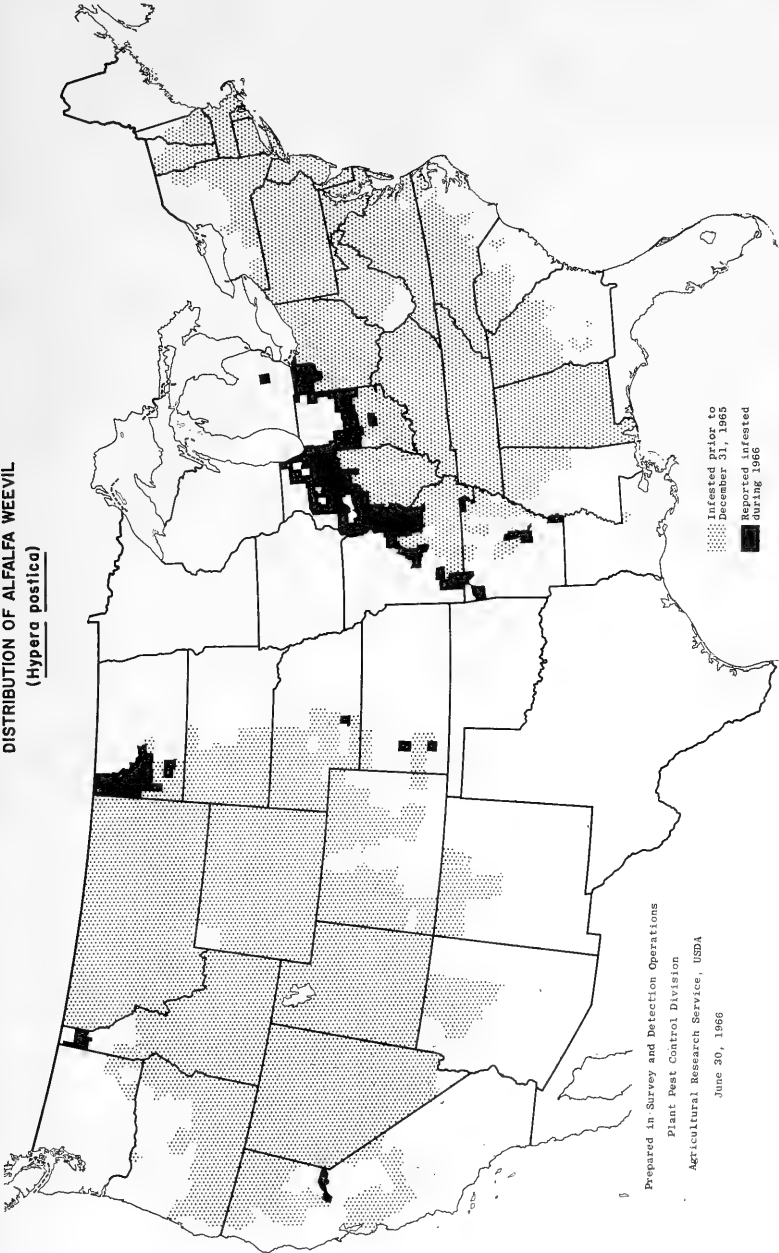
A MARCH FLY (Dilophus orbatus) - CALIFORNIA - Adults heavy on lawn area locally in San Diego, San Diego County. (Cal. Coop. Rpt.).

BERMUDAGRASS MITE (Aceria neocynodonis) - ARIZONA - Heavy population seriously damaging Bermuda grass lawns throughout Maricopa County. (Ariz. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW HAMPSHIRE - Larval feeding caused gray-brown color in several fields in Hollis area June 14. Late cutting of hay due to poor weather increased seriousness of problem. New adults emerged June 24. Damage to regrowth alfalfa light to moderately heavy in southern area where stubble treatments not applied. (Sutherland). VERMONT - Pupation well underway in all areas. (Nielsen, June 27). NEW JERSEY - Adults causing considerable injury to alfalfa in several Warren County fields. Considerable larval feeding reported in several fields in Hunterdon and Sussex Counties. Controls recommended. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Very severe in new spring alfalfa seedings. Dry weather prevents growth in these and other fields and only few staggings causing considerable damage on stunted plants. Outlook bleak for second cutting in many locations. Less than 0.5 inch of rain during June in central area. (Udine). MARYLAND - Adults and

DISTRIBUTION OF ALFALFA WEEVIL
(Hypera posita)



Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
June 30, 1966

larvae continue moderate on alfalfa in Frederick, Howard and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Some first and second instars on second-growth alfalfa in southern third of State. One untreated second-growth field in Switzerland County with 100 percent terminal injury; 9 larvae and 1 adult per sweep. (Huber). SOUTH DAKOTA - Larval numbers very high in uncut alfalfa in northern Black Hills area, although nearly 90 percent of first crop cut. In Spearfish and Whitewood areas of Lawrence County, up to 3,440 larvae per 100 sweeps taken from uncut alfalfa. In Belle Fourche River Valley near Fruitdale, Butte County, up to 2,500 larvae collected per 100 net sweeps. No new areas of infestation recorded this season. (Jones). WYOMING - Pupation nearly complete in alfalfa in Laramie, Goshen and Platte Counties; larvae 4-6 per 10 sweeps. Larvae 60 per 10 sweeps in Converse County alfalfa; pupation just beginning. (Wingfield, Marks). IDAHO - Larval population at peak in Jerome County; pupation underway. (Priest). UTAH - Damage serious on 100 acres of alfalfa south of Ouray, Uintah County. (Thornley). COLORADO - Second-growth alfalfa damaged where larvae heavy in Mesa, Delta, Montrose and Garfield Counties. Stripping plants of new growth set some fields back 7-10 days. (Bulla). NEW MEXICO - Mostly light in alfalfa near La Plata, San Juan County; 1-2 adults and 3-5 larvae per 25 sweeps in area. Averaged 1 adult and 15-20 larvae per 25 sweeps in alfalfa near Taos, Taos County. (Kloepfer, Heninger).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - MINNESOTA - New seedlings of sweet-clover in northwest district, especially Polk and Marshall Counties, severely damaged. (Minn. Ins. Rpt.). UTAH - Conspicuously damaged sweetclover foliage at Fruita and Hanksville, Wayne County. (Knowlton). CALIFORNIA - Adults medium on yellow sweetclover in Montague, Siskiyou County. (Cal. Coop. Rpt.).

CLOVER SEED WEEVIL (*Miccotrogus picrostris*) - IDAHO - Necessitated controls in alsike and white clover in Lewis County. (Dailey).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - MARYLAND - Adults common in 5 acres of alfalfa at Johnsville, Frederick County. Ranged 1-2 per sweep on red clover at Queen Annes County. (U. Md., Ent. Dept.).

PEA APHID (*Acyrtosiphon pisum*) - COLORADO - Increases apparent in second cutting of hay 6-10 inches high in Mesa, Delta, Montrose and Garfield Counties; 200-300 per 100 sweeps. (Bulla). WYOMING - Counts 65-80 per 10 sweeps in Laramie, Goshen and Platte Counties; 50-60 per 10 sweeps in Converse County. (Wingfield, Marks). NEVADA - Extremely light in Moapa Valley, Clark County alfalfa. (Cooney). NEW MEXICO - Light in alfalfa locally in San Juan and Taos Counties. (Kloepfer, Heninger). Mostly light in Dona Ana County alfalfa. (Gardia). OKLAHOMA - Counts 3-120 per 10 sweeps in south central area alfalfa, except for one field in Yuba area, Bryan County, 1,200 per 10 sweeps found. (Okla. Coop Sur.). NEBRASKA - Very light in southwest and central areas on alfalfa. Less than 100 per 50 sweeps. (Rhine). MINNESOTA - High in all districts. Varies with stand heights in field; 409-5,000 per 100 sweeps. Predators increased but cannot control aphids. (Minn. Ins. Rpt.). WISCONSIN - Populations very low in alfalfa. Counts in alfalfa seldom exceeded 1 per sweep although about 10 per sweep reported from Ashland County. (Wis. Ins. Sur.). INDIANA - Remains light on second-growth alfalfa in southern two-thirds of State. (Huber). MARYLAND - Averaged over 150 per sweep on 10 acres of alfalfa at Thurmont, Frederick County. (U. Md., Ent. Dept.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - ILLINOIS - Adults varied 30-220 (average 72) and nymphs 0-80 (average 12) per 100 sweeps in second-crop alfalfa in northern half of State. (White, Kuhlman). INDIANA - Adults range 100-500 per 100 sweeps on alfalfa in southern half of State. (Huber). OHIO - Random high populations noted on alfalfa and clover in Highland and Pike Counties; 6 adults per sweep in these counties. Considerably lighter in other clover fields in southern counties. (Rose).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults and nymphs 75 per 10 sweeps in alfalfa in Goshen and Platte Counties. (Wingfield, Marks). NEW MEXICO - Adults and nymphs 15-25 per 25 sweeps in Taos County alfalfa. (Kloepfer, Heninger). NEBRASKA - Averaged 100 per 50 sweeps on some alfalfa in southwest. (Rhine). KANSAS - Averaged 4-10

per 10 sweeps in alfalfa in Marshall, Nemaha, Brown and Jackson Counties; 4 per sweep at Fort Hays Experiment Station. (Harvey).

PLANT BUGS - NORTH DAKOTA - Adults and nymphs up to 1,000 per 100 sweeps in alfalfa near Binford, Griggs County. (Brandvik, Kaatz). WYOMING - Adelphocoris lineolatus adults 20-22 per 10 sweeps in alfalfa in Laramie, Goshen, Platte and Converse Counties. (Wingfield, Marks). ILLINOIS - A. lineolatus adults 10-40 and nymphs 0-10 per 100 sweeps in second-crop alfalfa in northern half of State. (White, Kuhlman). A. rapidus adults 0-20 per 100 sweeps in second-crop alfalfa in northern half of State. (White).

SAY STINK BUG (Chlorochroa sayi) - ARIZONA - Few heavy infestations found in alfalfa in Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Adults 4-6 per 25 sweeps in alfalfa near Raton, Colfax County. (Kloepfer).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Adult populations continue high in some legume forage in central and southwestern areas; 4-20 per sweep on clover and alfalfa. Largest numbers in field of alfalfa in Highland County. (Rose). WISCONSIN - Adults numerous in most alfalfa in southern counties; 3-10 per sweep. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing in alfalfa in Yuma, Maricopa and Pinal Counties; 150-350 per 100 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - Ranged 1-12 per 10 sweeps in alfalfa in Garvin, Murray, Stephens, Carter and Bryan Counties. (Okla. Coop. Sur.).

LEAFHOPPERS (Empoasca spp.) - ARIZONA - E. mexara continues to increase in Yuma County alfalfa, especially in Gila Valley. Counts as high as 300 per 100 sweeps. (Ariz. Coop. Sur.). INDIANA - Empoasca spp. adults 200-1,500 per 100 sweeps on alfalfa in southern half of State; heaviest in southern quarter. Nymphs 40-300 per 100 sweeps in southern area. (Huber).

THRIPS - WASHINGTON - Caused extensive distortion of terminals in some alfalfa along Snake River in Whitman County. (Luce).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Larvae noted on alfalfa in many areas of State. (Burbutis, Davis). MARYLAND - Averaged 1 larva per 5 sweeps on alfalfa at Thurmont, Frederick County. (U. Md., Ent. Dept.). ILLINOIS - Larvae 0-60 per 100 sweeps in second-crop alfalfa in north half of State. Some full-grown larvae in central area but only small first instars in northern areas. (White).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - OKLAHOMA - Small larvae present in most alfalfa checked in south central area; up to 3 per 10 sweeps. (Okla. Coop. Sur.). KANSAS - Larvae 1-2 per 10 sweeps in alfalfa in northeast area field. (Simpson). MISSOURI - Occasional larva noted on alfalfa in southwest quadrant of State. (Houser). DELAWARE - Larvae present on alfalfa in Kent County. (Burbutis, Davis).

NOCTUID MOTHS - DELAWARE - Ceramica picta larvae noted on alfalfa in one area of Kent County. (Burbutis, Davis). PENNSYLVANIA - Crymodes destructor larvae very abundant in Union County alfalfa field. Cut off new shoots and prevented new growth in patches totaling 5 acres in 20-acre field. (Gesell). NEVADA - Small numbers of Prodenia praefica larvae appearing in alfalfa in Lovelock, Pershing County. (Arnett). Autographa californica averaged 1 larva per sweep in Lovelock, Pershing County, alfalfa and in Fernley, Lyon County. Larvae heavily parasitized by tachina flies. (Arnett, Cooney).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Appearing in alfalfa in south central area; up to 3 per 10 sweeps. (Okla. Coop. Sur.). KANSAS - Ranged 0-3 per 10 sweeps in most alfalfa in northeast area. (Simpson). MISSOURI - L. similalis larvae present over western part of State. In southwest, 10-50 percent (average 15) of alfalfa plants webbed. (Houser).

SOYBEANS

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - ARKANSAS - Continues economic in young soybeans in northeast section. (Ark. Ins. Sur.). MISSOURI - Occasional larva noted on soybeans in southwest quadrant of State. (Houser). Economic in random fields of soybeans in southeastern "delta" area; lesser numbers in several fields of same crop. (Jones).

GREEN CLOVERWORM (*Plathypena scabra*) - ILLINOIS - Larvae 0-10 per 100 sweeps in central and 0-20 in west districts on 8 to 17-inch soybean plants. (White). DEL-AWARE - Larvae noted on soybeans in many areas. (Burbutis, Davis).

BLACK CUTWORM (*Agrotis ipsilon*) - ARKANSAS - Necessitated replanting of many acres of soybeans along Black River. Damage occurred on land which had been flooded. No damage past several days. (Ark. Ins. Sur.).

WEBWORMS (*Loxostege* spp.) - OKLAHOMA - Moderate numbers damaging soybean foliage in Muskogee County; 0.4 per 10 plants in Stephens County. (Okla. Coop. Sur.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MISSISSIPPI - Moderate in Sharkey County soybeans. (Dinkins).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - ILLINOIS - Adults 0-30 per 100 sweeps in 8 to 17-inch soybeans in central district. (White).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - MARYLAND - Adults evident on young soybeans in 2 areas of Queen Annes County. (U. Md., Ent. Dept.).

A JAPANESE WEEVIL (*Calomycterus setarius*) - MISSOURI - Adults caused light damage to marginal rows in soybean field in Forest City area, Holt County, June 23. This new county record. (Thomas).

THRIPS - MARYLAND - Moderate to very heavy on young soybeans over most of Eastern Shore. Injury accentuated by hot and dry weather. (U. Md., Ent. Dept.). DEL-AWARE - Sericothrips variabilis common on soybeans in many areas of State. (Burbutis, Davis).

SEED-CORN MAGGOT (*Hylemya platura*) - OHIO - Caused some injury to soybean seed in Marion County. (Parrott, Blair).

PEANUTS

A CERAMBYCID BEETLE (*Derobrachus brevicollis*) - GEORGIA - Destroyed 20 percent of stand in field of peanuts in Randolph County. (French, Trussell).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Moderate in peanuts in Okmulgee County; one noted in 15 terminals in Carter County. (Okla. Coop. Sur.).

THRIPS (*Frankliniella* spp.) - OKLAHOMA - Continue heavy in peanuts in Carter, Bryan and Okmulgee Counties. Considerable leaf distortion occurred. (Okla. Coop. Sur.). NORTH CAROLINA - *F. fusca* about normal on peanuts in Gates and Bertie Counties; however, cool weather in early part of season delayed growth. Damage much more evident than usual. (Campbell).

APHIDS - GEORGIA - Light to heavy on peanuts in south central and southwest areas. (French).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Ranged 460-2,100 (averaged 1,220) per acre in 4 fields of 6-leaf cotton examined in Northampton County; some

of heaviest infestations ever observed. (Robertson, June 24). SOUTH CAROLINA - Emergence continues heavy in Florence area; infestation generally heavy in untreated fields checked. Total of 77 adults taken on 9 groups of 10 potted plants. Percent larval infestation 0.5-5.2 in treated plots, 5-47 in untreated plots. (Taft et al., June 29). TENNESSEE - Punctured squares found in all fields surveyed in regularly infested portion of western area. Squares scarce, no counts feasible. In few fields where square counts could be made, percent punctured squares 10-30; very high for time of year. (Locke). ALABAMA - Emergence of overwintered weevils in Colbert, Morgan, Limestone, Cullman and other northern counties including Tennessee Valley and Sand Mountain areas extremely high last 10 days. Square infestation in early cotton equal to or exceeds many of high counts in southern area in 1965. Weevil emergence in these fields due July 10-25; with suitable weather and other survival factors, populations will become as heavy or heavier per acre than ever recorded. Overwintered live weevils extremely high in pre-square cotton. This tremendous number of live weevils per acre coincides with survival counts in March. Numbers continue high in central and southern area. First-generation weevils appeared in Escambia, Mobile, Wilcox, Monroe, and other southern counties. Square infestations and future adult emergence will depend on control efforts. Cotton growers throughout State experiencing one of greatest infestations on cotton. (McQueen).

MISSISSIPPI - Infestation 10-20 percent in several Itawamba and Chickasaw County fields. Light in Sharkey County; 10-15 percent punctured squares in Leflore and Carroll Counties. First-generation adults found for first time this year in Yazoo County. Heavy (10 per 100 terminals) in Pontotoc County. Light to heavy in Tunica County according to location in county; square punctures up to 40 percent in heavily infested area. Situation similar in Tallahatchie and Panola Counties. Very low in Coahoma and Marshall Counties; moderate in De Soto County. (Dinkins). Single adult found in 1 of 18 fields checked in delta counties. Punctured squares found in 7 of 10 fields; percent punctures 0-22, average 3.8. (Pfirmer et al., June 30). LOUISIANA - Infestation developing slowly in Madison Parish. Only 6 weevils found in 3 of 64 fields checked. Range in 3 infested fields, 26-104 per acre. Square infestation 3-12 percent in 14 fields. No weevils found although all fields showed damage. (Cleveland et al., June 30). ARKANSAS - Very little weevil activity to date. Few fields of early cotton treated in Lee County. Very dry weather with high temperatures should hold down reproduction in Arkansas River Valley. Effect of hot, dry weather on emergence from hibernation unknown. (Ark. Ins. Sur.). OKLAHOMA - First weevils of year found on cotton plants in Stephens and Bryan Counties. (Okla. Coop. Sur.). TEXAS - Activity remains light in Waco area. First new-generation weevil found. Infestation in 11 treated fields averaged 0.6 percent punctured squares (maximum 2); infestation in 21 untreated fields averaged 1.4 percent (maximum 8.7). (Cowan et al.). For Boll Weevil in Texas High Plains, see page 652.

A WEEVIL (*Compsus auricephalus*) - ARKANSAS - Made annual appearance in Pope County where present for several years. Known hosts primarily cotton and soybeans. Infestations noneconomic, even with high numbers. Species found only occasionally in other areas of State. (Boyer).

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Percent larval infestation in Florence area, 0-2.6 in treated plots, 0-0.2 in untreated plots. Few larvae seen in area, but light to heavy infestation reported in other parts of State. Total of 8 *H. zea* and 1 *H. virescens* adults taken in Florence light trap. (Taft et al., June 29). TENNESSEE - Light over western area. Very small squares show evidence of injury; most confined to early cotton. (Locke). ALABAMA - Not of major concern in cotton except in Sumter and other southwest counties. (McQueen). MISSISSIPPI - Eggs light in Itawamba, Chickasaw, and Sharkey Counties. Larvae light in Sharkey County. Percent larval infestation 3-6 in Leflore County, 3 in hill section of Carroll County, 6-19 in Yazoo County; primarily first instars. (Dinkins). Larvae found in terminals in 6 of 18 fields checked in delta counties; 0.24 per 100 terminals. Injured squares found in 4 of 10 fields checked. Percent injured squares, 0-2 (averaged 0.64). Eggs found in 6 of 18 fields; averaged 0.76 per 100 terminals. (Pfirmer et al., June 30). LOUISIANA - Three larvae found (one in each of 3

plots) in 14 Madison Parish fields. All 14 plots showed damaged squares. Total of 41 punctures found; percent damaged squares per field 1-6. Terminal counts made in 40 fields. Larvae found in 27 of 40 fields; percent infestation 1-10 in these fields. Eggs found in 38 fields; ranged 1-36 percent in infested fields. (Cleveland et al., June 30). OKLAHOMA - First-stage larvae present in terminals of 1 percent of cotton plants checked in Grady County. Occasional eggs seen in Johnson and Garvin Counties. (Okla. Coop. Sur.). TEXAS - Infestation in cotton remains light in Waco area with no damaging infestations at this time. In 11 treated fields eggs averaged 1.9, larvae 1.4 per 100 terminals. In 21 untreated fields, 0.8 egg and 0.3 larva per 100 terminals. Square injury 1.6 percent in 11 treated fields and 0.6 percent in 21 untreated fields. Twenty-four of 25 larvae collected on cotton June 13-24 and reared, determined as *H. virescens*. (Cowan et al.). ARIZONA - *H. zea* light on cotton in areas of Pinal and Maricopa Counties. No controls necessary. Increases in Pima County required some control. (Ariz. Coop. Sur.). CALIFORNIA - *H. zea* larvae common on cotton throughout San Joaquin Valley but not sufficiently abundant to warrant control at this time. Growers should be alert for further outbreaks in mid-July. (Leigh, June 28).

BEET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Light to moderate in 20 percent of cotton fields in eastern Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Larvae evident in most San Joaquin Valley cotton fields, but being controlled by natural enemies. (Leigh, June 28).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - MISSOURI - One economic infestation and several subeconomic infestations on cotton reported in southeastern "delta" area. (Jones). ARKANSAS - Controls should have been applied in several Mississippi County cotton fields. (Ark. Ins. Sur.).

CABBAGE LOOPER (*Trichoplusia ni*) - CALIFORNIA - Abundant in Kern County cotton, but being kept below economic level by parasites, predators and virus disease. (Leigh, June 28).

CUTWORMS - ALABAMA - Heavy and causing considerable damage in one Madison County field. (Alverson).

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) - ARIZONA - Larvae 25 per 100 sweeps in cotton in Gila and Yuma Valleys, Yuma County. (Ariz. Coop. Sur.).

COTTON APHID (*Aphis gossypii*) - GEORGIA - Heavy in one cotton field in Tift County. (Morgan). ARKANSAS - Heavy in some cotton fields in northeast, especially in Crittenden and Poinsett Counties. Insecticides not used. Hymenopterous parasites and lady beetles built up as usual, and exerted control. (Ark. Ins. Sur.).

MISSOURI - Spot infestations or occasional infested cotton plant found in 32 percent of 589 fields in southeastern "delta" area. (Jones). OKLAHOMA - Light in most cotton checked in south central area. (Okla. Coop. Sur.). CALIFORNIA - Continues abundant in some cotton in Shafter area. (Leigh, June 28).

LYGUS BUGS (*Lygus* spp.) - CALIFORNIA - Abundant on cotton throughout San Joaquin Valley; up to 12 adults and 7 nymphs not uncommon. In such fields, shed of squares severe. In some areas, *Lygus* spp. remain in alfalfa and low counts in cotton not serious threat. (Leigh, June 28). ARIZONA - Square damage continues to increase in cotton in Pima, Pinal and Maricopa Counties. Damage 20-30 percent in many fields. No increase noted in Yuma County. (Ariz. Coop. Sur.).

PLANT BUGS - TENNESSEE - *Lygus lineolaris* and *Adelphocoris rapidus* appearing in cotton in western area. Further buildup expected as the vegetation around fields hardens. (Locke). ALABAMA - *L. lineolaris* caused light to medium damage in few isolated cotton fields in Colbert, Morgan, Wilcox and Talladega Counties. (McQueen). MISSISSIPPI - *L. lineolaris* very light in Sharkey County; moderate, 5-10 per 100 terminals, in Carroll, Leflore, Yazoo, Itawamba, and Chickasaw Counties. Complex of *Psallus seriatus*, *L. lineolaris* and a black fleahopper moderate in Pontotoc and Marshall Counties; heavy in De Soto (15-20 per 100 terminals), Tunica (20-30 per 100 terminals), Coahoma (35 per 100 terminals) and Tallahatchie (35 per 100

terminals) Counties. (Dinkins). *L. lineolaris* found in 8 of 18 fields checked in delta counties; 0-5.6 (average 1.5) per 100 terminals. (Pfrimmer et al., June 30). LOUISIANA - *L. lineolaris* continues plentiful in Madison Parish cotton; found in 91 fields checked; 1-30 (average 6.8) per field. (Cleveland et al., June 30). MISSOURI - Averaged 15 per 100 cotton terminals in 48 percent of 589 fields in southeastern "delta" area. (Jones).

SAY STINK BUG (*Chlorochroa sayi*) - ARIZONA - Moderate numbers caused 10 percent damage to squares in scattered areas of Pinal and Maricopa Counties. Light in Yuma County. (Ariz. Coop. Sur.).

LEAFHOPPERS (*Empoasca* spp.) - CALIFORNIA - Abundant on cotton in Five Points area, Fresno County. Apparently not threatening to crop. (Leigh, June 28).

COTTON FLEAHOPPER (*Psallus seriatus*) - ARIZONA - Increased to moderate level in most areas of Pinal and Maricopa Counties. Light in Pima and Yuma Counties. (Ariz. Coop. Sur.). TEXAS - Continues principal insect damaging cotton in Waco area. Increased over last week as heavy numbers of nymphs appeared in many untreated fields and fields not recently treated. Averaged 22.7 per 100 terminals in 11 treated fields; range 9-64. In 21 untreated fields, averaged 51 (range 11-118) per 100 terminals. (Cowan et al.). OKLAHOMA - Ranged 10-25 per 100 cotton terminals in Grady and Jackson Counties. Light to moderate in cotton in Garvin, Carter, Bryan, Johnson, Stephens and Tillman Counties. (Okla. Coop. Sur.). LOUISIANA - Found in 34 of 91 fields in Madison Parish. Ranged 1-7 (average 1.65) per field; overall average 0.61 for 91 fields. (Cleveland et al., June 30).

THRIPS (*Frankliniella* spp.) - OKLAHOMA - Heavy in Okmulgee County cotton. Decreasing rapidly in cotton in southwest and south central areas. (Okla. Coop. Sur.).

SPIDER MITES - ALABAMA - Observed on cotton in isolated fields in Bibb, Tuscaloosa, Morgan and Talladega Counties. Some controls applied. (McQueen). ARKANSAS - Common in cotton in Lonoke, Jefferson and northeast area counties. Numbers may increase if hot, dry weather continues. (Ark. Ins. Sur.). MISSOURI - Spot infestations, mostly *Tetranychus atlanticus* found in 15 percent of 589 cotton fields in southeastern "delta" area. (Jones). ARIZONA - Few heavy *Tetranychus* spp. infestations found in cotton in Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). CALIFORNIA - Common on cotton throughout San Joaquin Valley. Severe defoliation, caused by *Tetranychus atlanticus* evident in some fields. (Leigh, June 28).

TOBACCO

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Adults continue destructive to young tobacco in all tobacco-growing areas. (U. Md., Ent. Dept.).

APHIDS - GEORGIA - Heavy on tobacco in south central area. (French). MARYLAND - *Myzus persicae* light on field tobacco near Mechanicsville, St. Marys County. (U. Md., Ent. Dept.).

A STILT BUG (*Neides muticus*) - TENNESSEE - Infested tobacco in Anderson County. (Williams et al.).

LOOPERS - GEORGIA - Light to moderate across the tobacco belt. (French).

SUGAR BEETS

BEEF WEBWORM (*Loxostege sticticalis*) - UTAH - Infesting sugar beets in Fielding and Garland areas, Box Elder County. (Knowlton). WYOMING - Spotty in sugar beet fields in Goshen County. About 800 acres sprayed. (Thieman). NORTH DAKOTA - Light trap collections indicate moth populations peaked week of June 20. Apparently heaviest in northern Red River Valley. Egg laying under way in most areas. (Brandvic, Kaatz).

SAY STINK BUG (Chlorochroa sayi) - COLORADO - Now more widespread in southeast area; damaging sugar beets. (Col. Ins. Sur.).

SPINACH LEAF MINER (Pegomya hyoscyami) - WYOMING - Larvae causing slight damage to sugar beet leaves in Goshen and Platte Counties; 6 of 100 leaves showed damage. (Wingfield, Marks).

MISCELLANEOUS FIELD CROPS

ALFALFA LOOPER (Autographa californica) - OREGON - Pupating in mint fields and other crops in Willamette Valley. (Morrison).

VARIEGATED CUTWORM (Peridroma saucia) - OREGON - Eggs hatching in peppermint fields in Jefferson area, Linn County. (Morrison).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - IDAHO - Infestations large and general throughout southwest. Largest populations present on potato plants in fields with surface irrigation. Delay in control application resulted in severe damage in some fields. (Homan, Thornton, June 24). Migrations from solanaceous plants in grain fields to potatoes underway in Power County. (Schow, June 24). Numerous adults and eggs but no larvae found in potato field at Melba, Canyon County. (Bechtolt). NORTH CAROLINA - Eggs laid by first-generation adults on potatoes in Faison. (Brett, June 24). NEW YORK - Hatching on potatoes in Suffolk County. Increasing numbers in Oswego, Onondaga and Cayuga Counties. Active on tomato and potato fields in Orleans and Genesee Counties. Quite heavy in some eggplant fields in Nassau and Suffolk Counties. Hatching on tomatoes in Albany County; in numbers in Monroe County. (N. Y. Wkly. Rpt., June 27). MASSACHUSETTS - Larvae maturing rapidly; considerable damage in fields where not controlled. (Crop Pest Cont. Mess., June 27). MAINE - In several fields near Winn overwintered beetles fairly common and larvae very abundant; feeding damage by larvae severe in spots. (Shands).

POTATO FLEA BEETLE (Epitrix cucumeris) - RHODE ISLAND - Probably this species not yet serious in commercial potatoes, Washington County. (Roberti, Kerr). WISCONSIN - Low on treated acreages but abundant on potatoes in home gardens in Door County. (Wis. Ins. Sur.). NORTH DAKOTA - Light to moderate on potatoes in Traill and Grand Forks Counties, up to 4 adults per leaf. Light to moderate damage evident in many fields. Controls applied. (Brandvik, Kaatz).

FLEA BEETLES - COLORADO - Increasing in potatoes in Otero, Bent and Prowers Counties. Fields previously treated with systemic insecticides showed increases past 2 weeks. Foliar treatments recommended. (Schweissing).

POTATO APHID (Macrosiphum euphorbiae) - NEW YORK - Aphids, almost entirely this species, present but not building up seriously on potatoes in Suffolk County. (N. Y. Wkly. Rpt., June 27).

GREEN PEACH APHID (Myzus persicae) - OREGON - Building up on seed potatoes in Roseburg area, Douglas County. (Vertrees). DELAWARE - Present on some peppers in Kent and Sussex Counties. (Burbutis, Davis). NEW JERSEY - Problems indicated on potatoes this summer. (Ins.-Dis. Newsltr.).

Aphids on Potatoes in Maine - Populations very small on untreated potatoes although numbers increased rapidly during week. At Presque Isle, 3.9 percent of whole plants infested. Examination of 3 leaves, from top, middle and bottom of plant, showed 5.8 percent of plants infested at Houlton and 16.8 at Lee. Macrosiphum euphorbiae predominates at Presque Isle and Houlton, followed by Aphis nasturtii

and Myzus persicae. In Lee district, M. euphorbiae and A. nasturtii about equal, followed by Myzus persicae and Acyrtosiphon solani. (Shands et al.).

LEAFHOPPERS - COLORADO - Increasing on potatoes in Otero, Bent and Prowers Counties. Fields previously treated with systemic insecticides showed increases past 2 weeks. Foliar treatments recommended. (Schweissing).

LYGUS BUGS (Lygus spp.) - COLORADO - Increasing in potatoes in Otero, Bent and Prowers Counties. Fields previously treated with systemic insecticides showed increases past 2 weeks. Foliar treatments recommended. (Schweissing).

SAY STINK BUG (Chlorochroa sayi) - COLORADO - More widespread in southeast, causing damage to potatoes. (Colo. Ins. Sur.).

POTATO TUBERWORM (Phthorimaea operculella) - ALABAMA - Larvae caused considerable damage to potatoes in several Baldwin County fields. Considerable loss in downgrading of potatoes at packing sheds. (Curry).

BEANS AND PEAS

DINGY CUTWORM (Feltia subgothica) - PENNSYLVANIA - Severely damaging field peas along edge of field in Cambria County. (Udine).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - DELAWARE - Larvae on beans in Sussex County. (Burbutis, Davis).

GREEN CLOVERWORM (Plathypena scabra) - WISCONSIN - Larvae in peas in Iowa County; up to 2 per 10 sweeps in some fields. (Wis. Ins. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - WISCONSIN - Nearly full-grown larvae about 1 per 10 sweeps in many pea fields. (Wis. Ins. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Common on lima beans in many areas; abundant on same crop in southeastern Sussex County, causing rather severe injury. (Burbutis, Davis). ALABAMA - Heavy in garden beans throughout northern area. (Rutledge et al.). NEBRASKA - Heavy and damaging field beans in Scotts Bluff County. (Hagen). COLORADO - Development well underway in beans in Weld County; larval damage showing. Controls recommended. (Boyes).

FLEA BEETLES - COLORADO - Systema blanda damaging beans in Weld County. (Boyes). WYOMING - Phyllotreta striolata spotty and causing extensive damage to dry beans in Goshen County. (Wingfield, Marks).

PEA APHID (Acyrtosiphon pisum) - IDAHO - Peak of control past on 10,000 acres of peas and lentils in Nez Perce County. In areas of higher elevation around Nez-perce and Craigmont, Lewis County, damaging populations controlled in Alaska peas. (Dailey, Kambitsch). UTAH - Light to moderate on canning peas in Cache County. (Knowlton). WISCONSIN - Very low in peas. Some fields of peas treated in southern counties 2 weeks ago when counts 30-40 per sweep; since then, counts dropped naturally. (Wis. Ins. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - OREGON - Building up on pole bean blossoms in fields near Corvallis, Benton County. (Crowell).

SPIDER MITES (Tetranychus spp.) - SOUTH CAROLINA - Damage unusually heavy on beans and peas in York area. (Nettles et al., June 28).

COLE CROPS

CABBAGE APHID (Brevicoryne brassicae) - WISCONSIN - Few colonies starting on cabbage in southeast area. (Wis. Ins. Sur.). NEW MEXICO - Probably this species, problem in commercial cabbage planting near Aztec, San Juan County. Grower treating. (Kloepfer, Heninger).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Active and damaging cabbage in Ontario County; second-brood adults emerging. In Albany County, loss at least 10 percent in treated cabbage fields. (N. Y. Wkly. Rpt., June 27).

FLEA BEETLES - OHIO - Caused considerable damage to cabbage plantings in Wayne County; heavy on some garden cabbage in Delaware County. (Sleesman, Galford).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - NEW YORK - Increasing on cucumbers in Oswego, Onondaga and Cayuga Counties. Still active in Orleans and Genesee Counties. (N. Y. Wkly. Rpt., June 27). RHODE ISLAND - Very heavy in cucumber planting in Peace Dale, Washington County. Appears more numerous than same time last year. (Roberti, Kerr). MISSOURI - Moderate increase on melons noted in southeast area. (Wkly. Rpt. Fr. Grs.).

SQUASH VINE BORER (Melittia cucurbitae) - TEXAS - Heavy in squash field near San Antonio, Bexar County. (Slusher).

DARK-SIDED CUTWORM (Euxoa messoria) - PENNSYLVANIA - Damaging melons to considerable extent in Bedford County. (Gesell).

GENERAL VEGETABLES

SOUTHERN ARMYWORM (Prodenia eridania) - OKLAHOMA - Moderate and damaging sweet-potato foliage in Perkins area, Payne County. (Okla. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Larvae heavy on onions in Petaluma, Sonoma County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - MISSOURI - Infesting lettuce in central area. (Wkly. Rpt. Fr. Grs.).

TORTOISE BEETLES (Metrona spp.) - OKLAHOMA - Damaging sweetpotato foliage in Perkins area, Payne County. (Okla. Coop. Sur.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - GEORGIA - Damaging sweetpotato leaves in Gilmer County. (Smith).

SPINACH LEAF MINER (Pegomya hysocyami) - MICHIGAN - Larvae moderate; recently injured red beets in Saginaw County planting. (Bierlein). WISCONSIN - Mines common in spinach and red beets in Dane and Walworth Counties. (Wis. Ins. Sur.).

ONION THRIPS (Thrips tabaci) - IDAHO - Numbers very high on onion seed field near Nampa, Canyon County. Damage heavy on leaf and flower stalks. (Homan, June 24).

COLORADO - Continues high in many fields in Arkansas Valley; 15 per plant. Rapid buildup after controls applied. (Schweissing). NEW YORK - Active in Orange County about June 20. (N. Y. Wkly. Rpt.).

EUROPEAN EARWIG (Forficula auricularia) - OREGON - Adults heavy in plantings in Salem, Marion County, and Portland, Multnomah County. (Larson).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Carpocapsa pomonella*) - VERMONT - Active during warm nights. (Nielsen). MASSACHUSETTS - Very active, egg laying quite heavy. Eggs readily found on unsprayed trees; most hatched and larval entries numerous. (Crop Pest Cont. Mess., June 27). NEW YORK - Emergence slow in Columbia County, larval entries observed in unsprayed orchards June 20. Emergence in Monroe County June 22-25 highest so far this season; "stings" easily found June 24. Emergence in Niagara and western Orleans Counties peaked June 2-4. (N. Y. Wkly. Rpt.). NEW JERSEY - Total of 16 caught at Hurffville and Glassboro June 27. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Entries numerous on apple at Arendtsville June 13. (Asquith). INDIANA - No moths taken at Vincennes. First-brood larvae about full grown; few left apples to pupate. (Dolphin, June 27). MICHIGAN - Total of 82 adults emerged June 23-29 from Kent County observation cages. (Gilmore). WISCONSIN - Total of 6 moths taken in blacklight trap at Madison June 22-29. (Wis. Ins. Sur.). MISSOURI - Full-grown and young larvae on unsprayed trees in all parts of State. (Wkly. Rpt. Fr. Grs., June 29). COLORADO - Second-generation adults taken in sex attractant traps in Mesa County. (Bulla). IDAHO - Larval damage appearing in untreated orchards at Payette County. (Homan). WASHINGTON - Light in green peaches at Vancouver, Clark County. (Shanks).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - NEW JERSEY - Total of 20 caught at Pitman and Glassboro June 27. (Ins.-Dis. Newsltr.). INDIANA - Adult collections declined past 2 weeks at Vincennes. Larvae still feeding in terminals of some branches. (Dolphin, June 27). MISSOURI - No activity reported. (Wkly. Rpt. Fr. Grs., June 29). COLORADO - Taken in traps in Mesa County only, this species has not been found in Delta, Montrose or Garfield Counties. (Bulla, June 16).

PEACH TREE BORERS (*Sanninoidea* spp.) - OKLAHOMA - *S. exitiosa* adults emerged and active on peach trees checked in Payne County. (Okla. Coop. Sur.). NEW MEXICO - Moderate to heavy populations of *Sanninoidea* sp. killing young peach trees and infesting older trees in Valencia and Bernalillo Counties. (Heninger). CALIFORNIA - *S. extiosa graefii* light to heavy in plum trees in Yreka, Siskiyou County. (Cal. Coop. Rpt.).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - INDIANA - Total of 267 males taken in traps at Vincennes; 6 less than previous week. (Dolphin, June 27). MISSOURI - Empty pupal cases easily found in some southeast area peach orchards. (Wkly. Rpt. Fr. Grs., June 29).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - PENNSYLVANIA - Depositing eggs in Adams County for second generation. (Asquith, June 13). INDIANA - Bait trap captures increased from 13 to 18 per 5 traps in Vincennes area. (Dolphin, June 27). MISSOURI - No activity reported in State. (Wkly. Rpt. Fr. Grs., June 29).

A LEAF ROLLER MOTH (*Platynota stultana*) - CALIFORNIA - Larvae medium in 8 acres of plums in Fresno, Fresno County. (Cal. Coop. Rpt.).

APPLE APHID (*Aphis pomi*) - WISCONSIN - Colonies building up on watersprouts in many Door County orchards. (Wis. Ins. Sur.).

ROSY APPLE APHID (*Dysaphis plantaginea*) - IDAHO - Population extensive on new foliage of 5-acre orchard at Fruitland, Payette County. Orchard treated only with delayed dormant spray. (Homan).

BLACK CHERRY APHID (*Myzus cerasi*) - UTAH - Moderately damaging at Fruita, Wayne County, and Brigham City, Box Elder County. (Knowlton).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - NEW MEXICO - Moderate to heavy in apple orchards near Kirtland, San Juan County. Many growers treating. (Heninger, Kloefer).

EUROPEAN RED MITE (*Panonychus ulmi*) - CONNECTICUT - Abundance low for all reporting

areas except Storrs. (Savos, June 28). NEW YORK - Found in several blocks in Monroe County; hot, dry weather increased hatching significantly. (N. Y. Wkly. Rpt., June 27). NEW JERSEY - Generally light and spotty on apple throughout State. (Ins.-Dis. Newsltr.). OHIO - Foliage bronzing appearing on trees not treated with oils or acaricides in Wayne County. Remains low on treated trees in Wayne and Mahoning Counties; about one per leaf. (Forsythe). WISCONSIN - Reached damaging levels in Door County orchards; up to 150 eggs on older spur leaves easily found. (Wis. Ins. Sur.). MISSOURI - Of concern in most areas of State concerned primarily with this species. Averaged 6 per leaf on Winesap apples and 6-8 per leaf in one peach orchard in southeast. In central section, averaged 8 per leaf June 24 and up to 18 per leaf in one orchard June 28. Increased populations reported from northwest area. (Wkly. Rpt. Fr. Grs.).

ORCHARD MITES - INDIANA - In research orchard at Vincennes where no miticides included in spray schedule, leaf sampling indicated average of 1 adult, 31 immatures and 40.2 eggs of Panonychus ulmi per leaf; 0.2 adult, 1.6 immatures and 3.4 eggs of Tetranychus sp. per leaf. Populations similar to preceding week. (Dolphin, June 27).

CHERRY FRUIT FLY (Rhagoletis cingulata) - NEW YORK - Emergence practically halted in Monroe County; diminished to 2-3 per day in Niagara and western Orleans Counties. (N. Y. Wkly. Rpt., June 27). PENNSYLVANIA - This species and R. fausta emerging in heavy numbers in Erie County; 300-500 per day in cages. (Cox, June 21).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - WISCONSIN - First adult of season taken on sticky board trap. (Wis. Ins. Sur.).

APPLE MAGGOT (Rhagoletis pomonella) - CONNECTICUT - Adults emerging in New Haven June 25. (Savos). NEW YORK - First flies emerged in cages at Geneva June 24, 1-2 days later than average for western section. Adults emerged in cages in Columbia County June 20 and in Spencerport area, Monroe County, June 25. (N. Y. Wkly. Rpt.).

PEAR SAWFLY (Hoplocampa brevis) - RHODE ISLAND - Larvae collected in pear sets in Johnston, Providence County, June 6. (Gaines). No adults caught on sticky boards in Kingston May 16-26 or in North Kingstown May 18-26. (Mathewson).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - MASSACHUSETTS - Injury very conspicuous on unsprayed apples; larvae leaving fruits. (Crop Pest Cont. Mess., June 27). NEW HAMPSHIRE - Reported for first time in Candia, and Stratham, Rockingham County; and Manchester, Hillsboro County. Hillsboro new county record. (Conklin).

PLUM CURCULIO (Conotrachelus nenuphar) - CONNECTICUT - Adults active in New Haven, Middlefield and Storrs areas. (Savos, June 28). OHIO - Fully developed larvae emerging in large numbers from dropped plums at Wooster, Wayne County. (Forsythe). MISSOURI - No further activity reported. (Wkly. Rpt. Fr. Grs., June 29). TEXAS - Heavy on several plum trees in Fort Worth area, Tarrant County. (Graves).

A WEEVIL (Brachyrhinus cribricollis) - CALIFORNIA - Adults locally heavy on apricot trees in Hollister, San Benito County. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - First-generation larvae light to medium on walnuts, pecans and persimmons throughout northern area. (McQueen). OKLAHOMA - Half-grown larvae present on pecan trees in Bryan County; up to 3 webs per tree on occasional trees. Reported on pecan trees in Tulsa and Payne Counties. (Okla. Coop. Sur.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Infestation 15 percent on pecans in Payne County. Heavy in Mayes County and light in Marshall County. (Okla. Coop. Sur.). TEXAS - Second-generation larvae damaging pecan grove in Burleson County; 0.4 percent of nut clusters checked showed larval damage. (Van Cleave).

FILBERTWORM (Melissopus latiferreanus) - OREGON - First adults of season emerged June 21 at Roseburg, Douglas County, and June 26 at Eugene, Lane County. (Vertrees, Tinker).

APHIDS (Monellia spp.) - ALABAMA - Infestations of yellow species, including M. caryella, M. nigropunctata and M. costalis, heavy on pecans in Mobile County; controls temporary. (Vickery, Ledbetter). TEXAS - M. costalis averaged 2.57 per leaflet in pecan grove in Burleson County. (Welsh). Also heavy on pecans in Stephenville area, Erath County. (Denman).

BLACK PECAN APHID (Myzocallis caryaefoliae) - GEORGIA - Heavy on pecans in Sumter County; yellow species also heavy. (Garner). OKLAHOMA - Light on pecan trees in Payne County. (Okla. Coop. Sur.).

FILBERT APHID (Myzocallis coryli) - OREGON - Heavy in most filbert orchards in Willamette Valley. (Jones).

CITRUS

CITRICOLA SCALE (Coccus pseudomagnoliarum) - ARIZONA - Infestations persist on citrus in area northwest of Phoenix, Maricopa County. (Ariz. Coop. Sur.).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Medium on citrus in Orange Cove, Fresno County. (Cal. Coop. Rpt.). FLORIDA - Adults infesting 40 percent of 18,000 sweet orange plants in nursery at Thonotosassa, Hillsborough County. (Simmons).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Heavy localized infestations on tangerines and tangelos in Yuma County. Lighter infestations on lemons, oranges and grapefruit. (Ariz. Coop. Sur.).

SMALL FRUITS

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Moth activity increasing in blueberries and cranberries; eggs common on cultivated blueberries. (Tomlinson, June 24).

CRANBERRY GIRDLER (Crambus topiarius) - MASSACHUSETTS - Moths unusually abundant throughout Amherst area. (Tomlinson, June 24). NEW JERSEY - Moths observed on some cranberry bogs. (Ins.-Dis. Newsltr.).

CHERRY FRUITWORM (Grapholitha packardii) - MASSACHUSETTS - Ovipositing on cultivated blueberries. (Tomlinson, June 24). OHIO - This species and Hendecaneura shawiana damaging blueberry plantings in Ashtabula County. (Still).

BLUEBERRY MAGGOT (Rhagoletis mendax) - NEW JERSEY - Emergence heavy; trap catches very high, as many as 35 per trap per day. Flies taken in 23 of 24 fields checked. Heavy fly populations indicate trouble this year unless regular, thorough treatments made at 10-day intervals. (Ins.-Dis. Newsltr.).

PUTNAM SCALE (Aspidiotus ancyclus) - MARYLAND - Heavy on blueberries at Elkridge, Howard County. (U. Md., Ent. Dept.).

GRAPE BERRY MOTH (Paralobesia viteana) - OHIO - Larvae heavy; webbed clusters noted in unsprayed vineyard of Concord grapes in Lake County. (Still).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae and pupae heavy on grapevines in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

ACHEMON SPHINX (Pholus achemon) - CALIFORNIA - Larvae medium on Thompson seedless grapes in Redding, Shasta County. (Cal. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - NEVADA - Adults and larvae extremely abundant; larvae causing severe damage to grapes in Las Vegas, Clark County. (Cooney, Kinard).

SLUGS - NEW YORK - Problem in some strawberry beds in Oswego, Onondaga and Cayuga Counties and on irrigated strawberries in Niagara and western Orleans Counties. (N. Y. Wkly. Rpt., June 27).

A FLATID PLANTHOPPER (Metcalfa pruinosa) - ILLINOIS - Heavy on strawberry plants in Champaign, Champaign County. (Boewe).

ORNAMENTALS

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - Emerging in considerable numbers; feeding on foliage of many ornamental plants and trees. (Crop Pest Cont. Mess., June 27). CONNECTICUT - Feeding on wide variety of blossoms. (Savos). OHIO - Emergence and flight began in Lucas County about June 24. (Jones).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OHIO - Infestations on yew continue over State. Adults feeding on needles. One yew tree killed by larval feeding in Summit County yielded 21 adults, 7 pupae and 3 larvae. Most adults soft bodied, apparently just emerged June 21. Smaller trees off-color and turning yellow due to larvae feeding on roots. By June 29 emergence practically complete in Lake County. Emergence in other counties nearly complete. (Kelly, Walker). MICHIGAN - Adult activity continues around yew plants in many areas. (Erbe, Wallner).

ROSE CURCULIO (Rhynchites bicolor) - UTAH - Damaging rose buds at Logan, Cache County, and Salt Lake City, Salt Lake County. (Knowlton). CALIFORNIA - Adults medium on 50 acres of wild roses 11 miles south of Adin, Lassen County. (Cal. Coop. Rpt.).

HOLLYHOCK WEEVIL (Apion longirostre) - CALIFORNIA - Adults heavy on althea plants in Yreka, Siskiyou County. (Cal. Coop. Rpt.).

ROSE-SLUG (Endelomyia aethiops) - NORTH DAKOTA - Larval damage severe on roses at Valley City; controls applied. (Frye).

BOXWOOD LEAF MINER (Monarthropalus buxi) - NORTH CAROLINA - Heavy on boxwood in Wake County; first new injury of season. (Mount, June 24).

TWO-MARKED TREEHOPPER (Enchenopa binotata) - TENNESSEE - Infested redbuds in Knoxville. (Williams et al.).

A MEALYBUG (Puto yuccae) - CALIFORNIA - Heavy on manzanita plants in Placerville, El Dorado County. This new county record. (Cal. Coop. Rpt.).

A SOFT SCALE (Lecanium kunoensis) - CALIFORNIA - Heavy on spirea and wild plum trees in Paradise, Butte County. Heavy on pyracantha in Lakeport, Lake County. Lake is new county record. (Cal. Coop. Rpt., June 17).

A PIT SCALE (Asterolecanium bambusae) - CALIFORNIA - Locally heavy on bamboo in San Diego, San Diego County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

FALL WEBWORM (Hyphantria cunea) - DELAWARE - Common on wide variety of trees in many areas of State. (Burbutis, Davis). NORTH CAROLINA - Nests began appearing on various trees, especially mulberry, in Wake County June 15. (Wray). TEXAS - Larvae moderate on many ash trees in Nueces County. (Nolan). Heavy in El Paso County on shade trees. (Neeb).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - First-generation larvae light but widespread on mimosa throughout central and northern areas. (McQueen).

LEAF ROLLER MOTHS - CONNECTICUT - Complex of larvae, feeding on oak, maple and many ornamental shrubs and flowers, have pupated; large numbers of moths appearing. (Savos).

CANKERWORMS - PENNSYLVANIA - Unspecified species heavily defoliated elm, oak and birch in Erie, Crawford and Warren Counties. (Adams, June 23).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - OHIO - Larval damage to elm foliage noted in Mahoning County, northeastern area, June 23. Adults emerging by June 28. (Cramer, Peacock).

NOTODONTID MOTHS (Datana spp.) - WISCONSIN - D. integerrima caught in Madison and Platteville blacklight traps and D. angusi taken in Madison trap. D. contracta caught in Mazomanie and Platteville traps. (Wis. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - WISCONSIN - Adults have begun appearing. (Wis. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Spinning cocoons June 24-25. Complete defoliation in much of hardwood area east of International Falls over into Echo Trail area and as far south as Orr. Migrating larvae crossing roads in some areas. (Minn. Ins. Rpt.).

SATIN MOTH (Stilpnotia salicis) - OREGON - Larvae common in Willowa Valley, Willowa County, on cottonwood and willows. Particularly heavy in Lostine area where trees totally defoliated. (Cornett, Goeden).

BOXELDER LEAF ROLLER (Gracillaria negundella) - UTAH - Defoliated trees in Cache and Box Elder Counties. (Knowlton, Hanson).

TULIPTREE APHID (Macrosiphum liriodendri) - MARYLAND - Heavy on several large tuliptrees near Comus, Montgomery County. (U. Md., Ent. Dept.).

WOOLLY ALDER APHID (Prociphilus tessellatus) - MARYLAND - Very heavy on silver maples near Annapolis, Anne Arundel County. (U. Md., Ent. Dept.). VIRGINIA - Infested maples in Loudoun, Lee, Spotsylvania, Highland and Carroll Counties. (Isakson, June 29). KENTUCKY - Masses very common on silver maple. (Miller).

WOOLLY LARCH APHID (Adelges strobilobius) - OHIO - Moderate to heavy with light damage on some larch in Wayne County. (Rings, Nault, Bart).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - NEW JERSEY - Present on soft maple trees in Burlington County. (Hamilton, June 29). NORTH CAROLINA - Crawlers active in Alleghany County June 29. (Rowan). OHIO - Widespread through northeastern and east central counties. Adult activity in Lorain, Wayne, Summit and Stark Counties. Infestations on soft and silver maple generally heavy; but damage not extensive. (Rings).

FLETCHER SCALE (Lecanium fletcheri) - RHODE ISLAND - Hatching in nurseries in Westerly and Hopkinton, Washington County. (Veilleux). MINNESOTA - Many scales checked in southern area; about 50 percent crawlers. (Minn. Ins. Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - MINNESOTA - Hatch generally complete in south. (Minn. Ins. Rpt.).

SOFT SCALES (Lecanium spp.) - WISCONSIN - Several species hatching in area south of line from Polk County to Milwaukee County. General hatching should be occurring. Sprays urged after July 4 weekend in this area. Other species also in crawler stage. (Wis. Ins. Sur.).

GOLDEN OAK SCALE (Asterolecanium variolosum) - CONNECTICUT - Crawlers beginning to appear. (Savos, June 28).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW JERSEY - Crawlers active. (Ins.-Dis. Newsltr.). UTAH - Damaging elms at Glendale and Kanab, Kane County. (Knowlton, June 29)

OBSCURE SCALE (Melanaspis obscura) - TEXAS - Large numbers on several oak trees near La Marque, Galveston County. (Creagh).

ELM LEAF BEETLE (Pyrrhalta luteola) - RHODE ISLAND - Eggs and young larvae present on elm in Peace Dale and Kingston, Washington County. (Mathewson, Novak). DELAWARE - Larvae abundant and causing heavy injury to elms in New Castle County. (Burbutis, Davis). MARYLAND - Heavy on Chinese elm at Sykesville, Carroll County. (U. Md., Ent. Dept.). OHIO - Feeding damage on Chinese elm foliage easily apparent and somewhat severe in Franklin County. Some late instars present, but majority early instars. (Rose). KENTUCKY - Both American and Chinese elms heavily infested. In some areas larvae have completed feeding and are moving down trunk of trees to pupate. (Miller). MISSOURI - Damage to hybrid elm trees by first-generation larvae in southwest district light to heavy. Pupation complete in area; first-generation adults emerging. (Houser). COLORADO - Now in second to third instars. Infestation light on elms in Larimer County. (Colo. Ins. Sur.). UTAH - Caused considerable damage to elm foliage at St. George and Gunlock, Washington County. (Knowlton, June 29). NEW MEXICO - Light to heavy on Chinese elms in Aztec, Farmington and Bloomfield areas of San Juan County. General and much more widespread than last year. (Kloepfer, Heninger). ARIZONA - Heavy defoliation of elm trees continues in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - MARYLAND - Conspicuous foliage injury on black locust over most of State. (U. Md, Ent. Dept.). ALABAMA - Light on honeylocust throughout northern area. Pupation and first-generation adult emergence occurring in most plantings. (McQueen). OHIO - Hatching in Holmes County; few early instars on black locust foliage. Adults decreased recently. (Cannon).

A LEAF-MINING WEEVIL (Odontopus calceatus) - VIRGINIA - Larvae and adults caused heavy damage to some Magnolia grandiflora in Norfolk area; 75 percent of leaves show damage. (Kulman, June 28).

BIRCH LEAF MINER (Fenusa pusilla) - MASSACHUSETTS - Completed first generation, and larvae pupating in ground. Second generation should appear about first week in July. (Crop Pest Cont. Mess., June 27). RHODE ISLAND - Adults appearing in North Smithfield, Providence County. (King).

MOUNTAIN-ASH SAWFLY (Pristiphora geniculata) - RHODE ISLAND - Infesting mountain-ash in Kingston, Washington County. (Mathewson).

SAWFLIES - PENNSYLVANIA - Croesus latitarsus and Fenusa pusilla caused 100 percent defoliation of gray birch in Susquehanna County. (Gessel, June 20).

SOLITARY OAK LEAF MINER (Cameraria hamadryadella) - NORTH CAROLINA - First-instar larvae began appearing in leaves of white oak in Wake County June 15. (Wray).

ELM SAWFLY (Cimbex americana) - OKLAHOMA - Larvae light on elm trees in Payne County. (Okla. Coop. Sur.).

WALKINGSTICK (Diaperomera femorata) - INDIANA - Hatch well underway in 40-acre black oak stand near Knox, Starke County. (Knauer).

BOXELDER BUG (Leptocoris trivittatus) - MISSOURI - Populations building up on boxelder near Columbia, Boone County. (Wkly. Rpt. Fr. Grs., June 29).

A PLANT BUG (Neoborus pacificus) - CALIFORNIA - Nymphs and adults heavy on Modesto ash trees in Elsinore, Riverside County. (Cal. Coop. Rpt.).

JACK-PINE BUDWORM (Choristoneura pinus) - MICHIGAN - Defoliation by larvae widespread through northern Lower Peninsula; in Isabella County, Scotch pine plantation quite distant from jack pine infested; larval development 2 weeks late. (Flink). WISCONSIN - At very low level on Nicolet National Forest. (Wis. Ins. Sur.). MINNESOTA - High populations in most jack pine areas in State. Pupating in Park Rapids and Bemidji area, but most (approximately 75 percent) in last instar. Smaller percentage in fourth instar and few third instars noted. (Minn. Ins. Rpt.).

SPRUCE BUDWORM (Choristoneura fumiferana) - COLORADO - Increasing but light on spruce in Larimer County. Adults taken June 27 at Fort Collins. (Thatcher).

SPRUCE CONEWORM (Dioryctria reniculella) - NORTH DAKOTA - Larvae found in spruce cones at Jamestown, Stutsman County; numbers and damage moderate. (McBride).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - KANSAS - Second-generation pupation nearly completed in Riley County. (Redding).

A TORTRICID MOTH (Archips sp.) - MICHIGAN - Larvae caused external feeding injury to new growth Scotch pine in Muskegon County Christmas tree plantation. Full-grown larvae and pupae collected June 28. (Newman, Kass, Tupes).

A TIGER MOTH (Halisidota sp.) - NEW MEXICO - Spotted populations damaging needles of pinyon pine trees in Santa Fe area, Santa Fe County. (Nielsen).

SPRUCE NEEDLE MINER (Taniva albolineana) - INDIANA - Emerged June 22 at Indianapolis. (Clark).

A PINE NEEDLE MINER (Exoteleia sp.) - MICHIGAN - Adults, possibly E. pinifoliella, emerging in Wayne County; larvae caused severe damage to Scotch pine near pupation sites at bases of new shoots. Det. by J. H. Newman. (Newman, Kidd). Previously reported in CEIR 16(25):584 as Nantucket pine tip moth (Rhyacionia frustrana).

A PINE NEEDLE-SHEATH MINER (Zelleria haimbachi) - CALIFORNIA - Larvae medium on pines locally in Placerville, El Dorado County. (Cal. Coop. Rpt.).

CONIFER SAWFLIES (Neodiprion spp.) - WISCONSIN - Egg laying by N. lecontei declined markedly in infested red pine plantation on Lakewood District, Nicolet National Forest. None hatched yet. (Wis. Ins. Sur.). MICHIGAN - N. sertifer larvae caused heavy defoliation in southern counties and for first time numerous as far north as Isabella County; N. nanulus nanulus larvae practically through feeding. Caused injury in Rosecommon and Clare Counties. N. lecontei eggs numerous in Wexford County plantation; larval feeding in July expected to be heavy. N. pratti banksianae larval injury heavier than usual this spring. (Flink).

WHITE-PINE WEEVIL (Pissodes strobi) - VERMONT - Damage noticeable by wilting terminals. (Nielsen, June 27).

ENGRAVER BEETLES (Ips spp.) - OKLAHOMA - I. grandicollis heavy and I. calligraphus light in fire-damaged pine trees checked in McCurtain County. (Okla. Coop. Sur.).

A BARK BEETLE (Phloeosinus eristatus) - CALIFORNIA - Heavy on juniper trees in Orange, Orange County. (Cal. Coop. Rpt.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - COLORADO - Moderately heavy on spruce in Larimer County. Gall development slower than in 1965. (Thatcher).

PINE SPITTLEBUG (Aphrophora parallela) - WISCONSIN - Nymphs common on red and white pines on Nicolet National Forest and in Norway pine Christmas tree plantation in Vilas County. A. saratogensis nymphs appearing on alternate hosts in Vilas County; mostly in second and third instars on Nicolet National Forest and at higher level than last year. (Wis. Ins. Sur.).

MAN AND ANIMALS

MOSQUITOES - NORTH CAROLINA - Aedes atlanticus decreasing in Carteret County. Lighting at rate of 15-20 per minute. (Ashton). FLORIDA - Mosquitoes general in Gaineville area; minor nuisance except in some local areas where more abundant and troublesome. Psorophora confinnis and Mansonia perturbans most severe. (O'Berry, Mead). LOUISIANA - Larval collection by Jefferson Parish Department of Mosquito Control June 18-30 contained Aedes triseriatus, Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, C. salinarius, P. ciliata and P. confinnis. Light traps contained mostly Aedes vexans and C. salinarius. (Stokes). KANSAS - Various species causing some annoyance in few portions of northeast area. Aedes vexans, Culex tarsalis and C. salinarius taken in light trap at Manhattan June 27-30. (Simpson). IOWA - Flood pools in central section dried June 20 before much emergence occurred. Light trap catches at Davenport lower during week June 5-11; catches also lower June 12-18. (Iowa Ins. Inf., June 27). WISCONSIN - Troublesome in nearly every area, more so in few concentrated locations. Biting apparently increased considerably. (Wis. Ins. Sur.). MINNESOTA - Week ending June 25, 16 Metropolitan Mosquito Control District light traps collected 3,495 female mosquitoes. Aedes vexans - 1,502, Mansonia perturbans - 671, A. abserratus - 421, Anopheles walkeri - 342, Culiseta inornata - 137, Aedes cinereus - 82 and Culex tarsalis - 56. In 84 larval collections, A. vexans in 19, A. cinereus in 5, Aedes triseriatus in 4, Culex restuans in 25, Culex territans in 16 and Culex tarsalis in 11. In 39 (15-minute) evening bite collections, 383 mosquitoes taken. A. vexans 158, M. perturbans 122. Majority of remaining 10 species single brooded spring Aedes. In 386 (5-minute) daytime bite collections, 2,869 specimens taken; 917 A. vexans, 454 Aedes excrucians, 309 Aedes stimulans, 296 A. cinereus, 249 Aedes Fitchi, 112 A. abserratus and 152 M. perturbans. Exceptional abundance of Mansonia undoubtedly related to heavy rains and high pond levels in 1965. Majority of complaints caused by M. perturbans. (Minn. Ins. Rpt.). NORTH DAKOTA - Larvae of unspecified species heavy in road ditches in Traill County; Aedes vexans dominant. (Brandvik, Kaatz). UTAH - Emerging in large numbers in north Rich County area. (Knowlton, June 27). Very troublesome in southern Uintah County. Adults controlled by 12,960-acre grasshopper control program. Mosquitoes also very numerous in Fisher Valley, Grand County, over 13,000-acre area where grasshoppers also numerous. Very annoying in parts of Logan, Benson and Newton in Cache County. (Knowlton, Thornley). Moderately troublesome to fishermen and campers in parts of Logan Canyon, Cache County, and in Allen Canyon, Rich County. (Knowlton, June 29).

FACE FLY (Musca autumnalis) - VERMONT - Averaging 25-30 per animal in Burlington area. (Nielsen, June 27). MARYLAND - Ranged 2-50 (average 21) per face in 8 dairy herds checked in Frederick County. (U. Md., Ent. Dept.). OHIO - Increasing after early summer period of insignificant numbers. Counts on beef cattle in Highland County averaged 17 per face and in Fairfield County 18 per face. Ranged 6-38 per head on individual animals. (Rose). Counts on 2 dairy herds in Wayne County averaged 7 and 19 per face. Varied greatly (1-42 flies per head) on some cattle. (Miller). ILLINOIS - Very low in northern half of State. (White, Moore).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Averaged 8.5 per head in 8 dairy herds checked in Frederick County. (U. Md., Ent. Dept.). INDIANA - Beginning buildup in Lafayette area. (Dobson). ILLINOIS - Increasing; 0-24 (average 5) per animal on cattle on pasture in west district. Lighter in central and northwest districts. (White, Moore). WISCONSIN - Activity apparently subsided somewhat, temporarily. (Wis. Ins. Sur.). KANSAS - Averaged 5 per animal on yearlings in feedlots in Ellis County. (Harvey). MISSISSIPPI - Averaged 80 per animal on 10 head of cattle in Oktibbeha County. (Dinkins). OKLAHOMA - Ranged as high as 50 per head on calves in Atoka County. (Okla. Coop. Sur.). UTAH - Annoying about livestock near Kanosh, Millard County. (Knowlton).

HORN FLY (Haematobia irritans) - VERMONT - Averaging 50-75 per animal. (Nielsen, June 27). MARYLAND - Averaged 5 per head in 8 dairy herds checked in Frederick County. (U. Md., Ent. Dept.). INDIANA - Ranged up to 400 per head on cattle in the Ohio River area. (Huber). ALABAMA - Quite heavy on unprotected herds in

Washington, Morgan, Mobile, Escambia and other counties. (Vickery et al.).
ILLINOIS - Remains low in northern half of State. (White, Moore). KANSAS - Populations quite variable in Riley, Marshall, Pottawatomie and Jackson Counties. Some herds with less than 50 per animal, others with 500-2,000+ per animal. At Fort Hays Experiment Station, Ellis County, 200-300 per untreated animal. (Harvey).
OKLAHOMA - Averaged 400 per head on steers and 300 per head on cows in Atoka and Payne Counties. Ranged 200-400 per head in Marshall County; heavy in Mayes, Kingfisher and Cotton Counties. (Okla. Coop. Sur.). SOUTH DAKOTA - Increased only slightly. On untreated cattle in Charles Mix County area, up to 300+ flies per side. On treated cattle in same area, counts 30-55 per side. In Stephan area, Hyde County, 200-250 per side on bulls. (Kantack). UTAH - Very annoying in areas of Wayne County and at Hurricane, Washington County. (Knowlton, June 29).

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - Adults running cattle in Cavalier County. (Brandvik, Kaatz). WISCONSIN - Adult activity by Hypoderma bovis decreased in Trempealeau County. (Wis. Ins. Sur.).

TABANID FLIES - INDIANA - Deer flies common and annoying throughout State. (Huber, Matthew). WISCONSIN - Deer flies and horse flies bothersome in several areas. (Wis. Ins. Sur.). MINNESOTA - Numerous and very active in southeast, south central and east central areas of State. In Park Rapids area, both deer and horse flies numerous. In Roseau County, horse flies causing severe nuisance to cattle. (Minn. Ins. Rpt.). WYOMING - Adults of Chrysops spp. annoying man and animals in Laramie, Goshen, Platte and Converse Counties. (Wingfield, Marks). UTAH - Chrysops fulvaster appearing in Logan Canyon, Cache County, and Allen Canyon, Rich County. (Knowlton).

BLACK FLIES - WISCONSIN - Troublesome in Vilas, Door and Calumet Counties. (Wis. Ins. Sur.). UTAH - Bothering persons in area of Capitol Reef National Monument, Wayne County. (Knowlton, June 29).

ASSASSIN BUGS (Triatoma spp.) - NORTH CAROLINA - T. sanguisuga caused painful bite to child in Surry County. (Wray). TEXAS - T. sanguisuga texana moderate and entering houses in Comanche area, Comanche County, and Dumas area, Moore County. (Key, Swain).

A BLISTER BEETLE (Epicauta sp.) - OKLAHOMA - Reports received of horses dying from eating beetle contaminated alfalfa hay. As little as 5 grams of beetles have been known to kill horses. (Okla. Coop. Sur.).

BED BUG (Cimex lectularius) - SOUTH DAKOTA - Reports more common in State this season compared with past few seasons. Cimex sp. heavy in chicken house in Moody County. (Kantack).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Ranged up to 75 replete females and 1,500 unfed or partially fed individuals per head in Atoka County. Ticks 60 percent adults and 40 percent nymphs. Moderate on cattle in Marshall County. (Okla. Coop. Sur.).

PACIFIC COAST TICK (Dermacentor occidentalis) - CALIFORNIA - Locally heavy on brush and weeds in Pescadero, San Mateo County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - OHIO - Ceratomegilla maculata and Hippodamia convergens most numerous; lesser numbers of H. parenthesis and other species noted in clover and alfalfa. Maximum numbers recorded for H. convergens averaged 4 adults per sweep in uncut clover in Pike County. (Rose). INDIANA - Stethorus punctum and Microwisea misella present in fruit trees in Vincennes, but not as common as in early May. (Dolphin, June 27). ILLINOIS - Adults varied 0-40 and larvae 1-10 per 100 sweeps in second-crop alfalfa in northern half of State. (White). WYOMING - Adults and larvae of several species numerous in alfalfa in Laramie, Goshen, Platte and Converse Counties; 15-20 adults and 5-6 larvae per 10 sweeps. (Wingfield, Marks). WASHINGTON - Hyperaspis spp. in Walla Walla area on soft maples, probably feeding on cottony maple scale, Walla Walla County. (Locati).

GREEN LACEWINGS (Chrysopa spp.) - INDIANA - Larvae continue numerous in Vincennes area. (Dolphin, June 27).

Beneficial Insects in Arkansas - Appear more numerous than normal in cotton, especially Orius insidiosus. Geocorus spp., Chrysopa spp. and various species of lady beetles present in good numbers. (Ark. Ins. Sur.).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults and nymphs averaged 48 per 10 sweeps in alfalfa fields of Laramie, Goshen, Platte and Converse Counties. (Wingfield, Marks). ILLINOIS - Varied 10-100 adults and nymphs in second-crop alfalfa in northern half of State. (White).

A PIRATE BUG (Orius spp.) - WYOMING - Adults numerous in alfalfa fields of Laramie, Goshen, Platte and Converse Counties. Averaged 50 per 10 sweeps. (Wingfield, Marks).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Total of 839 cotton fields surveyed in 8 High Plains area counties; 2 overwintered adults found, both below the Cap Rock in Crosby County. (Parker, Hanna, June 28).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae continue in host fruits. Adults taken from traps in areas of Miami, Dade County, and Fort Lauderdale, Broward County, June 22-29; larvae infesting peach June 28. Adults taken from McPhail traps in Sebring, Highlands County, June 24. First records in Highlands County. (Fla. Coop. Sur., Morris). Adults collected on sticky board in Melbourne and Micco, Brevard County (Kendrick, June 23); 4 larvae in fruit of grapefruit at Fort Pierce, St. Lucie County (Campbell, June 28).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Intensive survey of southern counties largely complete. Infestation levels during past 3 weeks considerably higher than expected. Counties north of 1965 quarantine line being surveyed for northward spread. Positive finds made in additional townships of Oceana and Mason Counties. Other areas of northern Lower Peninsula expected to be infested as survey continues. New quarantine to include all areas known infested will likely go into effect in mid-July. Considerable aerial spraying of oats in Calhoun County underway June 20-25. Excellent larval control obtained. Infestation levels in most other areas considered lower than one larva per stem for oats in preheading stage. Practically all oats now headed and past practical spraying stage. Mason County is new record. (Lovitt et al.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - Infestation found at Matamoros, Mexico, May 24. This infestation involved 2 properties and 7 orange trees located 5 or 6 blocks from International Border. An additional very light infestation found on 1 lemon tree June 23 approximately 24 blocks southeast of first infestation. Following first find, survey activity intensified. Treatments applied against all infestations. Last known infestation along border in Matamoros area eradicated in 1956. (PPC Mex. Reg.).

FORMOSAN SUBTERRANEAN TERMITE (*Coptotermes formosanus*) - Total of 1,837 sites surveyed in 7 coastal States to June 20. The number of sites inspected by States was as follows: Louisiana 1,720, Florida 66, Texas 19, Mississippi 11, South Carolina 11, North Carolina 7, Georgia 3. Most of the inspections have been conducted in waterfront areas. Total sites found infested were: Louisiana - New Orleans 16, Lake Charles 6; Texas - Galveston 2, Houston 1. Further action against the pest being considered by State and Federal agencies involved. (PPC).

GRASSHOPPERS - WASHINGTON - Damaging about 7,000 acres of rangeland and adjacent wheat near Dayton, Columbia County. (Sunderland). **CALIFORNIA** - *Camnula pellucida* adults heavy and flying on farmland 9 miles northeast of Fort Bidwell, Modoc County. (Cal. Coop. Rpt.). **NEVADA** - Economic populations of *C. pellucida* in native meadows in Rock Creek area, Pumpernickel Valley, Humboldt County. About 75 percent adults. (Maloney) **UTAH** - Indian Service lands, 12,960 acres, sprayed by aircraft for grasshopper control in southern Uintah County; 90 percent *Melanoplus sanguinipes* and 8 percent *Oedaleonotus enigma*. Numerous (adults to still hatching) on Podunk Creek along East Fork of Sevier River at 8,000-8,500 foot elevation. Control over 5,000 acres planned for July 6. Sixty percent *C. pellucida* and 30 percent *Aulocara elliotti*. Grasshoppers laying eggs; planned 13,000-acre control program in Fisher Valley, Grand County, dropped; 90 percent *M. sanguinipes* and 8 percent *O. enigma*. Local grasshopper control by farmers, ranchers and homeowners in various infested areas of State. (Knowlton, Thornley). **NEW MEXICO** - Minor problem in alfalfa in La Plata area, San Juan County, with 3-4 nymphs per 25 sweeps; 3-7 nymphs per 25 sweeps in Peralta area, Valencia County. Infestations heavy along roadsides at La Plata. (Heninger, Kloefer). **COLORADO** - General and widespread; increasing numbers of mixed populations; some damage. (Colo. Ins. Sur.). **OKLAHOMA** - Fifth-instar nymphs and adults of *M. bivittatus* and *M. differentialis* damaging marginal rows of grain sorghum in Jackson County. (Okla. Coop. Sur.).

KANSAS - Moderate to heavy along roadsides and field margins in some parts of northern area. Mostly first to third instar *Melanoplus femurrubrum*. (Simpson). **MISSOURI** - *Melanoplus* spp. early instar nymphs ranged 15-130 (average 35) per square yard in fence rows and crop margins in southwestern crop reporting district. Very light in cultivated fields and alfalfa. Counts in pastures ranged 5-35 per square yard. (Houser). Very light in northwestern area. (Thomas, Craig). **SOUTH DAKOTA** - Building up, although spotty in some areas and low in others, on range and crop lands. Most grasshoppers small. Late hatch could be quite heavy. Dry, warm weather very favorable for nymphal survival. Where hatching in economic numbers, early control urged. Survey in Custer, Fall River, Meade, Pennington, Jackson, Haakon, Lawrence and Butte Counties June 21-27 showed generally low numbers. Moderate at some locations; 25 per square yard along roadside in southern Custer County. In central and eastern Meade County, up to 20 per square yard and 10-20 in Jackson and Haakon Counties; up to 20 per square yard in eastern Pennington County. These highest roadside counts in counties surveyed. Field counts low in all counties; less than 1-5 per square yard, mostly in alfalfa. Dominant cropland species: *M. bivittatus*, *M. sanguinipes*, *M. differentialis*. In rangeland in Dewey area, Custer County, *Ageneotettix deorum* 18 per square yard; in northwest Haakon County, *Aulocara elliotti*, *Phoetaliotes nebrascensis*, *M. sanguinipes*, and *M. femurrubrum* 5 per square yard; in Cheyenne River area, Pennington County, these same species 4 per square yard. (Zimmerman, Burge). Mostly *M. bivittatus* averaged 2 per square yard in alfalfa in Belle Fourche River Valley, south of Fruitdale, Butte County. (Jones). In Woonsocket area, Sanborn County, up to 12 grasshoppers per square yard in fields and up to 15 in borders. Species included *M. differentialis*, *M. bivittatus* and *M. packardii*. (Kantack, Burge). In Cheyenne River bottom country south of Wasta, Pennington County, on over 1,000 acres of rangeland, up to 20 grasshoppers per square yard with 10-12 common. Species those normally found on cropland. Over 50 percent *M. differentialis*; remaining species *M. sanguinipes*, *M. bivittatus* and *Phoetaliotes nebrascensis*. Some adults present although mostly second to fourth instars. (Burge). **MINNESOTA** - Light hatch of *M. femurrubrum* in Hennepin and Wright Counties. First to third instars of *M. sanguinipes*, *M. differentialis* and *M. bivittatus* nymphs light in southwest, south central and southeast districts. Few adult *M. packardii* in light sandy soil areas of northern Wright County. Hatch of predominant species, *M. femurrubrum*, started. Check for small grasshoppers in

alfalfa fields, field margins and roadsides for next few weeks recommended. Delay control measure until hatch complete. (Minn. Ins. Rpt.). WISCONSIN - M. sanguinipes nymphs in fourth and fifth instars, but populations very low. Few small M. femur-rubrum nymphs periodically swept from regrowth alfalfa, but either hatch greatly delayed, or populations will be low. Dissosteira carolina adults present but also uncommon. (Wis. Ins. Sur.). ILLINOIS - Melanoplus sp. nymphs varied 0-220 per 100 sweeps in second-crop alfalfa. Mostly first to third instars. Few M. sanguinipes adults on sandy soils in central area. (Ill. Ins. Rpt.). INDIANA - Melanoplus spp. nymphs up to 4 per sweep in weedy alfalfa and field borders in southeast and south central areas. (Huber). OHIO - Nymphs of various species beginning buildup on clover and alfalfa in some southern counties. Averaged 1-4 per sweep in Fayette, Highland and Vinton Counties. (Rose).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Larvae active on oak in Waterford, Norwich and Storrs. (Savos, June 28).

JAPANESE BEETLE (Popillia japonica) - Emergence well along from VIRGINIA southward through infested areas in CAROLINAS and GEORGIA. (Hamilton, June 29). MASSACHUSETTS - Emergence underway; numbers expected soon. (Crop Pest Cont. Mess., June 27). RHODE ISLAND - Adults on preferred hosts; no general emergence yet. (Mathewson). MARYLAND - First adults of season feeding on roses and other favored hosts in central and southern areas. (U. Md., Ent. Dept.). VIRGINIA - Adults causing considerable damage to roses. Numerous on yards and in flight in Virginia Beach area. (Allen, June 27). OHIO - Adults emerging; 15 collected in 100 sweeps on headed oats in Vinton County. (Phillips). MICHIGAN - Nearly all traps for survey program in position. (Lovitt).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - To July 7, adults or larvae collected at 37 sites in city of Brownsville, Texas. Treatment area involves 14,000 acres in Brownsville and an adjacent area in Matamoros, Mexico. Third application started July 7. Since the initial find on June 13, 198 flies were trapped at 17 locations; since controls were initiated on June 28, 22 flies have been trapped at 13 locations. No positive collections made in Mexico. Total of 1,971 traps in operation in Cameron, Willacy and Hidalgo Counties, Texas; 668 traps in operation in nearby areas of Mexico. (PPC).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ARKANSAS - First adults of season June 20-24 near Earle and Jericho, Crittenden County. Pupae also found near soil surface. (Frazier).

INSECT DETECTION - New county records.

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adults collected in McPhail trap in Highlands County. (p. 652).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Collected in Mason County. (p. 652).

A JAPANESE WEEVIL (Calomycterus setarius) - MISSOURI - Adults collected in Holt County. (p. 635).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW HAMPSHIRE - Collected in Hillsboro County. (p. 644).

A MEALYBUG (Puto yuccae) - CALIFORNIA - Collected in El Dorado County. (p. 646).

A SOFT SCALE (Lecanium kunoensis) - CALIFORNIA - Collected in Lake County. (p. 646).

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

Total of 19 cases reported in U. S. June 26 - July 2 as follows: TEXAS - Brewster 1, Bandera 1, Medina 1, De Witt 3, Goliad 1, Bee 2, Nueces 1. ARIZONA - Santa Cruz 1, Maricopa 1, Gila 1, Yavapai 2. NEW MEXICO - Grant 1, Eddy 1. CALIFORNIA - Imperial 1, San Diego 1. Sterile screw-worm flies released: Texas 22,978,250, Arizona 18,428,000, New Mexico 12,604,000, California 1,200,000, Mexico 69,960,000.

Current Cumulative Current Cumulative Current Cumulative

Table 1. Comparison of screw-worm samples identified during corresponding weeks in the United States.

Year	Positive Cases		Negative Cases	
1964	15	135	87	3874
1965	36	349	133	3097
1966	19	285	115	3212

Table 2. Comparison of United States screw-worm cases by State.

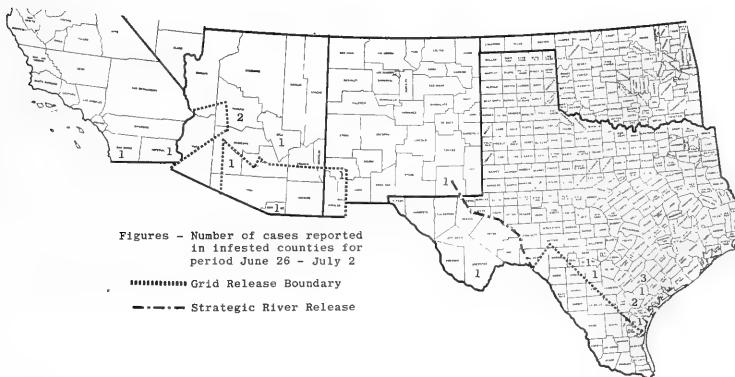
State	1964		1965		1966	
Texas	7	90	12	207	10	127
Ariz.	7	30	18	118	5	127
N. M.	1	5	6	29	2	23
Calif.	0	10	0	0	2	8

Table 3. Comparison of screw-worm cases inside and outside the United States portion of the Barrier Zone.*

Year	Inside Barrier Zone		Outside Barrier Zone	
1965	29	226	7	120
1966	6	201	13	84

Total of 86 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 1, Baja California 1, Sonora 43, Chihuahua 22, Coahuila 1, Nuevo Leon 8, Tamaulipas 10. Total of 312 cases reported from Mexico south of the Barrier Zone.

* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of self-sustaining screw-worm populations in the United States. Effective May 23, 1965, portions of Arizona and California were added to the Barrier Zone. (Anim. Health. Div.).



HAWAII INSECT REPORT

Special Insects of Regional Significance - MEDITERRANEAN FRUIT FLY (Ceratitis capitata) and ORIENTAL FRUIT FLY (Dacus dorsalis) - Larvae heavy in ripening Prunus persica (peach) in Waiakoa, Maui; about 100 percent of fruits infested. Adults of both species moderate on peaches. No damage to Prunus persica var. nectarina (nectarines) noted in Upper Kula (4,000 feet), Maui. (Miyahira).

Corn - All stages of CORN PLANTHOPPER (Peregrinus maidis) medium to heavy on home garden sweet corn in Hanapepe and Kaumakani, Kauai. Cyrtorhinus mundulus, an egg-sucking mirid bug, present in moderate numbers. (Au).

Potatoes, Tomatoes, Beans - All stages of TUMID SPIDER MITE (Tetranychus tumidus) heavy in one acre and light to medium in one acre of sweetpotatoes in Waiahole, Oahu. Foliage pallid in appearance. Phytoseiulus macropilis, a predaceous mite, abundant among spider mites. Det. by F. Haramoto. (Sato). All stages of a LEAF MINER FLY (Liriomyza sp.) heavy in 0.25 acre of yard-long beans in Hanapepe, Kauai; 75 percent of leaves damaged. Heavy on nearby tomato plantings. On Oahu, all stages heavy on snap beans and tomatoes in Waianae. Farmers encountering difficulty with control. (Au, Yamamoto). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) very heavy on acre of fruiting tomato plants in Omaopio, Maui. (Miyahira). All stages of CARMINE SPIDER MITE (Tetranychus telarius) continue heavy on snap beans in Waianae, Oahu. (Yamamoto).

Cucurbits - All stages of a LEAF MINER FLY (Liriomyza sp.) heavy on watermelon in Waianae, Oahu. Control difficult despite good spray program. (Yamamoto).

General Vegetables - All stages of CABBAGE APHID (Brevicoryne brassicae) medium in 0.25 acre of daikon at Koko Head, Oahu. (Sato). All stages of CARMINE SPIDER MITE (T. telarius) heavy on eggplants in Kahului and light on same crop in Waikapu, on Maui. (Miyahira).

Ornamentals - THREE-LINED POTATO BEETLE (Lema trilineata) larvae heavy and causing severe foliar damage to Datura candida (angels-trumpet) in Nankuli, Oahu. (Yoshioka, Higa). Larvae of an OECOPHORID MOTH (Ethmia colonella) light on Cordia subcordata (kou) in Kailua-Kona, Hawaii Island; a rapid buildup anticipated. (Yoshioka).

Forest and Shade Trees - Larvae and pupae of a NOCTUID MOTH (Polydesma umbricola) medium beneath bark of monkeypod trees in Kainaliu, Kona, Hawaii Island. Trees completely defoliated during peak outbreak about one month ago. (Haw. Ins. Rpt.). CITRUS MEALYBUG (Planococcus citri) and STRIPED MEALYBUG (Ferrisia virgata) light to medium on approximately 75 monkeypod trees at Kahului Shopping Center, Maui. P. citri heavy on monkeypod trees along Kapiolani Boulevard, Honolulu, Oahu, during early May; subsequently brought under control by Cryptolaemus montrouzieri (a lady beetle). (Nakao).

Beneficial Insects - Significant buildup of a GALL MIDGE (Zeuxidiplosis giardi) occurring on Hypericum perforatum (Klamath-weed) on Mt. Hualalai (6,700 feet), Hawaii Island. Heavily infested plants observed as far as 200-300 yards from release site. (Haw. Ins. Rpt.). A HELIODINID MOTH (Schreckensteinia festaliella) - Larvae and damage to foliage of Rubus rogersii (blackberry) very conspicuous at Kokee State Park, Kauai. Large numbers of adults also easily seen in blackberry brambles. Species purposely introduced from California to aid in control of blackberry, a rangeland weed pest. (Au). Several emergence holes of a CERAMBYCID BEETLE (Plagiohammus spinipennis) noted on Lantana camara stems in Hookena, South Kona, Hawaii Island. Previously only girdling damage and 2 larvae reported from this locality. (Kunimoto). Numerous cocoon clusters of a BRACONID WASP (Apanteles militaris), a parasite of armyworm (Pseudaletia unipuncta), noted under rocks and fallen logs on Mt. Hualalai (6,700 feet) on Hawaii Island. (Haw. Ins. Rpt.).

Miscellaneous Insects - Adults of a CHRYSOMELID BEETLE (Diachus auratus) medium on terminal foliage of wild blackberry at Mt. Kaala (4,000 feet), Oahu. Adults appear solitary in feeding habits; one per leaf. Indigenous hosts include Acacia koa (koa) and Osteomeles anthyllidifolia (ulei). (Haw. Ins. Rpt.).

LOOK FOR THESE CHAFERS



Common Cockchafer Although adults of this chafer feed on leaves of various trees and shrubs, greatest damage is caused by the larvae which feed on roots of many plants. *Melolontha melolontha* is regarded as a major pest in some countries of Europe, the only area it is known to occur. Adults appear in the British Isles in May and remain active until early July. Four years are required for a life cycle and there is usually a "flight year", one in each four years when the chafers are more abundant than usual. The adult is a large beetle, about one inch long, with black head and thorax and reddish brown elytra. The full-grown larva is about one and one-half inches in length. *M. melolontha* has been intercepted frequently at ports of entry.

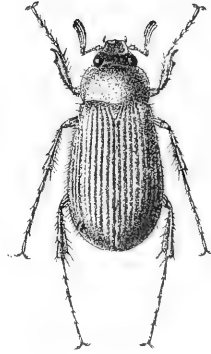
Summer Chafer

This near relative of European chafer is an important pest of many plants. Principal damage is caused by the larvae, frequently reported in European literature. Damage to crops and grasses is Amhmallon solstitialis occurs in Europe, including the British Isles, and in central Asia. Adults emerge in July and fly, often in dense swarms, in the evening, principally from 8:30 to 10 p.m. The beetles seek shelter during the day in the soil or undergrowth. Adults of *A. solstitialis* are about 16 mm. long, light brown or yellowish in color. The elytra are glabrous and simply ornamental. Fresh specimens are distinctly hairy. The grub is a typical scarabaeid larva in appearance and is about 31 mm. in length when full grown.



Brown Chafer

This chafer is a common pest in parts of Europe. Adults may defoliate trees and shrubs in outbreaks but the most damage is caused by the larvae. Brown chafer has been called one of the worst pests of nursery stock in Britain because of the important damage larvae cause to roots and young stems. Roots of grasses are also damaged. *Serica brunnea* adults emerge in early July and swarm at sunset and early evening. They are reddish brown and about 10 mm. long. The life cycle of this chafer requires about two years.



None of these chafers is known to occur in the United States.

CORRECTIONS

CEIR 16(21):451 and 463 - MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) should read *P. spumarius*.

CEIR 16(25):577 - COLORADO POTATO BEETLE (*Leptinotarsa decimlineata*) should read *L. decemlineata*. FLEA BEETLES - MAINE - *Epitritix cucumeris* should read *Epitrix cucumeris*. . . POTATO APHID (*Macrosiphum euphorbiae*) should read *M. euphorbiae*. 578 - A FLEA BEETLE (*Phyllotreta crucifera*) should read *P. cruciferae*. SWEET-POTATO FLEA VEETLE should read SWEETPOTATO FLEA BEETLE. 580 - ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - COLORADO - Should read: "Second-generation adults taken in bait traps in Mesa County only; have not been found in other counties or areas of State. (Anderson, Merlino). 581 - PEAR PSYLLA (*Psylla prycicola*) should read *P. pyricola*. 583 - A WEEVIL (*Brachyrhinus cribricollis*) should read *Brachyrhinus cribricollis*. 583 - STRAWBERRY SPIDER MITE (*Tetranychus altanticus*) should read *T. atlanticus*. 584 - AN ARMORED SCALE (*Gymnaspis aechneae*) should read *G. aechmæae*. NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - MICHIGAN - Adults determined by J. H. Newman as *Exoteleia* sp., possibly *E. pinifoliella*. 592 - CORRECTIONS - CALIFORNIA PEAR-SLUG (*Pristiphora abbreviata*) should read *P. abbreviata*.

Restoration of Name Chorthippus curtipennis (Harris)

(Orthoptera, Acrididae)

The widespread North American grasshopper, which for many years prior to 1936 was assigned the name Chorthippus curtipennis (Harris), now has that name restored to valid usage. In 1936 (Orthoptera of North Dakota, N. D. Tech. Bul. 284, p. 31), Hebard adopted C. longicornis (Latreille) for this species and regarded curtipennis as a synonym. (Latreille described longicornis from France in 1904, and Harris described curtipennis from Massachusetts in 1841.) Hebard believed that longicornis is a Holarctic species found as a native across Europe, northern Asia, and North America. During the 30 years that the name longicornis has been applied to United States and Canadian specimens, doubts as to the correctness of that usage have arisen. First, European entomologists discovered that the type specimen of longicornis no longer exists and that the description is inadequate to recognize Latreille's species with certainty; as a result, by Opinion 609, International Commission on Zoological Nomenclature, the name longicornis (Latr.) was suppressed in 1961 as unrecognizable. Other names are available and in general use for the several species of Chorthippus which occur in Europe and Asia. Recently, V. R. Vickery (Canad. Ent. 96(12):1537-1548, 1964) of Macdonald College, Quebec, has made a special study of the genus Chorthippus, entitled "The validity of the name curtipennis (Harris) for North American Chorthippus." He has found that the well known North American species is distinct from its Old World relatives. Hence, he has restored the use of curtipennis.

This grasshopper, widespread in Canada and occurring across northern United States and southward along mountains in both East and West, is often encountered during grasshopper surveys. It was most recently reported from Oregon as longicornis (USDA Coop. Econ. Ins. Rpt. 16(20):442, 1966).

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UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

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OFFICIAL BUSINESS

VOL. 16 No. 28

July 15, 1966

SB
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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM situation should be watched in Minnesota and Wisconsin. CORN EARWORM increasing on sorghum in Arizona; existing populations pose threat to nearby cotton. Heavy numbers pupating in southern Alabama; could be heavy later on cotton and other crops. Larvae moderate to heavy in corn in other areas. CORN LEAF APHID moderate to heavy on sorghum and milo in some control areas. (p. 663). CEREAL LEAF BEETLE summer adults active in Indiana and Michigan. (p. 682).

APPLE MAGGOT adults appearing in several fruit-growing areas. (p. 675). SPIDER MITES troublesome throughout central Missouri orchards; EUROPEAN RED MITE increasing in Ohio, Michigan and Vermont. (p. 676). HORNWORM larval populations on tobacco in southern Maryland unusually heavy; first adult of season in Wisconsin. (p. 663). POTATO LEAFHOPPER adults abundant on alfalfa in several States; nymphs increasing in Delaware. (p. 664). SIX-SPOTTED LEAFHOPPER numerous in lettuce in Michigan; in small grains in Minnesota and North Dakota. SPOTTED ALFALFA APHID populations high in Arkansas. (p. 664).

EUROPEAN CORN BORER first-generation larval populations above normal in Indiana and Maryland. (pp. 664, 665). SORGHUM MIDGE damaging and widespread in central Texas. (p. 666). MEADOW SPITTLEBUG populations high in alfalfa in Ohio and Wisconsin. (p. 668).

BOLL WEEVIL situation critical in west Tennessee; increasing at Florence, South Carolina. (p. 669). SPIDER MITES heavy on some cotton in South Carolina and Mississippi; weather ideal for buildup in Tennessee. (p. 671). COLORADO POTATO BEETLE severe on potatoes in Idaho; damaging in Utah. (p. 672). ORIENTAL FRUIT MOTH injury to peach terminals more severe than past 4-5 years in Connecticut. (p. 675). BLACK SCALE populations highest in 15 years on Florida citrus. A SAP BEETLE abundant on strawberries in Michigan; harvest discontinued. (p. 677). MOSQUITO adults heavy and annoying in some areas. (p. 680).

WHITE-FRINGED BEETLE adults appearing at Virginia Beach, Virginia. PINK BOLLWORM infestations in cotton blooms showing up in Arizona. (p. 683).

MEDITERRANEAN FRUIT FLY situation in Brownsville, Texas. (p. 683).

Detection

A TEPHRITID FLY (Myoleja limata) found for first time in Texas. (p. 684).

For new county and island records, see page 684.

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

CONTENTS

Special Insects of Regional Significance.....663

Insects Affecting

Corn, Sorghum, Sugarcane.....664	Beans and Peas.....673
Small Grains.....666	Cole Crops.....673
Turf, Pastures, Rangeland.....667	Cucurbits.....674
Forage Legumes.....667	General Vegetables.....674
Soybeans.....668	Deciduous Fruits and Nuts.....675
Peanuts.....669	Citrus.....677
Cotton.....669	Small Fruits.....677
Tobacco.....671	Ornamentals.....678
Sugar Beets.....672	Forest and Shade Trees.....678
Miscellaneous Field Crops.....672	Man and Animals.....680
Potatoes, Tomatoes, Peppers.....672	Households and Structures.....681

Beneficial Insects.....681

Federal-State Plant Protection Programs.....682

Insect Detection.....684

Corrections.....684

Hawaii Insect Report.....685

Light Trap Collections.....686

WEATHER OF THE WEEK ENDING JULY 11

HIGHLIGHTS: (1) Third hot, humid week in Central and East. (2) Mostly dry West, showery with highly variable rains East and South Central.

TEMPERATURE: With high barometric pressure persisting, this was the third consecutive hot, humid week from the northern and central Great Plains to the Atlantic Ocean. In contrast to the scorching heat in other areas, temperatures over the Pacific Northwest averaged slightly below normal. Polar continental air pushed into the Northeast early in the week bringing temporary relief from the high temperatures that had prevailed since June 22. Warm moist air poured northward over mid-America. Temperatures climbed into the 90's from the interior valleys of California to the Atlantic Ocean and by the weekend, as far north as Montana and the Dakotas. Some locations in the southwestern deserts and in the central Great Plains registered 100° or higher on 5 to 7 days. Huron, South Dakota, set a new alltime record on the 10th when the temperature reached 112°.

Weather continued on page 684.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - COLORADO - Trace to light numbers in barley north of Fort Collins, Larimer County. (Caubin, Urano). MINNESOTA - Damaging corn and oats in Waseca, Meeker and Washington Counties. Infestations apparently not widespread throughout State; only few fields with economic numbers. Growers urged to check corn and small grains for larvae. (Minn. Ins. Rpt.). WISCONSIN - Very few larvae appearing in grassy peas and lodged portions of oats in Columbia County. Potential for somewhat higher numbers exists, indicated by blacklight trap counts. High numbers of moths appeared in Platteville light trap past 2 weeks; although very little damage resulted in grassy forage crops in southwest in past, infestations in grassy peas in area often occur. (Wis. Ins. Sur.). ARKANSAS - Moth numbers in light trap at Manila dropped compared with past several weeks. Large number observed on sugar lines at night in Jefferson County. (Ark. Ins. Sur.). DELAWARE - Adults common in blacklight trap in Sussex County; 8 per night. (Burbutis, Davis). MASSACHUSETTS - Total of 93 moths taken in blacklight trap at East Wareham week of July 1. (Tomlinson).

BUDWORMS (*Heliothis* spp.) - MARYLAND - Larvae light on tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

CORN EARWORM (*Heliothis zea*) - ARIZONA - Continues to increase in sorghum throughout Pima, Pinal and Maricopa Counties. Damage appears moderate but existing populations pose threat to nearby cotton. Light to moderate in early planted corn in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - High percentage of ears of sweet corn damaged in home plantings in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.). KANSAS - Many adults present, eggs plentiful on corn silk in Sedgwick County. Larvae, mostly quite young, very numerous (5-6 per ear) in fields checked. (Eshbaugh). Occasional larva found in corn whorls in Jewell County. (Brooks). OKLAHOMA - Continues moderate to heavy in field and sweet corn in many areas. (Okla. Coop. Sur.). ALABAMA - Heavy numbers of full-grown larvae moving from older corn ears in Covington and other extreme southern counties to pupate. Heavy moth flights should occur next 2 weeks; egg laying could be heavy on cotton, tomatoes, grain sorghum, soybeans and other crops. (Pike et al.). Light population damaging lima bean pods in Lee County planting. (Bagby). GEORGIA - Infestation on untreated sweet corn 95 percent in Spalding County (Dupree); damaging ears and buds of young corn in Bleckley County. (Lawson). VIRGINIA - Very few larvae noted in early corn in Caroline, Hanover, Louisa and Spotsylvania Counties. (Isakson). NEW YORK - None found in over 3,000 emerging tassels on sweet corn examined in Hurley, New Paltz and Poughkeepsie areas. (N. Y. Wkly. Rpt., July 5).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEVADA - Counts 4-5 per sweep in winter wheat in Lund, White Pine County. Some leaf chlorosis and shriveling noted. (Earnist). Ranged 3-7 per sweep in grain in Orovida, Humboldt County. (Cooney). NEW MEXICO - Present in most grain sorghum in Curry and Roosevelt Counties. Several growers treating most heavily infested fields. (Nielsen). ALABAMA - Heavy on isolated stalks of corn in field plantings throughout much of southern area. (Pike et al.). OKLAHOMA - Moderate in grain sorghum in Ottawa and Mayes Counties. (Okla. Coop. Sur.). KANSAS - Populations high in sorghum in many areas of State. (Simpson). MISSOURI - Generally light (5-50 per plant) on corn and grain sorghum in northwest and north central areas. Occasional plant heavily infested (200+ per plant). (Houser). NEBRASKA - Heavy on milo in some southeast and southern areas. Little damage noted. (Aitken, Cooksley). WISCONSIN - Small colonies forming in early sweet corn near Mazomanie; populations very low. (Wis. Ins. Sur.). INDIANA - Populations of 200-400 individuals per whorl damaging 4.5 to 5-foot corn in south central district. Approximately 4 percent of corn surveyed infested; additional 8-12 percent of plants with few alates. (White). NEW YORK - None found in tassels of sweet corn in Hudson Valley. (N. Y. Wkly. Rpt., July 5).

HORNWORMS (*Manduca* spp.) - DELAWARE - Adults increased in blacklight trap in Sussex County. (Burbutis, Davis). MARYLAND - Adults moderate in blacklight traps on Eastern Shore. Larval populations on tobacco in southern sections highest in recent

years. (U. Md., Ent. Dept.). WISCONSIN - First *M. quinqueaculata* adult taken in Mazomanie blacklight trap July 5. Egg laying expected soon. (Wis. Ins. Sur.).

PICKLEWORM (*Diaphania nitidalis*) - GEORGIA - Heavy on squash in Tift County. (French).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - Nymphs and adults abundant on alfalfa in many areas. Nymphs continue to buildup on lima beans in Kent and Sussex Counties. (Burbutis, Davis). MARYLAND - Adults and nymphs 50 per sweep on 30 acres of alfalfa at Churchill, Queen Annes County. (U. Md., Ent. Dept.). OHIO - Some increases on alfalfa noted in Logan and Hardin Counties; 9-10 per sweep in 2 fields. (Rose). WISCONSIN - Very high adult numbers appearing in blacklight traps and around lights in Madison area. Populations high in uncut alfalfa; nymphs and adults increasing noticeably in regrowth alfalfa. Some scattered yellowing appearing in alfalfa on sandy soils. (Wis. Ins. Sur.). ILLINOIS - Adults 800-1,000 and nymphs 1,400-4,900 per 100 sweeps in second-crop alfalfa in southeast. Severe yellowing of alfalfa present in some fields. In third-crop alfalfa in same area, adults 0-20 and nymphs 0-10 per 100 sweeps with no damage evident. (White). MISSOURI - Remains light in northern area alfalfa; 2-3 per sweep. (Houser, Thomas).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Nymphs 0-6 per tomato leaflet in gardens in Greeley, Weld County. Adults 4-12 per 100 sweeps in Weld County potatoes. (Urano).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - NORTH DAKOTA - Adults and nymphs up to 250 (average 140) per 100 sweeps in wheat and flax in Traill County. (Brandvik, Kaatz). MINNESOTA - Counts remain high in small grain in western edge of State. Average per 100 sweeps as follows: Southwest 354, south central 245, northwest 300. (Minn. Ins. Rpt.). MICHIGAN - Adults numerous in many Jackson County lettuce fields; aster yellows observed. (Guyer).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WISCONSIN - Continues to increase in most alfalfa depending upon percent migration. Increase slow with only about 4-fold multiplication noted. Highest count 15 per sweep in single field; averaged 8 per sweep in fields on sandy soils. (Wis. Ins. Sur.). ILLINOIS - Light, 0-80 per 100 sweeps, in second and third-crop alfalfa in southeast. (White). KANSAS - Ranged 15-50 per 10 sweeps in Barton County. (Martinez). ARKANSAS - Numbers per 100 sweeps continue very high; several hundred in Pulaski County. Lighter in upper Arkansas River Valley and lowest (100-200) in Faulkner County. About 200-300 per 100 sweeps in Conway County, 500-600 in Yell County. (Ark. Ins. Sur.). OKLAHOMA - Moderate in alfalfa in Nowata and Bryan Counties; light in Garvin County. (Okla. Coop. Sur.). NEW MEXICO - Mostly light, spotted infestations found in Eddy County alfalfa. (Garcia).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NORTH DAKOTA - Emergence complete in southeastern counties. Light trap collections indicate peak moth populations July 6-7. Egg laying underway in all southeastern counties. Egg mass counts on 30-inch to 5-foot corn averaged 15 per 100 plants. All eggs in white stage. (Brandvik, Kaatz). MINNESOTA - Egg masses increased in southern two-thirds of State. Hatch also increased but larval counts not high. Borers per 100 plants as follows: Southwest 17, south central 24, west central hatch just starting. Mostly first and second instars in southern counties; few third instars present. (Minn. Ins. Rpt.). IOWA - Moth emergence 100 percent June 27 in Boone County. Highest leaf feeding activity 92 percent in Fremont County. (Iowa Ins. Inf.). NEBRASKA - Some adults still flying; feeding damage present on 25 percent of corn in east and 50-80 percent of corn in southeast parts of State. (Hill, Rhine, Priest, Aitken). MISSOURI - Abundance survey of 24 fields in New Madrid County July 1-6 indicated 4,600 forms per acre in early planted corn (post silk), 400 per acre in late-planted corn (silk stage). Pupation well underway, moth emergence started. (Keaster). Larvae entering stalks in extreme northern area. Infestation 7-76

plants per 100 in early planted corn in northwest, 8-100 plants per 100 in north-east in early planted corn. Infestations heavy in only occasional field in north-west, in several fields in northeast. (Houser, Thomas). WISCONSIN - Eggs being laid in more northerly areas. Counts showed 1 egg mass per 50 plants in Green and Marquette Counties. None present in western Dane nor in Sauk County, but leaf feeding 24 percent in one field; 4 percent in other fields. Fourth-stage larva found near Mazomanie; some larvae boring into stalks. Most still first and second instars; most feeding limited to whorl area. (Wis. Ins. Sur.). INDIANA - First-generation infestations in south central and southwestern quarter of State much heavier than past few years. Infestations 12-76 percent in corn examined. (Lehker, White). In northwest and north central areas, infestations 2-32 percent in corn examined. (Huber). OHIO - Second and third-stage larvae infesting 23-25 percent of corn in Wayne County field. (Barry). Statewide activity indicated by heavy infestation in Fulton County; approximately 50 percent of plants infested in one field. (Polivka, Wells).

VIRGINIA - Whorl infestations 10-40 percent in early field corn in Caroline, Han-over, Louisa and Spotsylvania Counties; larvae in last instar. (Isakson). MARY-LAND - First-generation larval populations in corn near peak and above normal. Whorl and tassel infestations of 20-90 percent common in early planted corn over State. (U. Md., Ent. Dept.). NEW YORK - Infestation in emerging tassels of 8 plantings in Hurley, New Paltz and Poughkeepsie areas 1.5 percent in treated fields. Larvae second to fourth instars; few in tassel stem. Few eggs noted in Niagara County. (N. Y. Wkly. Rpt., July 5). VERMONT - Observed on sweet corn. First-brood activity will be at peak coming week. (Nielsen, July 5). NEW HAMPSHIRE - Eggs hatching at Litchfield and Concord. (Sutherland, June 23).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - MISSOURI - Survey of 24 fields in New Madrid County July 1-6 indicated 555 forms per acre. Development ranged fourth instar to pupae; some moth emergence noted. (Keaster).

STALK BORER (*Papaipema nebris*) - NEBRASKA - Noneconomic in borders of corn and sor-gum in southeast area. (Roselle). IOWA - Severe in 2 fields of corn in Guthrie and Goodwin Counties. (Iowa Ins. Inf., July 5). MINNESOTA - Present in marginal rows of corn. (Minn. Ins. Rpt.). OHIO - Larvae infesting some stalks of corn in Franklin County. (Jones).

SORGHUM WEBWORM (*Celama sorghiella*) - TEXAS - Heavy, damaging populations noted on grain sorghum near Snook, Burleson County. (Todd).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - Hatch still underway in southern half of State. Larval counts generally low; most in first stage, but few second and third stages found. Few fields in Pipestone and Lincoln Counties with 7 larvae per plant. Most corn apparently past post-emergence treatment stage. (Minn. Ins. Rpt.). NEBRASKA - Larval populations reached peak with some damage noted. Adults emerging in Dawson County and in southeast area. (Rhine, Aitken). KANSAS - Larvae reported in Rush County July 1; all larval stages present, no adults observed. Populations considered low in fields examined. (DePew). Larvae 10-12 per plant in untreated fields in Republic County; 2-3 per plant in treated fields in Jewell County. Damage not yet at peak. (Brooks). Occasional large larva found in Nemaha County; 1-2 per plant on 30-50 percent of plants. (Simpson). Up to 12 *D. virgifera* per corn plant in McPherson County. (Brooks). MISSOURI - *D. virgifera* severely damaged corn (40-100 percent lodged stalks) from St. Joseph, Buchanan County, to Rock Port, Atchison County; lightly damaged corn (trace lodged stalks) in Scotland County. Rootworm forms in northwest 5-35 per root system; 30 percent pupae, 20 percent prepupae, 1 percent adults. Heaviest numbers found in untreated corn. (Houser, Thomas). OHIO - Small numbers of *D. longicornis* pupae noted in corn in west central and northwestern areas; mostly larvae and feeding on roots. Larvae 10 per plant in 1-acre plot of untreated corn in Henry County; plot previously in corn; all plants suspected infested. Infestations somewhat less in untreated corn in Hancock County; some pupae observed. (Nicholson, Davidson).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Adults of new generation evident on corn over most of State. (U. Md., Ent. Dept.).

A LEAF BEETLE (*Chrysochus cobaltinus*) - IDAHO - Numerous in light infestation of milkweed in Canyon County corn field. (Bechtolt). OREGON - Adults severely damaging foliage of potatoes in garden planting near Medford, Jackson County. (Vertrees).

DUSKY SAP BEETLE (*Carpophilus lugubris*) - MARYLAND - Adults moderate on sweet corn in full tassel at Carmichael, Queen Annes County. (U. Md., Ent. Dept.).

MAIZE BILLBUG (*Sphenophorus maidis*) - OHIO - Minor corn leaf damage noted in Crawford and Wayne Counties. (Barry, Rose). Some sweet corn in Crawford County tassled and silks appearing. (Rose).

A SCARAB (*Anomala innuba*) - INDIANA - Flights heavy in corn fields in Benton County; up to 8 adults per plant in whorls but no damage observed. (Chandler). Reported on corn in Pike County. (Lehker).

CHINCH BUG (*Blissus leucopterus*) - KANSAS - Continues heavy in sorghum in areas reported in CEIR 16(27):630. Light in Lyon, Morris, Wabaunsee and Geary Counties. Controls still being applied. (Redding, Gates). NEBRASKA - Infestations reported in Jefferson, Saline, Gage and Lancaster Counties. (Roselle, Rhine).

SORGHUM MIDGE (*Contarinia sorghicola*) - TEXAS - Damaging populations widespread over several central counties on grain sorghum; large numbers of pupal cases found in several fields in Hill, McLennan, Bell, Brazos, Burleson, Robertson and Falls Counties. Especially heavy damage observed in fields near Temple. (Thomas).

GARDEN SYMPHYLAN (*Scutigerella immaculata*) - OHIO - Probably this species becoming increasing problem on corn in various fields in Champaign County. (Rinehart).

SPIDER MITES (*Tetranychus* spp.) - COLORADO - Appearing in many fields of corn in Weld County. (Urano).

SMALL GRAINS

WHEAT STEM MAGGOT (*Meromyza americana*) - MINNESOTA - White heads present in many small grain fields. It appears to be damaging but most fields average less than 1 percent infestation. (Minn. Ins. Rpt.). NORTH DAKOTA - White heads appearing in wheat fields in southeastern counties. Less than 1 percent of stems infested. (Brandvik, Kaatz).

HESSIAN FLY (*Mayetiola destructor*) - OHIO - Inspection of 4 wheat fields in central, west central and north central areas for puparia showed infestations of 10-60 percent; recorded observations for counties in specific fields checked were: Logan 20 percent, Hardin 60 percent, Crawford 50 percent, Licking 10 percent. (Rose). MINNESOTA - Infestation 5 percent in one field in Le Sueur County. This only field found infested. (Minn. Ins. Rpt.).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - IDAHO - General in northern area wheat fields. Larger populations in field areas with high soil moisture. Syrphid fly larvae, lady beetles and aphid mummies present throughout area. (Futter, O'Keefe, Portman).

SAY STINK BUG (*Chlorochroa sayi*) - NEVADA - Averaged 1 per sweep in winter wheat in Lund, White Pine County. Counts low due to hot weather; some heads shriveled. (Earnist).

BARLEY THRIPS (*Limothrips denticornis*) - NORTH DAKOTA - Nymphs up to 40 (average 14) per leaf sheath in headed barley in Richland, Ransom, Sargent and Cass Counties; up to 20 per plant in Emmons, Burleigh and McLean Counties. Most barley heading. (Brandvik, Kaatz).

TURF, PASTURES, RANGELAND

SAGEBRUSH DEFOLIATOR (Aroga websteri) - UTAH - Moderate on sagebrush in Logan Canyon, Cache County, and several localities in Rich County. (Knowlton).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Numerous adults swarming at dusk on properties at Abell, St. Marys County. (U. Md., Ent. Dept.).

A SCARAB (Cyclocephala sp.) - NEVADA - Large numbers of adults attracted to lights and Japanese beetle traps in vicinity of golf course in north Las Vegas, Clark County, where larvae damaged turf last year. (Kinard, Zoller).

A BILLBUG (Sphenophorus venatus vestitus) - MARYLAND - Larvae numerous in zoysia lawn at Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

CHINCH BUG (Blissus leucopterus) - NEW JERSEY - Activity increasing on turf in central and northern counties. (Ins.-Dis. Newsltr.). ALABAMA - Heavy and causing considerable damage to St. Augustine grass in Lee County. (Tamplin).

GRASS BUGS (Labops spp.) - UTAH - Still numerous and damaging giant ryegrass more than wheatgrass in area 8 miles south of Monte Cristo, Weber County. Irbisia spp. rare now in this area. (Knowlton).

AN ANT (Formica integroides) - CALIFORNIA - Locally heavy in ground areas 20 miles south of Adin, Lassen County in National forest. (Cal. Coop. Rpt.).

A SNAIL (Otala lactea) - CALIFORNIA - Locally heavy on weeds in San Diego, San Diego County. This new county record. (Cal. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VERMONT - Populations beginning to wane, with larvae per sweep dropping; pupation continues. Many third and fourth-stage larvae still found in fields in central and southern areas; 5-10 per sweep June 30 in Orwell. Pupae easily found. Unsprayed fields at Bennington heavily infested in June, now showing extremely slow regrowth. (Nielsen, July 5). RHODE ISLAND - Larvae active in some Providence County alfalfa. (King). CONNECTICUT - Feeding on second-growth alfalfa causing concern to many growers around State. (Savos, July 6). ILLINOIS - Adults 0-10 and larvae 0-20 per 100 sweeps in 5 to 15-inch alfalfa in southeastern area. (White). NORTH DAKOTA - Single adult collected from first-crop alfalfa east of Roseglen, McLean County. This new county record. (Brandvik, Kaatz). WYOMING - Larval counts very low on second-crop alfalfa in Hot Springs, Washakie, Big Horn and Park Counties; 1-9 per 10 sweeps. Pupation 95-100 percent in these areas. (Gale, Marks). COLORADO - Few larvae found on second-cutting alfalfa hay crop in Mesa, Delta and Montrose Counties; 5-30 per 100 sweeps. (Bulla). NEW MEXICO - Light at Pena Blanca, Sandoval County; 1-2 larvae per 25 sweeps. (Heninger). NEVADA - Larvae per sweep ranged 0-3 in Orovida and 2-6 in Paradise Valley, (Cooney); counts and damage heavy in Quinn River area, Humboldt County, (Day). Larvae 2-30 per sweep in Elko County. (Cooney). None found in Lake Valley alfalfa seed fields. (Earnist).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Adults very abundant, no larvae found in alfalfa near Pena Blanca, Sandoval County. (Heninger). WYOMING - Adults numerous in alfalfa in Hot Springs and Washakie Counties. Less than 1 larva per 100 sweeps. (Gale, Marks).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Light infestations appearing in alfalfa north and west of Phoenix, Maricopa County. (Aris. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Adults and nymphs abundant on alfalfa in most areas. (Burbutis, Davis). OHIO - Adults continue common on legumes.

Ranged 1-4 in some clover and alfalfa in central and north central counties. (Rose). INDIANA - Adults 60-600 per 100 sweeps on alfalfa throughout northern two-thirds of State. (Huber). ILLINOIS - Adults 0-20 and nymphs 0-10 per 100 sweeps in 5 to 15-inch alfalfa in southeast. (White). ARKANSAS - Continues high in alfalfa in most areas; 100+ per 100 sweeps. Nymphs increased. (Ark. Ins. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - OHIO - Present on alfalfa in smaller numbers than Lygus lineolaris; 1 to less than 1 per sweep. (Rose). INDIANA - Nymphs more prevalent than adults on alfalfa in northern two-thirds of State; 40-200 per 100 sweeps. (Huber, White). ILLINOIS - Adults 0-10 and nymphs 0-50 per 100 sweeps in second and third-crop alfalfa in southeast. (White). NORTH DAKOTA - This species and Lygus lineolaris per 100 sweeps averaged 250 in first crop and 26 in second-crop alfalfa in Emmons, Burleigh and McLean Counties. (Brandvik, Kaatz).

LYGUS BUGS (Lygus spp.) - NEVADA - Ranged 20-40 per sweep in Lake Valley, Lincoln County alfalfa seed fields; many buds blasted. (Earnist). Populations build up rapidly in Orovada, Humboldt County, seed fields until controls applied (Day); currently 1-5 per sweep in same fields. Ranged 25-50 per sweep in Paradise Valley, Humboldt County, alfalfa hay fields. (Cooney). WYOMING - Adults and nymphs 18-22 per 100 sweeps on alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Gale, Marks).

PEA APHID (Acyrtosiphon pisum) - INDIANA - Populations decreased past 2 weeks in northern areas. (Huber). ILLINOIS - Very scarce, 0-40 per 100 sweeps in second and third-crop alfalfa in southeastern area. (White). WISCONSIN - Populations in alfalfa very low. High counts reported in some Washburn County alfalfa. (Wis. Ins. Sur.). TEXAS - Heavy in several fields of alfalfa in Brazos County, 50-100 per sweep. (Randolph). COLORADO - Increasing in second alfalfa hay crop in Mesa, Delta and Montrose Counties; 500-5,000 per 100 sweeps. Predators, mainly Hippodamia spp. larvae and adults, remain light to moderate (5-50 per 100 sweeps). (Bulla). WYOMING - Numbers very low in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties; 50-80 adults and nymphs per 10 sweeps. (Gale, Marks). NEVADA - Occasionally found in Lamaille, Elko County, alfalfa fields. (Cooney). Ranged 5-10 in Paradise Valley hay fields and 5-100 in Orovada, Humboldt County, seed fields. (Cooney). Average 10 per sweep in Lake Valley, Lincoln County, seed fields. (Earnist).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing and causing moderate damage to alfalfa in Maricopa, Pinal and Pima Counties. Population decrease noted in Yuma County. (Ariz. Coop. Sur.). TEXAS - Medium in several alfalfa fields in Brazos County; 15-30 per sweep. (Randolph).

LEAFHOPPERS (Empoasca spp.) - INDIANA - Adults 40-1,500 per 100 sweeps in second-growth alfalfa in northern third of State. Heaviest in light soil areas of northwest district. Nymphs 20-120 per 100 sweeps throughout northern third of State; some yellowing observed. (Huber).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Adult counts still high on alfalfa and clover over State. Averaged 5-9 per sweep in Franklin, Logan, Hardin and Richland Counties. (Rose). WISCONSIN - Adults emerging in northern counties; populations generally high in nearly all alfalfa in central and southern counties. (Wis. Ins. Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Light in several soybean fields in Monroe County. Considerable egg laying observed; larvae and adults may increase considerably next 10-15 days. (Martin et al.). VIRGINIA - Light on soybeans in Caroline, Hanover and Louisa Counties. (Isakson).

TARNISHED PLANT BUG (*Lygus lineolaris*) - DELAWARE - Adults and nymphs on soybeans in many areas. (Burbulis, Davis). OHIO - Adults continue common on legumes. Ranged 1-4 per sweep in soybeans in central and north central counties. (Rose).

PAINTED LADY (*Vanessa cardui*) - ILLINOIS - Larvae, probably this species, destroying thistles then moving into soybeans in northern area. (White).

WEBWORM (*Loxostege* spp.) - OKLAHOMA - Moderate numbers damaging soybean foliage in Ottawa County. (Okla. Coop. Sur.).

THRIPS - VIRGINIA - Activity severe on some soybeans in Isle of Wight County. (Jones).

PEANUTS

COWPEA APHID (*Aphis craccivora*) - FLORIDA - Adults heavy on 300 acres of peanuts north of Marianna, Jackson County. Foliage shows severe damage. (Collins, June 30).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Light to moderate in peanut terminals in Lincoln, Caddo and Okmulgee Counties. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - GEORGIA Large number of moths caught in light traps in Tift County. (Leuck).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Populations 3,000 and 3,900 per acre in 2 untreated fields in Northampton County July 1. No weevils found in treated field. Cotton in 6 to 8-leaf stage. (Robertson). SOUTH CAROLINA - Old and new weevils puncturing squares in fields. Counts continue low in fields where growers kept on regular 5-day schedule. Where insecticides not used or used only occasionally at 7-10 day intervals problem developing. (Cott. Ltr., July 5). First-generation weevils increasing in cotton in Florence area. Generally heavy in untreated fields. Larval infestations 0.5-4.3 percent in treated plots; 14-23 percent in untreated plots. Total of 86 adults taken on 9 groups of 10 potted plants. (Taft et al., July 6). TENNESSEE - Situation critical in regularly infested portion of cotton-growing area. Up to 95 percent punctured squares in many fields. Infestations more general than in many years. Counts averaged 30 percent over infested area. Results good where controls applied early. In event of rains within next 10 days, situation will get worse. Very low larval mortality so far. (Locke). GEORGIA - Punctured squares ranged 0-15 percent in 76 fields in Bleckley County; 4-6 percent in some fields in Johnson and Dodge Counties. None found in Toombs, Colquitt or Worth Counties. (Lawson et al.). ALABAMA - Second "hatchout" occurred and overlapping of generations observed in extreme southern area. First generation complete in central area, will begin in older cotton in northern area next 7-14 days. Square infestations in direct proportion to control efforts. (McQueen). MISSISSIPPI - Situation throughout delta area and hill country unchanged. First-generation "hatch" underway in Tunica County. Square counts showed 1-6 percent damage in Carroll, Leflore and Yazoo Counties. First-generation "hatchout" expected throughout southern delta region next 7-10 days. (Dinkins). One adult found in terminals in 4 of 26 fields checked in delta counties. Punctured squares found in 20 of 25 fields; infestation averaged 1.7 percent (maximum 5). (Pfrimmer et al., July 7). ARKANSAS - Of 5,000 fields surveyed, few with infestations at recommended treatment level. Dry weather controlling boll weevil in Yell County. About 75-80 percent of larvae in squares on ground dead in small cotton. In taller cotton providing shade, 50-60 percent of larvae dead. (Ark. Ins. Sur.). LOUISIANA - No weevils found in 20 fields checked in Madison Parish by row foot method. In 76 fields where square infestation checked, no weevils found, but 69 fields showed damaged squares. Infestation 1-6 percent in 69 fields; averaged 2.36 percent square damage in 76 fields. Single weevil recovered from

150 trap cotton plants placed near cotton fields. (Cleveland et al., July 7). TEXAS - Activity remains light in Waco area; however, slight increase noted. Averaged 1.1 percent punctured squares in 70 fields (maximum 12). (Cowan et al.). For boll weevil in High Plains area see page 683.

BOLLWORMS (*Heliothis* spp.) - TENNESSEE - Present in many fields in western area but light. Damage to larger squares evident. (Locke). SOUTH CAROLINA - Building up in several counties; growers having much difficulty in suppressing damage. Eggs, small and large larvae found in many fields where proper controls not applied. (Cott. Ltr., July 5). Generally light on cotton in Florence area; larvae 0-0.4 percent in treated plots, 0-1 percent in untreated plots. Total of 12 H. zea and 1 H. virescens taken in Florence light trap. (Taft et al., July 6). GEORGIA - Counts of H. zea eggs and larvae, respectively, per 100 terminals as follows by county: Toombs 6,0; Dodge 0,2; Johnson 2,3; Worth 3,1. Average of 9.5 eggs and 6 larvae in 2 fields in Colquitt County. Eggs 0-3 and larvae 0-7 per 100 terminals in 76 fields in Bleckley County. (Womack et al.). ALABAMA - Infestations generally low in State. Extremely high in few fields where experimental materials applied for boll weevil control only. *Heliothis* spp. generally higher in Montgomery, Perry, Elmore and Tuscaloosa Counties. Full-grown H. zea larvae emerging from older corn to pupate in extreme southern area; moth emergence and egg laying expected within 10-15 days. (McQueen). MISSISSIPPI - H. zea and H. virescens range 3-6 percent throughout southern delta region; 1-2 percent in northern delta region. Very little change noted since last week. Some treatment made in Yazoo County. (Dinkins). Only 2 eggs found in 5,400 terminals checked in 26 fields in delta counties; 8 larvae found in 6 fields. Injured squares found in 15 of 25 fields. Square injury averaged 0.86 percent (maximum 3). (Pfrimmer et al., July 7).

LOUISIANA - Larvae found in 12 of 76 fields in Madison Parish. Eggs found in 44 fields; 1-5 per 100 terminals. Larval infestation 0.13 percent. (Cleveland et al., July 7). ARKANSAS - H. zea eggs and larvae in low numbers in some fields. Square damage remains low, showing biological control. (Ark. Ins. Sur.). TEXAS - Slight increase in H. zea infestations noted in Waco area. In 26 treated fields, eggs averaged 4.1 and larvae 1.0 per 100 terminals. In 44 untreated fields eggs averaged 2 and larvae 0.9 per 100 terminals. Square injury averaged 0.8 percent in 26 treated fields and 0.7 percent in 44 untreated fields. Boll injury averaged 1.0 percent in 8 treated and 0.9 percent in 13 untreated fields. Twelve of 23 larvae collected on cotton June 22-27 and reared on media, identified as H. virescens. (Cowan et al.). ARIZONA - H. zea scattered and light in all cotton areas. Egg counts show some increase but predators numerous in all areas. (Ariz. Coop. Sur.). CALIFORNIA - Numerous larvae collected with sweep nets in Kern County cotton. Subsequent generation may pose some problems. Some larvae found in blossoms in Tulare County. (George, July 1). H. zea not observed in Shafter area this period. (Leigh, July 1).

BEET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Moderate in cotton in Chandler and Queen Creek areas of Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (*Trichoplusia ni*) - CALIFORNIA - Decreased substantially as result of high degree of parasitism and disease in Kern County. Apparently no problem fields remain. (Black, July 1).

PLANT BUGS - MISSISSIPPI - Psallus seriatus, Lygus lineolaris and Adelphocoris rapidus light, 5-10 per 100 cotton terminals in Pontotoc County. Heavy, 30-35 per 100 terminals, in northern delta area; moderate to heavy in Yazoo County and remainder of southern delta area. (Dinkins). L. lineolaris found in 18 of 26 fields checked in delta counties. Averaged 1.98 per 100 terminals (maximum 11). (Pfrimmer et al., July 7). LOUISIANA - P. seriatus and L. lineolaris apparently increasing in untreated cotton in Madison Parish. Infestation found in all of 55 untreated fields checked. P. seriatus 1-30 per 100 sweeps, overall average 19.16 in 55 fields. L. lineolaris 3-100 per 100 sweeps, average 13.44. In 45 treated fields, infestation not so heavy; L. lineolaris found in 44 of 45 fields; 1-76 per 100 sweeps. (Cleveland et al., July 7). TENNESSEE - L. lineolaris and A. rapidus causing more damage to tiny squares compared with previous week.

Controls not justified. (Locke). MISSOURI - Plant bugs ranged 0-15 per 100 terminals in 56 percent of 525 fields in southeast. (Jones).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Problem mostly in cotton adjacent to cut alfalfa in Mesilla and Pecos Valleys. (N. M. Coop. Rpt.). ARIZONA - Populations continue high in Pima, Pinal, Maricopa and Yuma Counties. Square damage 15-35 percent. Light but increasing in Graham and Cochise Counties. (Ariz. Coop. Sur.). CALIFORNIA - Migration slowed somewhat in Kern County; however, high adult numbers still exist in many fields. Nymphal counts increasing. (Black, July 1). Counts generally low in Imperial County cotton; nymphs increased and economic in some fields; treatments applied. (Campbell, June 30). Populations increased rapidly 10-14 days ago. Control quite satisfactory. Most fields showed low populations after treatment; however, with alfalfa cutting quite general, adults approaching treatment levels again in some instances. (George, July 1). Moderate numbers of adults migrated into cotton from cut alfalfa fields in Madera County. (Johnson, June 29). Extremely abundant in many Shafter area fields. Counts in many fields 5-10 per 50 sweeps, with 16-18 in some instances. Nymphs increasing. In west Fresno County, 2-3 per sweep in some fields not treated; up to 40 and 45 per 50 sweeps in other fields. Many treated fields again in need of treatment. Ranged 8-12 per 50 sweeps in fields in Madera area with first-instar nymphs appearing. (Leigh, July 1).

FLEAHOPPERS - OKLAHOMA - *Psallus seriatus* moderate to heavy in cotton in Garvin, Bryan and Grady Counties. Probably *Chlamydatus associatus* present in Grady County cotton. (Okla. Coop. Sur.). TEXAS - *P. seriatus* decreased in Waco area cotton. Averaged 11.3 per 100 terminals in 26 treated fields; 37.1 per 100 terminals in 44 untreated fields. (Cowan et al.). NEW MEXICO - *Spanogonicus albofasciatus* and *P. seriatus* building up in northern Eddy County cotton. (Campbell). ARIZONA - *P. seriatus* increasing in Pinal and Maricopa Counties; 10 percent of squares damaged in more heavily infested fields. (Ariz. Coop. Sur.).

LEAFHOPPERS - CALIFORNIA - Continue to increase in Imperial County cotton. Numerous fields required treatments. Movement from sugar beets at harvest contributed to buildup with adult movement from beets still occurring. (Campbell, June 30).

SPIDER MITES (*Tetranychus* spp.) - TENNESSEE - Appearing in many fields in western area. Most infestations found in those fields known infested last season. Weather ideal for further buildup. (Locke). SOUTH CAROLINA - Widespread and some fields heavily infested. Heavy infestations at this time of year can reduce yields by causing leaf drop, reducing plant vigor. (Cott. Ltr., July 5). MISSISSIPPI - Heavy *U. urticae* populations building up on cotton in Coahoma and Tallahatchie Counties. Heavy in northern section of Leflore County. (Dinkins). ALABAMA - Continue localized problems on cotton in Bibb, Talladega and few other areas. (McQueen). MISSOURI - Mainly *T. atlanticus* causing spot damage in 24 percent of 525 fields in southwest. (Jones). CALIFORNIA - Mostly under control in Kern County cotton; however, incipient populations present in fields throughout county where controls should be applied before plants close middles, making good coverage impossible. (Black, July 1). At very low levels in Imperial County fields; however, most growers treated and fields generally quite free of mites. (George, July 1). Good control maintained in most fields with sulfur applications. (Johnson, June 29). Evident in most San Joaquin Valley cotton fields. Severe infestations observed in few instances in Shafter area. (Leigh, July 1).

TOBACCO

GREEN PEACH APHID (*Myzus persicae*) - MARYLAND - Light to moderate on tobacco generally but expected to buildup considerably during mid to late July. (U. Md., Ent. Dept.).

A SNOWY TREE CRICKET (Oecanthus sp.) - MARYLAND - Adults moderately injuring tobacco in one field in southern Calvert County. (U. Md., Ent. Dept.).

CUTWORMS - WISCONSIN - Small larvae feeding on tobacco transplants in southern Dane County location. (Wis. Ins. Sur.).

SUGAR BEETS

BEET ARMYWORM (Spodoptera exigua) - NEVADA - Medium to heavy infestations required control in Lovelock, Pershing County. (Lauderdale).

SAY STINK BUG (Chlorochroa sayi) - UTAH - Causing injury to sugar beet seed fields in Washington County. (Huber, Knowlton).

BEET LEAF MINER (Pegomya betae) - NORTH DAKOTA - Damaged leaves evident in most sugar beet fields in Cass and Traill Counties; up to 70 (average 40) percent of plants infested. Blasted areas evident on up to 6 (average 2) leaves per plant. (Brandvik, Kaatz).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Peak fly population occurred June 19-25. Larvae present in beet fields in Walsh and Pembina Counties. (Dogger).

MISCELLANEOUS FIELD CROPS

SUNFLOWER MOTH (Homoeosoma electellum) - TEXAS - Larvae damaging sunflowers in Brazos County; 300-500 per head. (Todd).

A MINT FLEA BEETLE (Longitarsus waterhousi) - OREGON - Adults emerging in Willamette Valley mint fields. (Every).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - Adults, larvae and feeding damage light on potatoes in Houlton district; light to severe in Lee district. (Shands et al.). RHODE ISLAND - Larvae heavy where control poor. (Mathewson, Kerr). DELAWARE - Adults common on potatoes in Kent County. (Burbutis, Davis). UTAH - More damaging to potatoes in Davis, Cache and Weber Counties than normal. (Knowlton). IDAHO - Adults caused severe defoliation of young plants in Fremont County potato fields; averaged 2 adults per 2 to-3 inch plant. Extensive egg laying underway. (Garner).

FLEA BEETLES (Epitrix spp.) - MAINE - E. cucumeris overwintered adults generally low and decreasing on foliage of untreated potatoes in Houlton and Lee districts. (Shands et al.). DELAWARE - E. cucumeris generally under control in most areas; populations rather high in few fields in Kent County. (Burbutis, Davis). COLORADO - E. tuberis ranged 12-20 per 100 sweeps in Weld County potatoes. (Urano).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Adults caused foliage injury to potatoes in Clinton County. (Janes, Guyer).

SEED-CORN MAGGOT (Hylemya platura) - NORTH DAKOTA - Found in potatoes infected with blackleg in Grand Forks and Ransom Counties. (Schulz).

LEAFHOPPERS - COLORADO - Ranged 12-24 per 100 sweeps in Weld County potatoes. (Urano).

Aphids on Potatoes in Maine - Continued rapid increase on foliage of untreated potatoes in northeastern area but still low. No change in relative abundance of Aphis nasturtii, Myzus persicae, Macrosiphum euphorbiae and Acyrtosiphon solani. (Shands et al.).

APHIDS - COLORADO - Ranged 0-8 per 100 sweeps in potatoes in Kersey area, Weld County. (Urano). DELAWARE - Myzus persicae continues active on some potatoes and peppers. (MacCreary).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Counts show 25 percent infestation on tomatoes in Spalding and Bleckley Counties. (Dupree, Lawson).

STALK BORER (Papaipema nebris) - OHIO - Larvae infesting some tomato plants in Franklin County. (Jones).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Heavy on snap beans in several plantings in Prince Georges and Queen Annes Counties. (U. Md., Ent. Dept.). MICHIGAN - Adults and larvae recently damaged beans in Eaton County. (James). COLORADO - Abundant in some Montrose County bean fields. Egg masses 1-5 per 10 linear feet of row. Larvae appearing. (Bulla).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) - OREGON - New generation adults building up on vegetable row crops, principally pole beans, in Willamette Valley. (Crowell).

A SAP BEETLE (Meligethes nigrescens) - OREGON - Adults light on pole beans in Willamette Valley. (Crowell).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Adults feeding heavily on snap bean pods at Rising Sun, Cecil County. (U. Md., Ent. Dept.).

COWPEA CURCULIO (Chalchodermus aeneus) - GEORGIA - "Stinging" pole beans in Spalding County; light on southern peas in Taylor County. (Dupree, Raddish).

COTTON SQUARE BORER (Strymon melinus) - DELAWARE - Present on snap beans in western Sussex County. (Davis).

LIMA-BEAN VINE BORER (Monoptilota pergratialis) - ALABAMA - Light numbers damaging stems of lima beans in Lee County planting; Some pupation noted. (Bagby).

MELON APHID (Aphis gossypii) - MISSISSIPPI - Heavy on garden grown cowpeas and lima beans in Oktibbeha County. (Dinkins).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Populations in peas very low. Despite earlier predictions of possible buildup in late peas, natural controls apparently keeping populations in check. Potential for economic numbers still exists in scattered late peas. (Wis. Ins. Sur.).

SPIDER MITES - UTAH - Moderate on beans at Richfield, Sevier County. (Rickenback, Knowlton).

COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Still very active in Ontario County. Considerable crop loss occurring in fields not treated when transplanted. (N. Y. Wkly. Rpt.). WISCONSIN - Heavy damage to cabbage, radishes, and related crops reported in home gardens in Racine County. (Wis. Ins. Sur.).

ONION MAGGOT (Hylemya antiqua) - WISCONSIN - Damage heavy on onions in Lincoln County. (Wis. Ins. Sur.).

IMPORTED CABBAGEWORM (*Pieris rapae*) - MICHIGAN - Extremely heavy adult flight underway in many Lower Peninsula Counties; larvae fed on weeds earlier. (Dowdy). MISSISSIPPI - Larvae heavily damaging garden grown cabbage and broccoli in Oktibeha County. (Dinkins).

CUCURBITS

STRIPED CUCUMBER BEETLE (*Acalymma vittatum*) - DELAWARE - Adults caused moderate injury on pumpkin-squash in Sussex County. (Evans). MISSOURI - In southeast area, some melon fields infested heavily enough for controls. (Wkly. Rpt. Fr. Grs., July 6).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MICHIGAN - Adults caused tip damage to cucumbers in Ingham County. (Janes, Guyer).

THRIPS - DELAWARE - Several species abundant on pumpkin-squash in one area of Sussex County. (Burbutis, Davis).

GENERAL VEGETABLES

FLEA BEETLES - SOUTH CAROLINA - Heavy population injuring sweetpotatoes in Spartanburg County. Foliage treatment advised. (Martin).

A TORTOISE BEETLE (*Agroiconota bivittata*) - MISSISSIPPI - Adults heavily damaging leaves of sweetpotato vines, 24 inches long, in Wayne County. (Dinkins).

BLISTER BEETLES (*Epicauta* spp.) - OKLAHOMA - Moderate to heavy and damaging garden crops in Lincoln, Okmulgee and Ottawa Counties. (Okla. Coop. Sur.).

SQUASH BUG (*Anasa tristis*) - OKLAHOMA - Heavy on squash in Payne County and moderate in Roger Mills County. (Okla. Coop. Sur.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MICHIGAN - Large populations present on lettuce near Stockbridge, Ingham County. (Janes, Guyer).

FOUR-LINED PLANT BUG (*Poecilocapsus lineatus*) - MICHIGAN - Adults and nymphs caused heavy and widespread damage to many vegetable, ornamental and weed species in numerous Lower Peninsula counties. (Janes).

SPINACH LEAF MINER (*Pegomya hyoscyami*) - NEW HAMPSHIRE - Activity continues on beets at Durham; full-grown larvae leaving mines. (Conklin, June 30).

ONION MAGGOT (*Hylemya antiqua*) - COLORADO - Damaging in most Weld County onion fields. (Urano).

ONION THRIPS (*Thrips tabaci*) - COLORADO - Ranged 10-20 per onion plant in Delta and Montrose Counties. Controls applied. (Bulla). Light to medium in west Greeley area, Weld County. (Urano). IDAHO - Counts 2-20+ per umbel in Canyon County onion seed fields. Controls necessary in some fields. Minute pirate bugs and predatory thrips evident in varying numbers. (Bechtolt).

SQUASH VINE BORER (*Melittia cucurbitae*) - GEORGIA - Mating adults on vegetables in Spalding County. (Dupree).

GARDEN SYMPHYLAN (*Scutigereilla immaculata*) - NEW YORK - Stunting corn, tomatoes, summer squash and cucumbers in Eden Valley, Erie County; as many as 55-60 in and around single tomato root systems; all instars, except first two, feeding on "feeder" roots; lower populations feeding on root systems of strawberries and lettuce; egg masses numerous in all populated fields and occur 5-8 inches in depth; moderate to poor control obtained in certain fields fumigated early last fall. (Stallard, July 5).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Carpocapsa pomonella*) - VERMONT - Continues active with heavy egg laying observed on unsprayed trees. (Nielsen, July 5). CONNECTICUT - Larval injury frequent on unsprayed apples in New Haven and Storrs. None found in commercial orchards. (Savos, July 6). NEW YORK - Bait trap catches dropped as spring-brood moth emergence nears completion. (N. Y. Wkly. Rpt., July 5). NEW JERSEY - Total of 25 adults trapped at Hurffville, 15 at Glassboro. (Ins.-Dis. Newsltr.). INDIANA - About 25 percent of first-brood larvae left apples to pupate, and 1 first brood adult captured in bait trap. (Dolphin). OHIO - Fully grown larvae emerging in large numbers from apples in Wayne County. First adults of season, noted on May 24, were from overwintering larvae. (Forsythe). MICHIGAN - Blacklight trap collections in Kalamazoo County showed heavy first-brood moth flight July 2-4; in 2 Kent County cages, 65 adults emerged June 30-July 6. (Pshea, Gilmore). ARIZONA - Larvae heavy on untreated backyard plantings of apple in Graham County. (Ariz. Coop. Sur.).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - CONNECTICUT - Injury to peach terminals in New Haven more severe than in past 4 or 5 years. (Savos, July 6). INDIANA - Adult collections in 5 traps in peach trees dropped from 15 to 7 during past week. (Dolphin, July 4). NEW JERSEY - Total of 5 adults trapped at Pitman, 22 at Glassboro. (Ins.-Dis. Newsltr.). MISSOURI - Nearly full-grown larvae found in unsprayed peaches in extreme southeast, indicating end of another brood in area. (Wkly. Rpt. Fr. Grs., July 6).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - INDIANA - Male catches rose to 318 from 267 previous week at Patoka orchards. In May, 372 males captured at virgin-female traps; in June, 1,142 captured. (Dolphin, July 4). MICHIGAN - Adult emergence continues high in infested Allegan and Van Buren County orchards. (Pshea).

LEAF ROLLER MOTHS - NEW YORK - Large numbers of Archips argyrospilus and Choristoneura rosaceana taken in bait traps in eastern area of State during past week. (N. Y. Wkly. Rpt., July 5). INDIANA - Bait-trap collections of Argyrotaenia velutinana declined from 18 to 7 in past week. (Dolphin, July 4).

APPLE MAGGOT (*Rhagoletis pomonella*) - VERMONT - First emergence anticipated this week. (Nielsen, July 5). CONNECTICUT - Adult emergence very heavy in New Haven from ground cages containing Gravenstein apples. (Savos, July 6). NEW YORK - Emergence normal but somewhat slower than in past few years; no evidence of June peak but emergence increasing steadily; females outnumber males. (N. Y. Wkly. Rpt., July 5). NEW JERSEY - Total of 20 adults trapped at Hurffville, 25 at Glassboro. (Ins.-Dis. Newsltr.). OHIO - First adults of season taken on sticky-board traps in Lake County June 24, and in Wayne County June 30. (Still). MICHIGAN - First adults of season taken on sticky-board traps July 1 in Van Buren and Kalamazoo Counties; additional specimens taken July 4 in Frick traps in Kent County. (Pshea et al.). MINNESOTA - Emergence occurred in Twin City-Minnetonka area July 4-6; sprays should be applied immediately. (Minn. Ins. Rpt.).

CHERRY FRUIT FLY (*Rhagoletis cingulata*) - NEW YORK - Significant emergence occurred in Monroe and Orleans Counties last week. (N. Y. Wkly. Rpt., July 5). OHIO - Larvae pupating in Lake County in northeastern area. (Still).

WALNUT HUSK FLY (*Rhagoletis completa*) - CALIFORNIA - Adults beginning to emerge in most areas and may require treatment earlier than other seasons. Walnut fruit maturity about three weeks advanced this year. (Cal. Coop. Rpt.).

PEAR-SLUG (*Caliroa cerasi*) - WISCONSIN - Half to nearly full-grown larvae feeding heavily on occasional pear and cherry trees in Dane County. (Wis. Ins. Sur.). UTAH - Injury increasing on cherry foliage about homes at Brigham City, Box Elder County. (Knowlton).

SPIDER MITES (Tetranychus spp.) - CONNECTICUT - A few found near ground in Woodstock; buildup noted in New Haven. (Savos, July 6). MISSOURI - Troublesome throughout central section; Panonychus ulmi replaced by two-spotted species. P. ulmi noted in peach orchards in southeast. (Wkly Rpt. Fr. Grs., July 6). COLORADO - Increased on apples in Mesa County; as high as 30 per leaf, with injury apparent. (Bulla).

EUROPEAN RED MITE (Panonychus ulmi) - VERMONT - Beginning to bronze leaves in unopened blocks. (Nielsen, July 5). CONNECTICUT - Eggs hatching in Storrs. Slight buildups reported in New Haven and Bethel. (Savos, July 6). INDIANA - Populations noticeably decreased on untreated block of apple trees in Vincennes area, now averages 1.2 adults, 5.0 immatures and 13.2 eggs per leaf. (Dolphin). OHIO - Sharp increase over past week in Licking County orchard examined periodically. Although trees sprayed regularly, P. ulmi averaged about 37 per leaf and ranged 9-98. (Rose). Untreated trees in Wayne County average 100 per leaf. (Forsythe). MICHIGAN - Eggs, nymphs and adults increasing rapidly on infested host trees in many Lower Peninsula fruit areas. (Pshea, Wooley).

MITES - NEW YORK - Hot weather past 2 weeks favored buildup of red species in several orchards in Clinton and Essex Counties. Building up very rapidly on apples, cherries and peaches in Monroe and Orleans Counties. Numbers increasing in Columbia County. (N. Y. Wkly. Rpt., July 5). GEORGIA - Building up on apples in Carroll County; moderate to heavy infestation in some Gilmer County orchards; slight infestation in spots in Cobb County. (Adams, Smith, Wester).

APHIDS - CONNECTICUT - Aphis pomi very abundant in New Haven; damage becoming very noticeable. (Savos, July 6). NEW YORK - Green species showing up on terminals of vigorous apple trees in Ulster County; have become problem on suckers and terminal growth in some orchards in Clinton and Essex Counties. (N. Y. Wkly. Rpt., July 5). ALABAMA - Aphids heavy on pecan trees in Elmore County; lighter in Baldwin, Mobile, Wilcox and Montgomery Counties. (Vickery et al.).

PLUM CURCULIO (Conotrachelus nenuphar) - VERMONT - "Stings" observed July 1. (Nielsen, July 5). CONNECTICUT - Adult collected July 4 in Storrs. None reported from remainder of State. (Savos, July 6).

PLUM GOUGER (Anthonomus scutellaris) - TEXAS - Heavy populations damaging plums near Throckmorton, Throckmorton County; near Fort Worth, Tarrant County, and near Lubbock, Lubbock County. In most cases, pupation occurred and adults emerged from seeds. (Gray, Lindsey, Parker).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - CONNECTICUT - Injury to foliage becoming more evident in New Haven. (Savos, July 6).

PEAR PSYLLA (Psylla pyricola) MICHIGAN - Adults and nymphs building up in some orchards sprayed with certain organophosphorus insecticide; more widespread resistance indicated. (Wooley).

OLEANDER SCALE (Aspidiotus hederae) - CALIFORNIA - Heavy on prune nursery stock in Arcata, Humboldt County. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Continues to increase on pecans in eastern areas. (Okla. Coop. Sur.). INDIANA - First larvae found June 17. (Dolphin)

WALNUT CATERPILLAR (Datana integerrima) - GEORGIA - Heavy on pecans in Pulaski County. (Alligood).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - This species and A. juglandis caused heavy damage to pecans in many locations in Covington County. (Linder). TEXAS - Light to medium and generally damaging throughout Glasscock County. (Neeb).

CITRUS

Citrus Insect Situation in Florida - End of June - CITRUS RUST MITE (Phyllocoptura oleivora) infested 53 percent of groves (norm 46 percent); 32 percent economic (norm 24 percent). Population near normal and still at moderate level statewide. Further increase expected in July followed by decrease in August. Highest districts south and west. All districts will have 10-39 percent of groves with heavy infestations. TEXAS CITRUS MITE (Eutetranychus banksi) infested 60 percent of groves (norm 78 percent); 43 percent economic (norm 57 percent). Population will peak in early July below average level, then decrease. Highest districts central, south and west. CITRUS RED MITE (Panonychus citri) infested 59 percent of groves (norm 74 percent); 32 percent economic (norm 50 percent). Population reached summer peak in late June, much below normal level; decrease expected. Highest districts north, central and west. BLACK SCALE (Saissetia oleae) infested 88 percent of groves (norm 79 percent); 78 percent economic (norm 54 percent). Population highest in 15 years of survey; has apparently reached summer peak and gradual decrease expected. All districts high. GLOVER SCALE (Lepidosaphes gloverii) infested 88 percent of groves; 34 percent economic. Population much above average and in high range. Decrease expected after mid-July. Highest districts south, central and east. PURPLE SCALE (L. beckii) infested 76 percent of groves; 8 percent economic. Population below average and will diminish after mid-July. Highest districts east and central. CHAFF SCALE (Parlatoria pergandii) infested 72 percent of groves; 18 percent economic. Population normal and in moderate range; little change expected. Highest districts south, central and east. YELLOW SCALE (Aonidiella citrina) infested 76 percent of groves; 18 percent economic. Population above average but most infestations light; decrease expected. Highest district central. MEALYBUGS infested 58 percent of groves; 17 percent economic. Populations increased rapidly in June and approached record high levels of 1964-1965. Decrease expected after mid-July. Highest districts east, south, west and central. WHITEFLIES infested 65 percent of groves; 22 percent economic. Population expected to remain near normal. Summer brood adults depositing eggs for 2 weeks. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - All stages severely damaged 10 percent of 148,000 sweet orange nursery plants at Yalaha, Lake County. (Bentley, July 1).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults infesting leaves of 210 of 420 Page orange trees in nursery at Bartow, Polk County. (Schmidt, July 1).

SMALL FRUITS

A SAP BEETLE (Stelidota sp.) - MICHIGAN - Adults and larvae reported in CEIR 16(26): 211 as S. octomaculata extremely abundant in ripe strawberries in southwestern area. Recent information indicates species may be S. geminata because of feeding habits. Infestation now known to extend from Paw Paw, Van Buren County, west to Lake Michigan and as far south as Niles, Berrien County. Adults and larvae found in almost every strawberry planting; up to 15-20 larvae per berry. Harvest discontinued; approximately one-third of crop will remain unharvested. (Wooley).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW HAMPSHIRE - Adults clipping strawberry blooms at Durham. (Conklin, June 18).

A COLASPIS (Colaspis sp.) - DELAWARE - Adults common on grapes in one area of New Castle County. (Whiteman).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Flight increasing as cranberry blossoms set in southeastern area. (Tomlinson, July 1).

BLACK-HEADED FIREWORM (Rhopobota naevana) - NEW JERSEY - Causing some damage on early drawn bogs. Infestations appear spotty and confined to areas where growth more lush than normal. (Ins.-Dis. Newsltr.).

FALL WEBWORM (Hyphantria cunea) - DELAWARE - Larval populations considerably higher than in recent years on many hosts. Injury noted in one large blueberry plantation in Sussex County. (Kelsey).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Populations light to medium on grapevines in Stratford, Kings County. This new location in State for species. Infestations confined to dooryard grapevines. (Cal. Coop.Rpt.).

BLUEBERRY MAGGOT (Rhagoletis mendax) - MICHIGAN - First of season (5 adults) collected June 28 from Van Buren County blueberry plantation. (Nelson).

RASPBERRY CANE MAGGOT (Pegomya rubivora) - NEW HAMPSHIRE - Larvae active in new raspberry shoots at Durham. (Conklin, June 24).

ORNAMENTALS

ROSE CHAFER (Macrodactylus subspinosus) - VERMONT - Emerging in considerable numbers. (Nielsen, July 5). WISCONSIN - Heavily defoliated various ornamentals in Wood County; causing some damage in Eau Claire and Trempealeau Counties. (Wis. Ins. Sur.).

HOLLYHOCK WEEVIL (Apion longirostre) - UTAH - Numerous on hollyhock at Logan, Cache County. (Knowlton).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Medium on arborvitae and cedars in Fayette, Monroe, Morgan and many other counties. (Tucker et al.). OHIO - Infesting white pine and spruce in Adams, Lawrence and Scioto Counties. (Heazlit).

LILAC LEAF MINER (Gracillaria syringella) - WISCONSIN - Recorded in New London, Outagamie County. This new county record. (Wis. Ins. Sur.).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - MINNESOTA - Feeding on ornamentals in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Most eggs hatched and crawlers active on euonymus in Payne County. (Okla. Coop. Sur.).

SOFT SCALES (Lecanium spp.) - MINNESOTA - L. fletcheri and L. corni eggs hatching; crawlers on ornamentals in east central district. (Minn. Ins. Rpt.).

DRONE FLY (Eristalis tenax) - CALIFORNIA - Larvae heavy on Cyperus papyrus nursery stock in San Diego County. (Cal. Coop. Rpt.).

A TEPHRITID FLY (Myoleja limata) - TEXAS - Ten live larvae taken from Ilex vomitoria (yaupon) at Houston, November 23, 1965. Det. by R. H. Foote. This is new State record. (Texas Coop. Rpt.). This farthest west locality on record. (PPC)

ROSE-SLUG (Endelomyia aethiops) - VERMONT - Damage common; pupation underway. (Nielsen, July 5).

FOREST AND SHADE TREES

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - NEW YORK - Flights started about June 28 in Ithaca area. (N. Y. Wkly. Rpt., July 5). WISCONSIN - Larvae heavy in Lake Winnebago area. (Wis. Ins. Sur.).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Pupating in Washburn District of Chequamegon National Forest. (Wis. Ins. Sur.). MINNESOTA - Approximately 50 percent pupae in north central and northwest districts; in last stage in northeast. (Minn. Ins. Rpt.).

PINE NEEDLE MINER (Exoteleia pinifoliella) - NEW YORK - Severe on about 100 acres of pitch pine in Fulton County. (N. Y. Wkly. Rpt., July 5).

CONIFER BARK BEETLES (Dendroctonus spp.) - CALIFORNIA - D. ponderosae building up in 500-acre stand of Jeffrey and sugar pines in Upper Daulton Creek area, Sierra County. Young and old trees being killed in groups of four. (Stickers, USFS). D. ponderosae and D. brevicomis killed most ponderosa pines in Idlewild campground in Klamath National Forest; over 150 trees killed. (Briner, USFS).

ENGRAVER BEETLES (Ips spp.) - CALIFORNIA - Infesting over 200 ponderosa pine trees felled in January for dwarf mistletoe control in Shasta-Trinity National Forest. (Wilczynski, USFS). NEVADA - I. confusus killing some pinyon pines (Pinus monophylla) south of Reno, Washoe County; larvae present in dying trees; adults attacking weakened and heavily pruned trees. (Bechtel, Cooney, Ting).

NORTHERN PINE WEEVIL (Pissodes approximatus) - OHIO - Infesting red, white and Scotch pines in Ross and Tuscarawas Counties. (Kent, Ward).

A SPITTLEBUG (Aphrophora permutata) - CALIFORNIA - Infesting 25 ponderosa pine trees in 9-year-old plantation in Klamath National Forest. (Alden, USFS).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEBRASKA - Moderate to heavy on spruce and fir in Washington County. (Walstrom). CALIFORNIA - Locally heavy on pine trees in Veterans Memorial Park in Alturas, Modoc County; medium on nursery stock in Dinuba, Tulare County. (Cal. Coop. Rpt.).

SPRUCE BUD SCALE (Physokermes piceae) - NEW HAMPSHIRE - Heavily parasitized; eggs unhatched at Laconia. (Kernlin, June 24). MICHIGAN - Eggs noted under old scales in Osceola County. (Brunner).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - WISCONSIN - Eggs hatching in infested red pine plantation on Lakewood District of Nicolet National Forest. (Wis. Ins. Sur.).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Heavy throughout El Paso County on poplar and mulberry trees. (Neeb). MISSOURI - Larvae observed in Atchison County June 29. (Thomas, Craig). Adults present in Boone County July 7. (Houser).

UGLY-NEST CATERPILLAR (Archips cerasivoranus) - VERMONT - Very noticeable along roadsides on chokecherry, elm, apple and other trees. (Nielsen, July 5).

SATIN MOTH (Stilpnotia salicis) - VERMONT - Adults emerging and depositing egg masses on poplars at Burlington, Bradford and Morrisville. (Nielsen, July 5).

TENT CATERPILLARS (Malacosoma spp.) - IDAHO - Several thousand acres of broad-leaved forest understory, principally willow, service-berry and ceanothus in Clearwater County, 50-75 percent defoliated. Most larvae in last instar. This outbreak population compared with last year. (Furniss). VERMONT - M. disstria moths outnumber M. americanum moths at lights for first time in several years. (Nielsen, July 5).

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Larvae causing light to heavy damage to some honeylocust and mimosa trees in southeast. (White). MARYLAND - Typical damage conspicuous on mimosa trees in Prince Georges and Queen Annes Counties. (U. Md., Ent. Dept.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW HAMPSHIRE - Larvae defoliating willow at Hooksett. (Mason, June 24).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Not found in previously infested area of Las Vegas, Clark County. Eradication controls applied when species found in 1965 appear effective. (Bechtel). UTAH - Damaging elm foliage in area

of Logan, Cache County. (Knowlton, July 5). TEXAS - Light in Upton County. (Neeb). OKLAHOMA - First generation present in Payne County; egg laying light. (Okla. Coop. Sur.). KANSAS - Second generation producing eggs in most areas. (Gates). MISSOURI - First-generation pupation complete; some adults emerging in Stanberry area of Gentry County. (Houser). VIRGINIA - Larvae feeding on leaves of elms in Berryville, Clarke County. (Isakson, Gerken).

IMPORTED WILLOW LEAF BEETLE (Plagioder a versicolora) - VERMONT - Adults and larvae skeletonizing many willow species. (Nielsen, July 5).

LOCUST LEAF MINER (Xenochalepus dorsalis) - VIRGINIA - Adults in large numbers on locust trees in Fincastle, Botetourt County. (Isakson, Bostic).

ELM BARK BEETLES - IOWA - Peak emergence delayed one month to June 21 by unseasonably cold temperatures. Early treatments for Dutch elm disease not effective. (Iowa Ins. Inf., July 5).

A PHYLLOXERA (Phylloxera caryaecaulis) - OHIO - Infesting 1.5-2 acres of hickory trees in Cuyahoga County. (Still, Slesman).

LARCH SAWFLY (Pristiphora erichsonii) - MINNESOTA - Causing heavy defoliation of larch in some northern areas. (Minn. Ins. Rpt.).

BIRCH LEAF MINER (Fenusa pusilla) - MICHIGAN - Larvae heavy in many areas; heavier than usual in Baraga and Mason Counties. (Mattson, Brunner). WISCONSIN - Severely damaged birch leaves in Door and Calumet Counties. (Wis. Ins. Sur.).

MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections July 1-8 included Culex pipiens quinquefasciatus, C. salinarius, Psorophora confinnis and Toxorhynchites rutilus septentrionalis. Mansonia perturbans showed sharp increase in light trap collections. (Stokes). SOUTH CAROLINA - Mosquitoes serious on low-lying pastures in Dillon County. (Witherspoon, July 5). VERMONT - Mosquitoes annoying with unusually high populations statewide. (Nielsen, July 5). MICHIGAN - Adult populations of Aedes spp. and Culex spp. declined in many areas. (Dowdy). WISCONSIN - High populations continue to persist. Report from Calumet County indicated numbers heaviest in over 20 years. (Wis. Ins. Sur.). MINNESOTA - Mansonia perturbans accounted for greatest increase during 1966; emergence highest in 8 years. (Minn. Ins. Rpt.). UTAH - Extremely numerous and troublesome 8-10 miles southeast of Woodruff and Allen Canyon, Rich County. (Roberts, Knowlton). NEVADA - Culex tarsalis larvae medium in part of southern Las Vegas, Clark County. (Clark Co. Dept. Agr.). CALIFORNIA - Populations dropped this period probably due to cool nights. Many ponds have dried, leaving little standing water. (Cal. Coop. Rpt.).

HORN FLY (Haematobia irritans) - VERMONT - At normal levels. (Nielsen, July 5). INDIANA - Ranged 20-200 per animal on pastured cattle in north central, northwestern and west central areas. (Huber). MISSOURI - Up to 500 per animal in one cattle herd in northwestern area, but generally light, 25-75 per animal. (Houser). NEBRASKA - Building up in rangeland areas to 200 or more per animal where back-rubbers not used. (Roselle). UTAH - Moderately numerous throughout Sevier County on untreated herds. (Rickenbach, Knowlton). Troubling cattle in Cache County and on range in Box Elder County. (Knowlton, July 5).

STABLE FLY (Stomoxys calcitrans) - INDIANA - Ranged 0-18 per animal on pastured cattle in west central and northwestern areas. (Huber). NORTH DAKOTA - Counts on Holstein cows in Traill County averaged 10 per animal. (Brandvik, Kaatz).

FACE FLY (Musca autumnalis) - VERMONT - At normal levels. (Nielsen, July 5). INDIANA - Ranged 0-6 per face on cattle in northwestern and north central areas. (Huber). MICHIGAN - Adults increased recently; 15 per face in some pasturing cattle herds in Shiawassee County. (Dowdy). MISSOURI - Remains low, 0-6 per

head. (Thomas, Houser). UTAH - Annoying horses and cattle in area between Logan and Wellsville, Cache County. (Knowlton, July 5).

HORSE BOT FLY (Gasterophilus intestinalis) - INDIANA - Females observed June 29 in Tippecanoe County. Oviposition heavy but adults not particularly annoying. Application of repellents effective. (Chandler).

TABANID FLIES - GEORGIA - Tabanus spp. attacking beef cattle in Hancock County. (Snoddy, Nolan). VERMONT - Tabanus spp. abundant on livestock in Addison County; irritation of cattle increased with appearance of T. quinquevittatus and T. similis. (Nielsen, July 5). NORTH DAKOTA - Tabanus spp. averaged 4 per animal on Holstein cows in Traill County. (Brankvik, Kaatz). WYOMING - Tabanus sp. and Chrysops sp. annoying man and animals in Big Horn Basin area. (Gale, Marks). NEVADA - Large numbers of Hybomitra sonomensis sonomensis adults present in Lamaille, Elko County. (Cooney).

BLACK FLIES - GEORGIA - Large numbers annoying beef cattle in Hancock County. (Snoddy, Nolan).

CICADA KILLER (Sphecius speciosus) - OKLAHOMA - Adults active and annoying people in yards and homes in many areas. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - GEORGIA - Annoying people, beef and dairy cattle and dogs in Hancock County. (Nolan). OKLAHOMA - Adults in Cherokee and Atoka Counties decreased 50 percent. Larvae appearing in these areas. Heavy on cattle in Choctaw County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - NORTH CAROLINA - This species and Anagasta kuehniella present in large numbers in mill in southeastern part of State. (Wright).

A MILLIPED - ALABAMA - Extremely heavy numbers causing considerable concern among homeowners in several counties. Controls extremely difficult. (Evans et al.).

BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - MISSISSIPPI - Prevalent predator in cotton. Ranged 100-150 per 1,000 feet of row in several Yazoo County cotton fields. (Dinkins). ARKANSAS - Numerous in alfalfa and cotton. (Ark. Ins. Sur.). ILLINOIS - Varied 0-20 in second and third-crop alfalfa in southeast. (White).

AN ANTHOCORID BUG (Orius insidiosus) - ARKANSAS - Large numbers, 200-400 in 100 sweeps, taken in alfalfa in central and west central areas; approximately 50 percent nymphs. (Ark. Ins. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Eggs, nymphs and adults present in cotton. Nymphs and adults found in alfalfa. (Ark. Ins. Sur.).

GREEN LACEWINGS (Chrysopa spp.) - ARKANSAS - Larvae active in cotton and alfalfa; eggs numerous in cotton; large numbers of adults observed at night. (Ark. Ins. Sur.).

LADY BEETLES - ILLINOIS - Adults 0-20 and larvae 0-10 per 100 sweeps in second and third-crop alfalfa in southeast. (White). WYOMING - Adults of several species 6-10 per 100 sweeps in Big Horn Basin area alfalfa. (Gale, Marks).

A PREDACEOUS OSTOMID BEETLE (Temnochila virescens) - CALIFORNIA - Adults heavy on oak trees in Paradise, Butte County. (Cal. Coop. Rpt.).

AN ICHNEUMON WASP (Bathyplectes curculionis) - WYOMING - Preliminary counts indicate parasitism of Hypera postica low in Big Horn Basin area and in southeast area; parasitism 4-25 (average 12.38) percent. (Wingfield).

Beneficial Insects in Cotton in California - Big-eyed bugs extremely abundant; Orius spp. in many fields. Damsel bugs, lacewings, melyrid beetles and minute pirate bugs generally abundant in most fields. (Cal. Cott. Ltr., July 5).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - ILLINOIS - Melanoplus spp. nymphs 30-600 per 100 sweeps in second and third-crop alfalfa in southeast. All size nymphs and occasional adults of M. sanguinipes present. (White). WISCONSIN - M. femurrubrum nymphs common in regrowth alfalfa; up to 8 per square foot in a few fields in Marquette County. M. bivittatus common along roadsides in Adams County. (Wis. Ins. Sur.). MINNESOTA - Egg hatch and nymphal development progressing rapidly during past 2 weeks of hot weather. Third and fourth-instar M. bivittatus found in Kandiyohi and Chippewa Counties. Second and third instar M. differentialis found in Kandiyohi, Chippewa and Renville Counties. M. femurrubrum hatching rapidly in alfalfa, roadsides and field margins. Counts generally low; up to 15 per square yard found in few fields and roadsides. (Minn. Ins. Rpt.). MISSOURI - Grasshopper nymphs abundant, 15-25 per square yard, in fence rows and ditch banks in "delta" area of southeastern district. In one soybean field, 8-10 marginal rows of seedling plants destroyed. (Jones). In northern area, nymphs ranged 0-6 per square yard in alfalfa and pastures. (Houser, Thomas). OKLAHOMA - Several species ranged 1-10 per square yard on rangeland in Texas and Cimarron Counties. In Beaver County, infestations more general with 7-15 per square yard. Dominant species Phibostroma quadrimaculatum, Ageneotettix deorum and Melanoplus bivittatus. Counts on intermingled crop and grassland in Greer, Kiowa, Comanche, Caddo and Grady Counties 8-25 per square yard. Dominant species P. quadrimaculatum, A. deorum, Hesperotettix sp. and M. bivittatus. Counts in crop and rangeland in Mayes, Delaware and Craig Counties ranged up to 20 per square yard. M. bivittatus, M. differentialis, M. occidentalis, Boopedon nubilum and Hesperotettix sp. dominant. (Okla. Coop. Sur.). NEW MEXICO - Grasshoppers caused light to heavy damage on cropland in isolated areas of Curry County (Crystal); heavy infestation in alfalfa southeast of Malaga, Eddy County (Marek). Cooperative control program on approximately 420,000 acres in Lea County completed. Control good throughout most of area. (N. M. Coop. Rpt.). UTAH - Grasshoppers in damaging numbers at Snowville, Salt Wells and south of Howell in Box Elder County. (Thornley, Knowlton). Causing moderate damage on several farms in Washington County. (Knowlton, July 5). CALIFORNIA - M. marginatus, M. devastator and Dissosteira pictipennis continue heavy in local areas of pasturelands in Fresno County. (Cal. Coop. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Summer adults appearing in increasing numbers in southwest area research plots since first observed June 22. Now comprise 50+ percent of total field population. Estimates in Berrien County indicate field population approximately 50+ percent summer adults, 40+ percent pupae; remainder late-stage larvae. Overwintering adults and eggs only trace. About 80 percent of farmers raising oats in Galien area, Berrien County, sprayed for larval control this; however, very high beetle population present in area. High infestation levels led to some larval starvation in research oat fields. Found for first time in Manistee, Grand Traverse, Wexford and Arenac Counties. (Dowdy). INDIANA - Adult emergence well underway on oats in New Carlisle area; adults feeding on corn leaves. (Anderson, Gallun). In north central and north-eastern districts, adults range 0-6 per 100 sweeps in oats. (Huber).

JAPANESE BEETLE (Popillia japonica) - GEORGIA - Infesting rose, pyracantha and other ornamental plants in Stephens County; moderate to heavy on grapes. (Newman, Coleman). Light infestation on Banks County blackberries and grasslands. (Lyon). SOUTH CAROLINA - Becoming numerous in upper Pickens County. (Kissom). VIRGINIA - Adults noted feeding on soybeans in Caroline and Hanover Counties. (Isakson). Active on ornamentals in Pittsylvania County (Dominick); active on grape vines in

Lunenburg County (Powers, July 1). MARYLAND - Adults moderate in several corn fields in Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Adults abundant on some corn and soybeans in Kent County. (Burbutis, Davis). RHODE ISLAND - Population heavy in East Greenwich, Kent County. (Hannah). OHIO - First seasonal occurrences: Coshocton County June 20 (Ellis); Trumbull County June 20 (Kelly). Several adults collected in Gallia County on young maple seedlings. (Phillips, Walker). Adults infesting sweet corn in Franklin County and light on field corn in Wayne County. (McNutt, Barry, Rose). INDIANA - First adults of season reported on corn in Wabash County July 7. (Lehker). MICHIGAN - No adults taken to July 8. (Moore).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Swarming in large numbers in Cheektowaga, Erie County. Also in east Buffalo and Tonawanda. Very heavy flights occurred in Niagara County. (N. Y. Wkly. Rpt., July 5).

WHITE-FRINGED BEETLES (Graphognathus spp.) - VIRGINIA - First of season at Virginia Beach found feeding on aster. (Edwards, Jr., July 1).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - First infested bloom of season in Graham County found northeast of Solomon July 5. New infestations found in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Eight overwintered weevils found in 8-county control zone in High Plains area. (Parker, Hanna, July 5).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - One adult taken in McPhail trap at Venice, Sarasota County, July 5. (Frederic). This new county record. Larvae taken from variety of fruits in Miami and Fort Lauderdale areas, including Temple orange, lime, sour orange, grapefruit, sapodilla, mango and Barbados cherry; in most instances, small numbers of larvae involved. Total numbers of fruit flies below peak reached earlier in spring in Dade and Broward Counties. (Fla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - A total of 18 cases reported in U. S. July 3-9 as follows: TEXAS - El Paso 1, Kerr 1, Bandera 2, Frio 1, Atascosa 3. ARIZONA - Yavapai 3, Greenlee 2, Cochise 1. NEW MEXICO - Grant 1, Dona Ana 1, Eddy 1. CALIFORNIA - Imperial 1. A total of 123 cases reported in Mexico portion of Barrier Zone as follows: Territorio sur de Baja California 7, Baja California 2, Sonora 62, Chihuahua 31, Nuevo Leon 7, Tamaulipas 14. No cases reported from Mexico south of Barrier Zone. The Barrier Zone is area in which screw-worm eradication operations are being carried out in effort to prevent establishment of self-sustaining screw-worm populations in U. S. Sterile screw-worm flies released: Texas 22,526,250, New Mexico 7,328,000, Arizona 16,680,000, California 1,416,000, Mexico 79,644,000. (Anim. Health Div.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - TEXAS - No new finds outside treatment area in Brownsville. Treatment area involves 14,000 acres. Fourth cover spray being completed July 14. (PPC).

INSECT DETECTION

New State Record

A TEPHRITID FLY (Myoleja limata) - TEXAS - Larvae collected from Ilex vomitoria at Houston, November 23, 1965. Det. by R. H. Foote. This is new State record and farthest west locality record. (p. 678).

New County and Island Records

ALFALFA WEEVIL (Hypera postica) - NORTH DAKOTA - Single adult collected in McLean County. (p. 667).

A SNAIL (Otala lactea) - CALIFORNIA - Locally heavy in San Diego County. (p. 667).

LILAC LEAF MINER (Gracillaria syringella) - WISCONSIN - Recorded for first time in Outagamie County. (p. 667).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Reported for first time in Manistee, Grand Traverse, Wexford and Arenac Counties. (p. 682).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Single adult taken in McPhail trap in Sarasota County. (p. 683).

AN ERIOPHYID MITE (Aceria litchii) - HAWAII - Reported for first time on island of Molokai. (p. 684).

CORRECTIONS

CEIR 16(26):614 - SPRUCE GALL APHIDS (Adelges spp.) - RHODE ISLAND - A. abietinus should read A. abietis.

Weather continued from page 662.

PRECIPITATION: With active fronts and LOW centers remaining north of the Canadian border, widely scattered afternoon and evening thundershowers were the rule over the 48 States. Shower amounts were mostly very light from the Rockies westward. The long dry spell continued in the Southwest as Arizonians waited for the usual summer shower period. More frequent and heavier isolated showers occurred in the Central and East early in the week and over the weekend but precipitation totals ranged widely and many sections received little or no rain. Drought still threatens in parts of Arkansas and the western ranges deteriorated further. Substantial rain amounts were welcomed in Kentucky, Indiana, Ohio, and parts of the Northeast but shower totals were so highly variable that no generalizations as to improvement can be made. General rains are needed but are not very likely at this time of year. (Summary supplied by Environmental Data Service, ESSA).

HAWAII INSECT REPORT

Special Insects of Regional Significance - SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) adults caused moderate damage to tomatoes in Omaopio, Maui; populations generally low. On Oahu, adults medium on various weed hosts in Ewa. (Miyahira, Hironaka).

Turf - LAWN ARMYWORM (Spodoptera mauritia acronyctoides) adults heavy and egg laying occurring on walls of new homes in Kaneohe, Oahu, where predominant grass for lawns is Tifton. (Haw. Ins. Rpt.).

Potatoes, Tomatoes - MELON APHID (Aphis gossypii) light to medium on tomatoes in Waimanalo, Oahu, and on small backyard plantings of sweetpotatoes and tomatoes in Kaneohe, Oahu. (Haw. Ins. Rpt.).

Beans, Peas - A SEED WEEVIL (Callosobruchus chinensis) heavy in pigeon peas in Lihue, Kauai. Nearly 85 percent of dry pigeon pea pods heavily infested; averaging 14 beetles. (Au). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on bean plantings in Kalamaula, Molokai. (Blalock).

Cucurbits - CARMINE SPIDER MITE (Tetranychus telarius) light to medium in 5 acres of watermelons in Nanakuli, Oahu. Adults of Phytoseiulus macropilis (a predaceous mite) moderate among spider mites. Det. of mites, F. Haramoto. (Suzukawa) GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on cucumbers in Kalamaula, Molokai. (Blalock).

Citrus - COTTONY-CUSHION SCALE (Icerya purchasi) medium to heavy on several citrus trees in McCully and Kaimuki areas of Honolulu, Oahu. (Kawamura).

Small Fruits - An ERIOPHYID MITE (Aceria litchii) very heavy on new shoots of Litchi chinensis (litchi) in Kaunakakai, Molokai. This first report on Molokai. (Blalock).

Ornamentals - An ANTHRIBID BEETLE (Araecorynus cumingi) - Adults heavy in maunaloa pods in Kaaawa, Oahu. Adults in older pods averaged 7-12 per pod. (Nakao).

Beneficial Insects - An ARCTIID MOTH (Selca brunella) rapidly spreading on Melastoma malabathricum (Indian rhododendron) in northeastern end of Hawaii Island. Recently found in Pahoia, approximately 15 miles from original release site. (Yamayoshi). A CHRYSOMELID BEETLE (Octotoma scabripennis) noted on lantana in Halepiula, North Kona, Hawaii Island. No previous release made in this locality. (Haw. Ins. Rpt.). A HISPID BEETLE (Uroplata girardi) recovered for first time in Ulupalakua, Maui, since its release in October, 1965, for lantana control. (Miyahira).

Miscellaneous Insects - A COCKROACH (Diploptera punctata) heavy on Cordyline sp. (ti) in Kaimuki area of Honolulu, Oahu. Roaches in thick tufts of leaves feeding on dead, moist leaves. (Haw. Ins. Rpt.).



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

POTATO LEAFHOPPER increasing in alfalfa in Minnesota, Wisconsin and Ohio, yellowing present in southern Illinois; of concern in several other States on alfalfa, beans and potatoes. SIX-SPOTTED LEAFHOPPER counts high on flax in North Dakota and flax and small grain in Minnesota. SPOTTED ALFAFA APHID heavy on alfalfa in northwest Illinois, Oklahoma and Nevada. (pp. 691, 692).

EUROPEAN CORN BORER heavy in west central Minnesota; infestations may be more severe than in 1965 in some areas of Ohio; damage to potatoes heavy on Eastern Shore of Virginia. (pp. 692, 693, 702). GARDEN SYMPHYLAN continues to infest corn throughout Ohio. (p. 694). A THRIPS economic on barley statewide in North Dakota. (p. 695).

BOLL WEEVIL increasing in South Carolina, Tennessee, Mississippi and Texas; square infestation continues high in Alabama. (p. 698). BOLLWORMS a problem in cotton in several areas; moth numbers increased in Arkansas and Shafter area of California. (p. 699). LYGUS BUGS damaging young cotton squares in New Mexico; necessitated control in Nevada and dominant pests of cotton in San Joaquin Valley of California. (p. 700). SPIDER MITES increasing problem on cotton in South Carolina and Tennessee. (p. 700).

SUGAR-BEET ROOT MAGGOT problem in sugar beets in North Dakota; losses reported in Colorado. (p. 701). Large numbers of COLORADO POTATO BEETLE adults moving into potatoes in Idaho; damage to tomatoes heavier on Eastern Shore of Virginia than in past years. (p. 702). APPLE MAGGOT adult populations high in several fruit areas. (p. 704). EUROPEAN EARWIG troublesome in Utah and Oregon. (p. 706).

FRUIT-TREE LEAF ROLLER larvae caused widespread defoliation of oaks in Michigan (p. 707). BIRCH LEAF MINER damage very severe on birch in eastern Maine and damage more evident in northeastern Wisconsin. (p. 709). RANGE CATERPILLAR outbreak continues in New Mexico. (p. 711).

Detection

- First infestation of EUROPEAN CHAFER in Massachusetts found in Boston area. (p. 710).
- Local infestation of GYPSY MOTH found in Calhoun County, Michigan. (p. 710).

A STRATIOMYID FLY (*Neoexaireta spinigera*) collected in nursery greenhouse in Santa Barbara, California, is new United States record. Species not known to be economic. (p. 713).

Other new State records include a MEALYBUG (*Spilococcus geraniae*) in California, CALICO SCALE (*Lecanium cerasorum*) in Maryland and an ENCYRTID WASP (*Anarhopus sydneyensis*) in Hawaii. (p. 713).

For new county records see page 713.

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

CONTENTS

Special Insects of Regional Significance.....691

Insects Affecting

Corn, Sorghum, Sugarcane.....692	Beans and Peas.....702
Small Grains.....695	Cole Crops.....703
Turf, Pastures, Rangeland.....695	Cucurbits.....703
Forage Legumes.....696	General Vegetables.....703
Soybeans.....698	Deciduous Fruits and Nuts.....704
Peanuts.....698	Citrus.....706
Cotton.....698	Small Fruits.....706
Tobacco.....701	Ornamentals.....706
Sugar Beets.....701	Forest and Shade Trees.....707
Miscellaneous Field Crops.....701	Man and Animals.....708
Potatoes, Tomatoes, Peppers.....702	Households and Structures.....709

Beneficial Insects.....709

Federal-State Plant Protection Programs.....710

Insect Detection.....713

Corrections.....713

Hawaii Insect Report.....714

Light Trap Collections.....715

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JULY TO MID-AUGUST

The Weather Bureau's 30-day outlook for mid-July to mid-August calls for temperatures to average above seasonal normals over most of the area lying between the Continental Divide and the Appalachians with greatest departures over the central Plains. Near to slightly below normal temperatures are anticipated east of the Appalachians, thereby providing frequent periods of relief from the heat. Below normal temperatures are also indicated for the Pacific Coast States. This outlook implies that the current break in the heat over the Plains will be temporary. Precipitation is expected to total less than normal over the central and southern Plains. Above normal amounts are predicted west of the Continental Divide, over the Great Lakes region and along the southeast coast. In unspecified areas about normal rainfall is indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 712.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - NORTH DAKOTA - Larvae evident in margins of rye and corn fields near Fullerton, Dickey County; 6 per square yard. Damaged barley near St. Thomas, Walsh County. (Colberg, McBride). MINNESOTA - No new infestations reported. Farmers should continue to check fields. (Minn. Ins. Rpt.). WISCONSIN - Larval counts vary considerably. Second-stage larvae predominate; as high as 7 per square foot in grassy late peas. Absent in many fields; lodged portions of oat fields with as high as 3 per linear foot. Some scattered feeding on late corn occurring. Those areas in which species occurred during 1964 may again be susceptible. A braconid wasp, *Rogas terminalis*, common in blacklight trap collections at Platteville, may prove instrumental in control. (Wis. Ins. Sur.). ILLINOIS - Small larvae 0-3 per 10 sweeps in grass in corn fields in northwest. Moths 80-1,856 per night in light trap July 5-11 in northern area. (White et al.). NEW JERSEY - Moths increasing in light traps throughout State. (Ins. Dis. Newsltr.).

BEEF LEAFHOPPER (*Circulifer tenellus*) - COLORADO - Counts remain 0.5-3 per square foot on Mesa County sugar beets in advance growth stage. Curly top ranges 0.5-2 percent. (Bulla). WYOMING - No symptoms of curly top present in sugar beets in Washakie County, July 5. Few adults found on weed hosts. (Gale, Marks). UTAH - Moderate amount of curly top affected Utah County tomatoes this season. (Barlow, Knowlton). Curly top killed number of tomato plants and infested table beets in Kanab and Orderville areas of Kane County. (Lindsay, Knowlton).

CORN EARWORM (*Heliothis zea*) - IDAHO - Larvae found in emerging corn tassels in Canyon County. (Bechtolt). COLORADO - Moths taken in Mesa County light traps; 4-5 per trap. Few fields in Fruita area starting to silk. (Bulla). KANSAS - Populations variable; 1-2 larvae per plant in some fields, as low as 1 per 25 plants in others. Larvae mostly young. (Simpson). MISSOURI - Light trap catch for comparable period at Portageville highest since 1959. (Keaster, Harrendorf, Jones). NEW MEXICO - Problem in sweet corn in Dona Ana County. Controls in progress. (Campbell). TEXAS - Few larvae of this species and *Strymon melinus* found in heads of most grain sorghum in central area; damage generally noneconomic. (Parker). ALABAMA - Late-stage larvae heavy in field of corn in De Kalb County; most every ear affected. (Ledbetter et al.). NEW JERSEY - Larvae in corn ears in poorly sprayed fields in central counties. (Ins. Dis. Newsltr.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - IDAHO - Common on barnyard grass and on underside of bottom first to third leaves of corn in Canyon County. (Bechtolt). NEVADA - Some controls required on barley in Mason and Smith Valleys, Lyon County, and at Lovelock, Pershing County. (Batchelder, Ferraro). UTAH - Damaging some spring barley in Millard County. (Knowlton). COLORADO - Moderate numbers appearing in some Weld County corn fields. (Jenkins). NEBRASKA - Heavy in some areas of York and Richardson Counties. Parasites and predators heavy and reducing populations in most areas. (Hecht, Aitken). MISSOURI - Light to heavy on grain sorghum in Cape Girardeau and Stoddard Counties; 15-1,000+ per plant. Heavy honeydew and reddened areas on younger leaves of heavily infested plants. Beneficial insects light. Aphids light on corn in southeastern quadrant of State; 5-50 per plant. (Houser). IOWA - Populations low in Wayne County July 6; 0-10 per plant, clustered in whorl. Some corn at Ankeny with up to 1,000 per plant. (Iowa Ins. Inf., July 11). WISCONSIN - Colonies generally not numerous in field corn, but occasional stalk with colonies of several thousand individuals. Lady beetles and insidious flower bugs becoming more noticeable in such fields. (Wis. Ins. Sur.). ILLINOIS - Small colonies forming on 0-10 percent of corn plants in northwest district. (White).

POTATO LEAFHOPPER (*Empoasca fabae*) - NORTH DAKOTA - Up to 15 per 100 sweeps on potatoes in Grand Forks, Walsh and Pembina Counties, but negative in most fields. (Brandvik). MINNESOTA - Increased in alfalfa in southeast and east central districts. Average counts per 100 sweeps: Southeast 43, east central 80. (Minn. Ins. Rpt.). WISCONSIN - Continues to increase in alfalfa; up to 25 per sweep in western Walworth County field. Damage to second-growth alfalfa anticipated. Numbers high in various crops in Vilas, Washburn, Barron and Door Counties.

Counts in lima beans in Rock and Walworth Counties relatively high despite treatment. Increasing in untreated potato fields as far north as Vilas County. (Wis. Ins. Sur.). IOWA - Adults and nymphs 20 per linear foot of soybean row in Wayne County. No feeding damage evident. (Iowa Ins. Inf., July 11). ILLINOIS - Adults 160-3,600 and nymphs 0-4,000 per 100 sweeps in second-crop alfalfa in northwest district. Some yellowing present in southern counties of district. (White). MICHIGAN - Adults 20 per 10 sweeps in 3 fields of second-growth alfalfa in Washtenaw County July 12. (Ruesink). OHIO - Populations appear on increase on second-growth alfalfa in central and east central areas. Counts 6-16 per sweep in Licking, Coshocton and Harrison Counties. (Rose). MARYLAND - Nymphs and adults 0-20 per sweep on alfalfa in Frederick, Howard and Queen Annes Counties. Nymphs common on snap and lima beans in Queen Annes County. (U. Md., Ent. Dept.). VIRGINIA - Adults and nymphs present on peanuts in Dinwiddie, Sussex and Isle of Wight Counties. (Isakson). NEW JERSEY - Range 18-145 (average 61) per 25 sweeps in 8 central area fields. (Ins. Dis. Newsltr.).

POTATO PSYLLID (*Paratrioza cockerelli*) - WYOMING - Adults present in Big Horn Basin area. Counts in Park County potato fields averaged 0.5-1 per 100 sweeps. (Gale, Marks, July 8). COLORADO - Adults 0-21 per 100 sweeps in potatoes in Otero, Bent and Prowers Counties. (Schweissing).

SIX-SPOTTED LEAFHOPPER (*Macrostoteles fascifrons*) - NORTH DAKOTA - Up to 150 per 100 sweeps in flax in Traill, Pembina, Grand Forks and Walsh Counties. (Brandvik). MINNESOTA - Counts remain high in small grain along western edge of State; 150 per 100 sweeps with many nymphs present. Counts also high in flax. (Minn. Ins. Rpt.). MICHIGAN - Adults 3 per 10 sweeps in 3 fields of second-growth alfalfa in Washtenaw County July 12. (Ruesink).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEVADA - Heavy on alfalfa stand in Lovelock, Pershing County; treatment required. (Ferraro). COLORADO - Appeared in alfalfa in Bent and Otero Counties. Still found in Baca and Prowers Counties. Varies 0-40 per 100 sweeps; could develop economic numbers. (Schweissing). NEW MEXICO - Mostly light and spotted in Chaves and Eddy County alfalfa. (Mathews). TEXAS - Light to medium in several fields in Brazos and Burleson Counties. (Todd). OKLAHOMA - Ranged 220-315 per 10 sweeps in alfalfa in Tulsa County; 2-110 per 10 sweeps in Wagoner, Muskogee, Adair and Le Flore Counties. Moderate in Washington and Kingfisher Counties. (Okla. Coop. Sur.). KANSAS - Continues low in most alfalfa in northeast and east central areas; 5-20 per 10 sweeps. Ranged 150-200 per 10 sweeps in one Douglas County field. Present in all fields checked. (Simpson). WISCONSIN - Increased but not appreciably in alfalfa in Spring Green, Arena, Mazomanie and Brodhead areas; 5-25 per sweep. Some parasitism evident; winged forms comprise about 10 percent of populations in many fields. (Wis. Ins. Sur.). ILLINOIS - Varied 0-8,900 per 100 sweeps on alfalfa in northwest district. Heaviest populations and some damage evident on sandy soils. Populations light with no damage on heavier soils. One field on sandy soil with 16 aphids per sweep 2 weeks ago, currently with 89 per sweep. (White). INDIANA - Very light populations appearing in third-growth alfalfa in southeastern area; 0-30 per 100 sweeps. (Huber).

TOBACCO HORNWORM (*Manduca sexta*) - OKLAHOMA - Light damage noted on commercial tomatoes in Tulsa County. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NORTH DAKOTA - Larvae evident in tasselling corn near Northwood, Grand Forks County. (Brandvik). SOUTH DAKOTA - Damage to whorls of corn 10 percent in Lincoln County, 35-40 percent in Yankton County, less than 10 percent in Charles Mix and Hutchinson Counties. (Nearman, Kantack, Berndt, July 8). NEBRASKA - Pupation underway in southeast; larvae in third to fifth instars in eastern section. (Roselle). KANSAS - Few fully grown larvae found in Wabaunsee, Lyon, Osage, Clay and Riley Counties. Occasional adult noted in these fields; no eggs found. (Simpson). MISSOURI - Egg masses light on

late planted corn in southeast; 0-21 per 100 plants in Pemiscot and Stoddard Counties, 0-3 in Bollinger and St. Francois Counties. Egg laying continues. Adult emergence peaked in area; started in central district. Forms 11 percent adults, 46 percent pupae, 43 percent larvae. (Houser). IOWA - Larvae infested 52 percent of plants in field of 70-inch corn in Wayne County July 6. Infested 40 percent of 60-inch corn plants in another field. (Iowa Ins. Inf., July 11). MINNESOTA - Egg masses still found in southwest, west central and northwest districts. Counts increased sharply in west central district. Borers per 100 plants average as follows: Southwest 24, south central 20, southeast 23, central 33, west central 314. Most larvae in first and second instar in southwest and west central districts; second and third in south central, southeast and central, with few fourth instars in some fields. (Minn. Ins. Rpt.). WISCONSIN - Relatively high in few areas; some treatment for first-generation larvae applied to sweet corn. First-stage larvae to pre-pupae found in southern counties; few eggs still being laid, few adults flying. Infestation of larger corn varies but generally 5-10 percent in southwestern and southern counties. More than 80 percent infestation noted in portions of few fields. Egg laying reaching peak in northeastern counties; few eggs still found in southern areas. Few larvae in Rock County about to pupate. Most larval feeding confined to tassel area although considerably greater numbers boring into stalks. (Wis. Ins. Sur.). ILLINOIS - Larvae (second to fifth instars) infesting 0-40 percent of corn plants in northwest district. (White). OHIO - Damage apparent on field corn over most of State. Infested corn in Brown, Highland and Pickaway Counties. Larval damage to corn leaf midribs noted in Wayne County. Infestations in some areas may be much more severe than in 1965. (Hamrick, Jones, Blair).

VIRGINIA - Heavy in field corn just tasselling in Loudoun County. Last 3 larval stages and pupae present. (Isakson). DELAWARE - First-generation infestations in field corn averaged 31 percent. Second adult flight in progress; adults in light traps averaged 16+ per night. (Burbutis, Davis). MASSACHUSETTS - Injuring tassels and stalks in many corn fields; apparently from inadequate controls earlier. (Crop Pest Cont. Mess., July 11). RHODE ISLAND - Larvae recovered from sweet corn in Exeter, Washington County, but infestation not extensive. (Mathewson). SOUTH CAROLINA - Collected for first time in Oconee and Anderson Counties. (Thomas, July 12). Probably this species, damaged cornstalks 6 inches below tassel in Washington County. (Nettles et al., July 12).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - MISSOURI - Light trap catch of 221 moths July 14 record for 24-hour period at Portageville. (Keaster, Harrendorf, Jones). ALABAMA - Light in older corn in few fields in Marion and Franklin Counties. Pupated in most cases; few first-generation moths observed in flight in Marion County. (Ponder et al.).

STALK BORER (*Papaipema nebris*) - SOUTH DAKOTA - Damaged border rows of corn in Lincoln County. (Nearman, July 8). WISCONSIN - Larval numbers high in few late corn plantings in Rock and Grant Counties. (Wis. Ins. Sur.). ILLINOIS - Infesting up to 20 percent of corn plants in marginal rows in northwest district. (White).

SORGHUM WEBWORM (*Celama sorghiella*) - TEXAS - Infestations variable throughout central area. Generally moderate, but heavy infestations reported from Brazos, Williamson, Burleson, Gonzales, Falls and Limestone Counties. (Parker).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - MISSOURI - Adult emergence 25-50 percent in northwest; pupation 75-80 percent. Adults up to 5 per plant in treated corn. (Thomas). KANSAS - Adults heavy in some corn in Wabaunsee, Riley and Clay Counties; 10-25 per plant. Populations 1-5 per plant in most sections of northeast and east central areas. (Simpson). COLORADO - Adults appearing in corn fields in Rocky Ford area, Otero County. (Hantsbarger). NEBRASKA - Up to 80 adults per corn plant found in southeast. Adults appearing in central and eastern areas. All larval stages found in northeast; no adults emerged. (Aitken, Roselle). SOUTH DAKOTA - Larvae up to 68 per root system in Lincoln County. Second instars abundant in Charles Mix and Turner Counties. (Nearman, Kantack, July 8).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - KANSAS - Light in most corn fields in northeast and east central areas; 0-10 per 10 plants. Populations 2-5 per plant in Harvey County. (Simpson). MISSOURI - Adults 200 per 100 corn plants in random fields in southeast; eating back new silks. (Houser).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - OHIO - Increasing numbers of larvae entering pupation in northwestern and west central areas. No adults observed. (Polivka). MICHIGAN - Larval damage apparent in corn in Lapeer, Genesee, Washtenaw and Lenawee Counties. Averaged 4 larvae on roots, 6 larvae in soil and 2 pupae in soil around each corn plant in 3 fields July 11-13. (Stroud, Ruesink). ILLINOIS - Larvae, pupae and adults found in corn fields in northern half of State. (Petty).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - Larvae generally low in southeast, south central, southwest and central districts. Infested fields very scattered; infestations do not appear so severe as last year. Larvae 4-6 per plant in few fields in southwest district; up to 8 per plant in few Carver County fields. Larval development more rapid this year; one pre-pupa found in Carver County. Larvae generally second and third instar. Lodged plants not observed to date. Few fields showed drought symptoms (rolled leaves) due to root damage and lack of rain. (Minn. Ins. Rpt.). KANSAS - Counts 0-7 per corn plant in experimental plots in Brown County July 8; approximately 50 percent larvae, 50 percent pupae. Some adults noted. (Wilde). Pupation underway in Rush County July 9; most larvae full grown, few adults found. (DePew).

CHINCH BUG (*Blissus leucopterus*) - NEBRASKA - Heavy populations of 200-500 per plant damaging some sorghum and corn in Lancaster, Saline and Gage Counties. Ranged 10-15 per plant in other fields. (Rhine). OHIO - Infesting some field corn in Van Wert and Highland Counties. (Holtkamp, Jones). Heavy rains in many areas, accompanied by warm humid weather, could effectively reduce populations. (Rose).

THRIPS - IDAHO - Severe feeding damage progressing on corn leaves in Canyon County. (Portman).

SORGHUM MIDGE (*Contarinia sorghicola*) - TEXAS - Additional heavy infestations on late-planted grain sorghum widespread in Williamson, Gonzales and San Patricio Counties. Exceptionally heavy in Falls County. (Rinn, Pawlik, Todd).

CORN BLOTCH LEAF MINER (*Agromyza parvicornis*) - MASSACHUSETTS - Prevalent over State again this year. (Crop Pest Cont. Mess., July 11).

SPIDER MITES (*Tetranychus* spp.) - COLORADO - Building up on corn in all areas of Crowley and Otero Counties. Heavy in some areas, up to fifth and sixth leaves. (Schweissing). Light numbers appearing on lower leaves in Mesa, Delta and Montrose Counties. (Bulla). Present in all corn checked in central Weld County; control recommended. (Uranio). UTAH - Discoloring corn in some Utah County fields. (Knowlton). IDAHO - *T. urticae* present on seed corn in Caldwell area, Canyon County. (Bechtolt).

WHEAT CURL MITE (*Aceria tulipae*) - OHIO - Abundant on some corn plants in Henry County; found under leaf sheaths at plant nodes. This potential vector of corn and wheat virus disease taken from diseased plant. (Williams, Johnston, Nault). Reported for first time in State in 1965. (PPC).

GARDEN SYMPHYLAN (*Scutigera immaculata*) - OHIO - Infestations in field corn continue over State. Damaged untreated corn in Miami and Clinton Counties. Infestations on field corn apparently increased this year. (Arnold, Blair).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - NEVADA - Some controls required on barley in Mason and Smith Valleys, Lyon County, and at Lovelock, Pershing County. (Batchelder, Ferraro). Heavy on wheat in Lovelock, Pershing County. (Martinelli). WASHINGTON - Spotted infestations on winter wheat in Whitman County. Some control applied. (Telford).

SAY STINK BUG (Chlorochroa sayi) - NEVADA - Heavy on several hundred acres of grain in Diamond Valley, Eureka County. (Menke, Joy). COLORADO - Trace numbers on barley in Prospect Valley, Weld County. No damage noted in ripening fields. (Rothman, Urano). Not economic on malting barley in Alamosa, Conejos, Rio Grande and Saguache Counties. (Jenkins).

A DELPHACID PLANTHOPPER (Dikraneura carneola) - WASHINGTON - Adults of unspecified species reported in CEIR 16(22):479 as severely damaging 100 acres of fall wheat in Whitman County determined this species by J. P. Kramer. (Telford, July 8).

A THRIPS (Limothrips denticornis) - NORTH DAKOTA - Adults and nymphs evident in most barley in northeastern and southwestern counties. Adults over 2 per leaf sheath. Up to 60 nymphs per leaf sheath evident in some fields in southwestern counties. Surveys indicate infestations economic statewide. Very little control evident. (Brandvik).

WHEAT STEM MAGGOT (Meromyza americana) - SOUTH DAKOTA - White heads observed in 2-4 percent of spring wheat stems in Edmonds County. (Kantack, July 8).

TURF, PASTURES, RANGELAND

SAGEBRUSH DEFOLIATOR (Aroga websteri) - UTAH - Larvae damaging foliage of big sage in Allen Canyon, Rich County, west of Monte Cristo, Weber County, and in Logan Canyon, Cache County. (Knowlton).

LIMA BEAN POD BORER (Etiella zinckenella) - CALIFORNIA - Medium on Astragalus sp. (locoweed) on Camp Roberts Range, San Luis Obispo County. (Bakeman, U. S. Army).

SOD WEBWORMS (Crambus spp.) - NEW JERSEY - Activity increasing. (Ins.-Dis. Newsltr.) RHODE ISLAND - Reported in East Greenwich, Kent County, and in Providence, Providence County. (Hannah, Jackson).

A SCARAB (Cyclocephala sp.) - NEVADA - Adults heavy at golf course in North Las Vegas, Clark County. First eggs laid about 2 weeks ago and still being laid. Controls applied. (Stimson, Zoller).

A BILLBUG (Sphenophorus sp.) - NEVADA - Spotted, heavy infestations in several lawns in Lovelock, Pershing County. Various larval stages and one pupa observed. Damage increasing. Marion bluegrass appears preferred host. (Bechtel, Ferraro).

WHITE GRUBS - UTAH - Damaged number of lawns in Salt Lake City and sandy areas of Salt Lake County. (Knowlton).

CHINCH BUG (Blissus leucopterus) - ALABAMA - Heavily damaged St. Augustine grass lawn in Cherokee County; population extremely heavy. (McCarter, O'Daniel). NEW JERSEY - Activity increasing. (Ins.-Dis. Newsltr.). RHODE ISLAND - Nymphs collected in turf in Wakefield, Washington County. (Mathewson, Jackson).

SAY STINK BUG (Chlorochroa sayi) - UTAH - Adults and nymphs moderate along highway north of Junction, Piute County, feeding largely on mustards and other weeds. (Knowlton, Chapman).

SPITTLEBUGS - SOUTH CAROLINA - Damage to Coastal Bermuda grass reported from numerous areas in central and southern sections of State. Cutting and heavy rains

reduced numbers where control not needed. (Nettles et al., July 12).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Heavy in grass areas in Pine Grove, Amador County; locally heavy in Merced, Merced County. (Cal. Coop. Rpt.).

A MEALYBUG (Spilococcus geraniae) - CALIFORNIA - Single specimen taken from Artemisia douglasiana in C. M. Goethe County Park in Sacramento, Sacramento County, June 28, 1966, by W. R. Bauer. Det. by R. F. Wilkey, verified by H. L. McKenzie. This is new State record. (Cal. Coop. Rpt.).

A BROMEGRASS SEED MIDGE (Stenodiplosis bromicola) - NEBRASKA - Found in certified Lincoln bromegrass fields in Lancaster, Gage and Cass Counties. Diapausing larvae found in 33.6 percent of florets checked in Lancaster (1 field checked), 13.8 percent in Gage (2 fields) and 29.7 percent in Cass County (4 fields). (Neiman, Manglitz).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Damage heavy on alfalfa hay in Pullman area, Whitman County; 10 larvae per sweep, one adult per 10 sweeps. (Johansen). UTAH - Continues to damage alfalfa in some Wayne County fields. (Chapman, Knowlton). Continues to hold back growth of second-crop alfalfa in some unsprayed fields at Huntsville, Weber County. (Knowlton). NEW MEXICO - Adults 3-5 and larvae 6-8 per 25 sweeps in alfalfa in Corrales area of Bernalillo and Sandoval Counties. (Kloepfer). WYOMING - Larvae 8-20 per 10 sweeps in alfalfa in Campbell, Crook, Weston and Niobrara Counties; 12-30 per 10 sweeps in Johnson and Sheridan Counties. (Marks). SOUTH DAKOTA - Ranged second instar to pupa in Lawrence and Meade Counties. Populations down from previous weeks. (Jones, Walstrom, July 8). NORTH DAKOTA - Larvae 20 and adults 5 per 100 sweeps in 8-inch second-crop irrigated alfalfa in McKenzie County. In first-crop alfalfa, larvae 100 and adults 10 per 100 sweeps. Adults up to 8 per square foot in ground trash in some fields. Pupation 90 percent, emergence 60 percent. (Brandvik). OHIO - Populations declined; some second-growth alfalfa making good recovery, especially that treated, in central and east central areas. Highest larval populations (4 per sweep) noted in Licking County; generally lower in other fields in east central section. (Rose). NEW YORK - Larval numbers greatly reduced; many new adults appearing in fields. (N.Y. Wkly. Rpt., July 11).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Adults very common in few alfalfa fields in Grant County; as high as 3 per 10 sweeps. (Wis. Ins. Sur.).

PEA LEAF WEEVIL (Sitona lineata) - WASHINGTON - Adults about 1 per 5 sweeps in alfalfa seed field near Eltopia, Franklin County; a new locality record for eastern part of State and new county record. (Johansen, Eves). OREGON - Adults, probably this species, light on alfalfa at Central Point, Jackson County. (Berry).

FLEA BEETLES - COLORADO - Phyllotreta spp. 800-1,000 per 100 sweeps in Crowley County alfalfa. (Schweissing). SOUTH DAKOTA - Damaging numbers found on second-crop alfalfa in Winner and Murdo areas. Systema blanda damaging alfalfa in Tripp County; 150 adults per 100 sweeps. (Jones, Walstrom, July 8).

ALFALFA CATERPILLAR (Colias eurytheme) - NEVADA - Averaged 1 per sweep in alfalfa in Mason and Smith Valleys, Lyon County. (Batchelder). NEW MEXICO - Larvae 2-4 per 25 sweeps in alfalfa near Roswell, Chaves County. (Mathews). ILLINOIS - Larvae 0-160 per 100 sweeps in second-crop alfalfa in northwest district. (White).

WEBWORMS (Loxostege spp.) - TEXAS - L. commixtalis larvae moderate on alfalfa near Granbury, Hood County. (Hillman). KANSAS - Loxostege spp. adults heavy in alfalfa in most areas of northeast and north central sections. Many moths observed in corn, sorghum and soybeans as well as weeds along roadsides. Very few larvae found. (Simpson). SOUTH DAKOTA - L. commixtalis moths observed in alfalfa fields; larval build up expected. (Jones, July 8).

PEA APHID (*Acyrtosiphon pisum*) - NEVADA - Heavy on alfalfa in Mason and Smith Valleys, Lyon County, and at Lovelock, Pershing County; controls necessary 2-3 weeks with 5,000 acres treated in Lyon County. Parasites and predators increasing in many fields. (Batchelder, Ferraro). Varied 15-200 per sweep in untreated fields in Lovelock past 7 days. (Cooney). UTAH - Generally moderate in Wayne and Piute County alfalfa. (Chapman, Knowlton). WYOMING - Adults and nymphs 18-24 per 10 sweeps in alfalfa in Campbell, Crook, Weston and Niobrara Counties; 26-30 per 10 sweeps in Johnson and Sheridan Counties. (Marks). NEW MEXICO - Moderate in alfalfa in Bluewater area, Valencia County; light in Pena Blanca area, Sandoval County. (Heninger). OKLAHOMA - Ranged 0-38 per 10 sweeps in alfalfa in east central counties and in Tulsa and Le Flore Counties. (Okla. Coop. Sur.). ILLINOIS - Extremely low in second-crop alfalfa in northwest district; 0-40 per 100 sweeps. (White). MICHIGAN - Adults and nymphs greatly reduced in some second-growth alfalfa; 3 adults and nymphs per 10 sweeps in 3 fields in Washtenaw County July 12. (Ruesink). OHIO - Generally low on alfalfa past 3-4 weeks over most of State; attributed to increased populations of natural predators and some parasites. (Rose).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - INDIANA - Adults up to 10 per sweep in some post-bloom alfalfa in northern third of State. Light in southern third of State; 3 per 5 sweeps. (Huber, White). ILLINOIS - Adults 0-40 and nymphs 80-240 per 100 sweeps in second-crop alfalfa in northwest district. (White). KANSAS - Ranged 5-10 per 10 sweeps in most alfalfa in northeast and east central sections. (Simpson).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MARYLAND - Adults 1-3 per sweep on alfalfa and red clover in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Nymphs 1-6 per sweep in alfalfa in south central and southeastern areas; adults 1.5 per sweep. (Huber). Adults and nymphs up to 7 per sweep in northeastern and north central regions. (White). MICHIGAN - Averaged 8.7 per 10 sweeps in 3 fields of second-growth alfalfa in Washtenaw County July 12. (Ruesink). ILLINOIS - Adults 10-100 and nymphs 0-80 per 100 sweeps in second-crop alfalfa in northwest district. (White). MISSOURI - Adults 80-100 per 25 sweeps on well established alfalfa in southeastern quadrant of State. (Houser). OKLAHOMA - Ranged 3-20 per 10 sweeps in east central area alfalfa. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Varied 5-20 per sweep in alfalfa hay fields at Lovelock, Pershing County. (Cooney). KANSAS - Ranged 3-30 per 10 sweeps in northeast and east central area alfalfa. (Simpson). NEW MEXICO - Ranged 3-8 per 25 sweeps in alfalfa in Pena Blanca area, 5-8 in Bluewater area, Valencia County; 12-16 in Roswell area, Chaves County. (Heninger, Mathews).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - ILLINOIS - Adults 0-1,100 per 100 sweeps in second-crop alfalfa in northwest district. (White). INDIANA - Adults abundant in northern area alfalfa; as high as 5-11 per sweep. (White). MICHIGAN - Nymphs 30 per 10 sweeps in 3 fields of second-growth alfalfa in Washtenaw County July 12. (Ruesink).

LEAFHOPPERS - INDIANA - *Empoasca* spp. adults and nymphs 600-4,000 per 100 sweeps in blooming second-growth alfalfa in southern two-thirds of State. Yellowing heavy in light soil areas and on slopes and high spots in most fields. (Huber, White). MARYLAND - *Aceratagallia sanguinolenta* conspicuous in alfalfa and red clover in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - TEXAS - Infestations decreased on alfalfa in Brazos and Burleson Counties; only light numbers observed. (Randolph).

A STEM MINING FLY (*Melanagromyza gibsoni*) - CALIFORNIA - Medium in alfalfa in Meridian, Sutter County. Damage sufficient to require treatment. (Cal. Coop. Rpt.).

SOYBEANS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - VIRGINIA - Adults 5-40 per 100 sweeps in 6 to 15-inch soybeans in Isle of Wight, Sussex, Dinwiddie and Nottoway Counties. (Isakson). IOWA - Noted on soybeans in Wayne County July 6; feeding damage very light. (Iowa Ins. Inf.). KANSAS - Up to 35 per 20 sweeps in some soybeans in Wabaunsee, Lyon, Osage and Douglas Counties. Damage prominent but not severe. Very low in number or absent in other fields in area. (Simpson).

GREEN CLOVERWORM (*Plathypena scabra*) - VIRGINIA - Larvae 0-10 per 100 sweeps in 6 to 15-inch soybeans in Isle of Wight, Sussex, Dinwiddie and Nottoway Counties. (Isakson). ILLINOIS - Larvae heavy in soybean field in Iroquois County. (Rachsky).

PAINTED LADY (*Vanessa cardui*) - OHIO - Larvae on soybeans in northwest and west central areas continue to cause some concern. Larvae moved to soybeans after stripping nearby Canada thistle in Van Wert County. (Holtkamp, Holthaus, Blair).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARKANSAS - Up to 3 nymphs per plant on soybeans in Pulaski County. (Barnes).

GREEN STINK BUG (*Acrosternum hilare*) - MISSISSIPPI - Light on soybeans in Yazoo County; 1 per 20 feet of row. (Dinkins).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Old and new weevils in many cotton fields. Weevil numbers and punctured squares continue to increase in untreated and seldom treated fields. Where insecticides applied before squaring and continued at recommended 5-day interval, few punctured squares noted. In Pee Dee area, 50 percent more weevils taken from trap plots this year than at same time in 1965. (Cott. Ltr., July 11). Adult counts in treated and untreated cotton plots in Florence area zero. Larval infestations 0.6-2.2 percent in treated plots, 5-15 percent in untreated plots. Infestations down in untreated fields probably because of extremely high temperatures and lack of moisture. (Taft et al., July 13). TENNESSEE - Square counts averaged 28 percent over regularly infested portion of cotton-growing area. Some first-generation weevils appearing. Larval mortality low despite very hot and dry weather. Dry, hot weather may be major factor in weevil control this season, if continues for some time. Weevils puncturing squares as fast as they appear on plants in some instances. No control started in many of these fields; total crop loss expected if control not started immediately. (Locke). ALABAMA - Square infestation continues high in northern area, especially in older cotton where first-generation "hatchouts" occurring. Counts in central and southern area low to high depending largely on control efforts. Larvae and pupae in squares on ground killed by extremely hot weather; 75 percent of larvae in one field in southern Lee County dead. Rains and cooler temperatures occurred in area. Few larvae and pupae dead in squares in some more northern counties. (McQueen).

GEORGIA - Punctured squares averaged 13 percent in untreated cotton field in Putnam County; 15 percent in Spalding County. (Beckham). MISSISSIPPI - Punctured squares found in 20 of 31 fields in delta counties. Percent punctures average 1.2 (maximum of 9.3). Hot, dry weather killing many larvae in squares on ground. (Pfrimmer et al., July 14). Slight increase noted in southern delta region. Heavy in Tunica and Panola Counties; infestations 20-45 percent punctured squares in some fields. Infestation less than 5 percent in Marshall County; 30-45 percent in Pontotoc County. Punctured squares 16 percent in Carroll County; 8-12 percent in Leflore and Yazoo Counties. (Dinkins). LOUISIANA - Extremely light this year; might not require controls before August. Punctured squares scarce and live weevils hard to find. (Tynes, July 11). Single adult found in 131 fields in Madison Parish. Punctures found in 93 of these fields; overall infestation 2.8 percent. No weevils found on trap cotton plants. (Cleveland et al., July 14).

ARKANSAS - Weevil punctures found in about 25 percent of fields; 17 of 5,700 fields had infestations above recommended treatment level. (Ark. Ins. Sur.). OKLAHOMA - Punctured square counts averaged 20 percent in Muskogee County, 14 percent in Sequoyah County. (Okla. Coop. Sur.). TEXAS - Infestation in Waco area increased as new generation weevils found in most fields. Infestation in 10 treated fields averaged 1.8 percent punctured squares (maximum 3.8 percent); averaged 10.4 percent (maximum 39.5) in 44 untreated fields. (Cowan et al.). For boll weevil in High Plains area see page 711.

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Squares injured by larvae far exceeded those punctured by Anthonomus grandis. Few eggs observed, but few small larvae and numerous large larvae noted. Total of 147 moths caught in light traps compared with 201 at same time last year. (Cott. Ltr. July 11). Generally light in Florence area but number of hard-to-control populations reported. Larval infestations 0.7-6.4 percent in treated plots, 0-2 in untreated plots. Total of 24 H. zea and 1 H. virescens moths taken in light trap. (Taft et al., July 13). TENNESSEE - Light numbers found in most of fields in western area. Most infestations not at control level. (Locke). MISSISSIPPI - Injured squares found in 18 of 31 fields in delta counties. Average percent injury 1.2 (maximum 80). Eggs found in one field. (Pfrimmer et al., July 14). H. zea and H. virescens infestations 5-6 percent in Yazoo County cotton. (Dinkins). LOUISIANA - Light infestations found in few fields past 2 weeks. No H. zea or H. virescens eggs found on cotton during past week. Beneficial insects very effective in fields not yet treated. Fields should be watched for increased H. zea egg laying next 10-14 days. (Tynes, July 11). Larvae found in 20 of 131 fields in Madison Parish. Infestation averaged 0.17 percent for these 131 fields. Bollworm punctures found in 86 fields; percent damaged squares 1-8. Larvae found in 15 of 131 fields; infestation 1-3 percent. Eggs found in 41 of these fields; 1-7 per 100 terminals. (Cleveland et al., July 14).

ARKANSAS - Sharp increase in numbers of H. zea and H. virescens moths began July 7 in Desha County; as many as 44-47 to 1,000 row feet of baited cotton and soybeans July 11 and 12. This peak corresponds with similar peak at same time in 1965; however, numbers approximately twice as high. Increase in fields not reflected by light trap catch in same area. Infestations at recommended treatment levels found in 4 of 5,700 fields. (Ark. Ins. Sur.). OKLAHOMA - H. zea eggs present on 80 percent of cotton plants and first-stage larvae on 4 percent of plants in Grady County. Egg counts 0-20 percent in Wagoner, Muskogee and Sequoyah Counties. (Okla. Coop. Sur.). TEXAS - Infestation increased over last week in Waco area. In 10 treated fields, eggs averaged 4 and larvae 3.5 per 100 terminals. In 44 untreated fields, eggs averaged 2 and larvae 2.1 per 100 terminals. Square injury averaged 1 percent in 10 treated fields, 1.6 percent in 44 untreated fields. Boll injury averaged 1.5 percent in 8 treated fields and 0.8 percent in 42 untreated fields. During June, 68 percent of larvae collected identified as H. virescens and 37 percent to date in July as H. virescens. (Cowan et al., July 15). NEW MEXICO - H. zea light to medium in southern Dona Ana County cotton. (Garcia, Clayshulte). CALIFORNIA - Only occasional H. zea larva found in Fresno County; no populations economic. (Stromberg, July 8). H. zea at low levels in Imperial County cotton. Up to 10 plants per 100 infested with small larvae; however, very few larvae surviving past second instar. (Campbell, July 7). Moth activity increased in light trap at Shafter although few larvae detected in cotton fields. Some evident in Arvin area. (Leigh, July 8).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Common in Fresno County cotton; should be watched for buildup. (Stromberg, July 8). Moth activity increased at Shafter; larvae evident throughout San Joaquin Valley. No severe infestations observed. (Leigh, July 8).

COTTON SQUARE BORER (Strymon melinus) - TENNESSEE - Several cotton fields show some damage to terminals and squares in Dyer and Crockett Counties. (Locke).

COTTON LEAFWORM (Alabama argillacea) - OKLAHOMA - Single larva noted on cotton in Sequoyah County. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Damaging young cotton squares in Dona Ana County. Larger problem near cut alfalfa. (Campbell). NEVADA - Currently only pest in cotton requiring control in Pahrump Valley, Nye County. (Slater). CALIFORNIA - Mostly under control in Fresno County cotton. Troublesome in west side of county where massive migrations from safflower and alfalfa fields occurring. Some treatment underway in these crops to reduce migrations. Nymphs becoming more abundant, particularly in Caruthers area. (Stromberg, July 8). Present in most Imperial County cotton fields. Nymphs generally increasing; 3-15 per 50 sweeps. (Campbell, July 7). Continue to dominate pest situation in San Joaquin Valley. Under control in many fields; however, some untreated fields and some fields treated earlier need attention; 2-20 per 50 sweeps. Populations generally higher in west side and northern end of valley. (Leigh, July 8).

PLANT BUGS - TENNESSEE - Causing light damage to very small squares throughout western area. (Locke). MISSISSIPPI - *Lygus lineolaris* found in 10 of 30 fields in delta counties. Averaged 0.4 per 100 terminals; maximum 8.7 per 100 terminals. (Pfrimmer et al., July 14). *L. lineolaris* moderate in Yazoo, Carroll and Leflore Counties; 75-125 per 1,000 feet of row sampled with vacuum sweeper. *Psallus seriatus* and unspecified species light to moderate in cotton in same counties; 40-100 per 1,000 feet of row in several fields sampled with vacuum sweeper. Moderate in Coahoma County; heavy in Marshall County. (Dinkins). LOUISIANA - *L. lineolaris* moderate in some fields of older cotton; should be watched closely. (Tynes, July 11). *P. seriatus* and *L. lineolaris* remain heavy in most Madison Parish fields. In 76 untreated fields, *P. seriatus* 1-34 per 100 sweeps in 66 fields; *L. lineolaris* 1-18 per 100 sweeps in 71 fields. In 32 treated fields, *P. seriatus* 1-55 per 100 sweeps in 22 fields; *L. lineolaris* 1-39 per 100 sweeps in 31 fields. (Cleveland et al., July 14). TEXAS - *P. seriatus* continued to decrease in Waco area cotton. Averaged 8.5 per 100 terminals in 10 treated fields, 15.1 per 100 terminals in 44 untreated fields. (Cowan et al.). OKLAHOMA - Plant bugs continue light to moderate on cotton in Beckham, Grady, Bryan and Marshall Counties. (Okla. Coop. Sur.). NEW MEXICO - *Spanogonicus albofasciatus* and *P. seriatus* generally light in Dona Ana County cotton; some fields show more damage than others. (Clayshulte).

A STINK BUG (*Euschistus conspersus*) - CALIFORNIA - Adults increasing in many Imperial County fields due to migration from hay and milo; 0-17 per 50 sweeps with damage to bolls evident. (Campbell, July 7).

APHIDS - SOUTH CAROLINA - Activity continues light with some medium infestations reported in Greenville, Darlington and Kershaw Counties. (Cott. Ltr., July 11). *Aphis gossypii* light in many cotton fields in Florence area. (Taft et al., July 13). GEORGIA - Aphids heavy on cotton in Terrell County. (Womack, French). NEW MEXICO - *A. gossypii* apparently building up in several cotton fields in Chaves County. (Mathews).

LEAFHOPPERS - CALIFORNIA - Nymphs damaging in many Imperial County fields. Adult population high in many fields with movement from late, dug beet fields still problem. Controls with recommended materials generally good; however, repeat applications necessary in some instances. (Campbell, July 7). Abundant in cotton in western Fresno County, but apparently not damaging cotton plants. (Leigh, July 8). *Empoasca fabae* damaged some cotton in Fresno County. Growers along foothills and near major streams should watch this pest. (Stromberg, July 8).

SPIDER MITES - SOUTH CAROLINA - More of problem than 7 days ago. (Cott. Ltr., July 11). TENNESSEE - Increasing over western area; conditions ideal for buildup. Some infestations general, others spotty within fields. Controls recommended. (Locke). GEORGIA - Infestations scattered over State; heavy in some fields. (Jordan). Moderate to heavy on cotton in Terrell and Peach Counties. (French, Womack, O'Neil). MISSISSIPPI - Although found in 1 of 30 fields in delta counties, reported damaging in several areas of delta region. Difficulty in control reported. (Pfrimmer et al., July 14). CALIFORNIA - Very spotty throughout Fresno County. Recent hot weather caused some buildup. (Stromberg, July 8). Generally under control throughout San Joaquin Valley cotton; causing considerable leaf shed and leaf damage in few fields. (Leigh, July 8).

TOBACCO

APHIDS - KENTUCKY - Winged forms of Myzus persicae and unidentified black aphid building up on tobacco. (Miller, July 11).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults light to moderate on tobacco in Prince Georges County. (U. Md., Ent. Dept.).

SUGAR BEETS

BEET WEBWORM (Loxostege sticticalis) - NORTH DAKOTA - Surveys in Walsh, Pembina and Grand Forks Counties showed up to 70 percent of plants with eggs. Larvae up to 15 per 100 plants with damage evident in local spots in some fields. Some controls applied. (Brandvik). NEBRASKA - Moderate populations causing some damage to sugar beets in Chase County. (Sakurada). KANSAS - Larval numbers low in sugar beet fields in Finney and Kearny Counties. Infestation not sufficient to warrant control. (DePew). COLORADO - Larval damage in some fields in Weld County, but most controls effective. (Jenkins).

BEET LEAF MINER (Pegomya betae) - NORTH DAKOTA - Damaged leaves evident in sugar beet fields in McKenzie County; 10 percent of plants infested. Blasted areas evident on 1 leaf per plant. Up to 75 (average 30) percent of plants showed blasted leaves in Grand Forks, Walsh and Pembina Counties. (Brandvik).

SPINACH LEAF MINER (Pegomya hyoscyami) - IDAHO - Abundant throughout Canyon, Elmore, Gooding, Twin Falls, Jerome, Minidoka and Bannock Counties, but activity apparently declining. (Landis).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeiformis) - NORTH DAKOTA - Larvae abundant in fields in Walsh and Pembina Counties. Some fields 10-100 percent infested. Control measures, where applied, apparently holding up. (Dogger). COLORADO - Loss 5-10 percent in untreated fields in Weld County. In some fields 0.1-2 acres show total loss. (Jenkins).

AN EPHYDRID FLY (Psilopa leucostoma) - IDAHO - Larvae mining sugar beet leaves in Canyon, Elmore, Gooding, Twin Falls, Jerome, Minidoka and Bannock Counties. Most abundant at Caldwell, Canyon County, and Buhl, Twin Falls County. (Landis).

BEAN APHID (Aphis fabae) - WASHINGTON - Unusually large numbers of parthenogenetic forms infesting lambquarters, redroot and sugar beets in Yakima Valley. (Cone).

MISCELLANEOUS FIELD CROPS

LYGUS BUGS (Lygus spp.) - NORTH DAKOTA - Up to 30 per 100 sweeps in flax in Grand Forks, Walsh and Pembina Counties. (Brandvik).

HOP APHID (Phorodon humuli) - WASHINGTON - Wingless stem mothers and nymphs on hops increasing rapidly with cold weather at Prosser, Benton County. No predators observed. (Cone).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - WASHINGTON - Adults and nymphs damaging hops at Prosser, Benton County. Very light on leaves below 6 feet; none above this height. Adults or nymphs 10-20 and eggs 20-80 per 20 leaves. Population development slow due to cold weather. (Cone).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - Spotted, light to moderate infestations of fourth-stage larvae in Lee district. (Shands). NEW YORK - Larvae continued problem in tomatoes in Orleans and Genesee Counties. (N. Y. Wkly. Rpt., July 11). VIRGINIA - Damage to tomatoes on Eastern Shore heavier than in past. Very few larvae currently present; large numbers of emerging adults killed by high temperatures. (Hofmaster, July 7). UTAH - Infested tomatoes and potatoes in Weber County. (Stenquist, Knowlton). IDAHO - Adults migrating in large numbers from weeds to potato fields in Bonneville County. Feeding damage observed on stems of plants damaged by freezing. (Paulson).

POTATO FLEA BEETLE (Epitrix cucumeris) - VIRGINIA - Little foliage damage and no tuber injury reported on Eastern Shore. (Hofmaster, July 7). NORTH DAKOTA - Up to 50 per 100 sweeps on potatoes in Pembina County. Numbers low in most areas; 5 per 100 sweeps in Walsh and Grand Forks Counties. Controls applied in many areas. (Brandvik).

EUROPEAN CORN BORER (Ostrinia nubilalis) - VIRGINIA - Damage heavy to potatoes on Eastern Shore. Approximately 50 percent of potato hills infested in some commercial fields. Strong second brood expected if weather permits. (Hofmaster, July 7).

CABBAGE LOOPER (Trichoplusia ni) - VIRGINIA - Becoming numerous on Eastern Shore; damage to tomatoes reported. (Hofmaster, July 7).

TOMATO FRUITWORM (Heliothis zea) - OKLAHOMA - All larval stages present in commercial tomatoes in Tulsa County. (Okla. Coop. Sur.).

ARMYWORMS - WASHINGTON - Undetermined species damaging potatoes in Columbia Basin. (Hokanson).

Aphids on Potatoes in Maine - Population increase continues at Presque Isle and Houlton. Little change in Lee district due to unfavorable weather. Macrosiphum euphorbiae predominates in these 3 districts, followed by Aphis nasturtii, Myzus persicae and Acyrtosiphon solani. (Shands et al.).

POTATO APHID (Macrosiphum euphorbiae) - RHODE ISLAND - Building up on tomatoes but less abundant on potatoes in Kingston, Washington County. (Mathewson, Kerr).

GREEN PEACH APHID (Myzus persicae) - RHODE ISLAND - Present on potatoes in Kingston, Washington County. (Mathewson, Kerr). WASHINGTON - Winged and wingless forms infesting potatoes in Grant County; lighter than in previous years. (Powell).

SPIDER MITES (Tetranychus spp.) - OKLAHOMA - Moderate to heavy on tomatoes and other garden crops in eastern areas of State. (Okla. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - NORTH DAKOTA - Up to 15 per 100 sweeps on potatoes in Grand Forks County. (Brandvik).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - RHODE ISLAND - Adults present on beans in commercial garden in Exeter, Washington County. (Mathewson). NEW YORK - Unusually heavy in most bean fields in Orleans and Genesee Counties. (N. Y. Wkly. Rpt., July 11). OHIO - Larvae appearing on some bush beans in Madison County and averaged 1 per leaf on 2 infested plants examined. Larvae about second instar. (Gibson).

A BLISTER BEETLE (Meloe angusticollis) - MAINE - Light populations and damage on beans in Jonesboro, Washington County. (Boulanger, July 9).

PALE-STRIPED FLEA BEETLE (Systema blanda) - NEBRASKA - High population severely injured pinto bean field in Chase County. (Sakurada).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Building up on snap and lima beans on upper Eastern Shore. (U. Md., Ent. Dept.).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - First larvae of season found in harvested cabbage field near Lumberton. (Ins.-Dis. Newsltr.).

IMPORTED CABBAGEWORM (Pieris rapae) - RHODE ISLAND - Adults evident in fields statewide. (Mathewson). WISCONSIN - Larvae feeding heavily on untreated cole crops, adults generally numerous in fields with wild mustard or yellow-rocket. (Wis. Ins. Sur.).

CABBAGE CURCULIO (Ceutorhynchus rapae) - OHIO - Some cabbage infested in Perry County. Adults, probably this species, severely damaging radish and Brussels sprout plants in garden in Delaware County. (Valentine et al.).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - NEW YORK - Large numbers continue in Orleans and Genesee Counties. (N. Y. Wkly. Rpt., July 11).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Very serious in most cucumber fields in Orleans and Genesee Counties. (N. Y. Wkly Rpt., July 11).

ONION THRIPS (Thrips tabaci) - NEW YORK - Serious problem in cucumber fields in Orleans and Genesee Counties. (N. Y. Wkly. Rpt., July 11).

GENERAL VEGETABLES

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - VIRGINIA - Damaged sweetpotatoes throughout Eastern Shore. (Hofmaster, July 7).

TORTOISE BEETLES - VIRGINIA - Caused localized severe injury to sweetpotatoes in some sections of Eastern Shore. (Hofmaster, July 7).

SQUASH VINE BORER (Melittia cucurbitae) - MISSOURI - In extreme southeast full-grown larvae 4-5 per stem on squash. (Wkly. Rpt. Fr. Grs., July 13).

FALSE CHINCH BUG (Nysius ericae) - IDAHO - Adults numerous on carrots in Twin Falls County area. (Evans).

THRIPS - NEW MEXICO - Controls underway on younger onions in Dona Ana County. (Campbell). COLORADO - Thrips tabaci 0-30 per plant on onions throughout Arkansas Valley, depending on controls. Rapid reinfestation characteristic in many fields. (Schweissing). IDAHO - T. tabaci decreased in untreated Canyon County onion fields. (Bechtolt, July 8).

A LEAF MINER FLY (Liriomyza sp.) - CALIFORNIA - Medium in green onion plantings in Arlington, Riverside County. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Carpocapsa pomonella*) - MASSACHUSETTS - Very active this year in unsprayed orchards, with high percent of injured fruit. Bulk of first brood still in larval stage; some early larvae pupated. Earliest second-brood moths should appear about August. (Crop Pest Cont. Mess., July 11). MARYLAND - Second-brood larvae entering apples at Hancock, Washington County. (U. Md., Ent. Dept.). GEORGIA - Light on apples in Union County. (Scott, Harris) INDIANA - Two adults of first brood were caught in bait traps. About one-half of brood left fruit. Second-brood larvae present in low numbers. (Dolphin, July 11). OHIO - Moths of first true generation from eggs laid in spring, emerging at Wooster, Wayne County. Particularly abundant in Licking County; about 50 percent of remaining apples infested, many fallen from trees. KANSAS - Infestation 90 percent in unsprayed apples in Wichita Area; 2-3 larvae per apple. All stages present. (Simpson). UTAH - Flights and infestations moderate in Utah County orchards. (Barlow, Knowlton)

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - RHODE ISLAND - Damaged tips evident on peach in Cranston. (Mathewson, July 7). INDIANA - Adult collections in bait traps in peach trees steadily declined from 30 to 3 during past 4 weeks. (Dolphin, July 11).

FALL WEBWORM (*Hyphantria cunea*) - INDIANA - Newly established webs on apples and peaches at Vincennes. (Dolphin, July 11). OKLAHOMA - Infestations on pecan trees continue to increase in eastern areas of State. (Okla. Coop. Sur.).

WESTERN PEACH TREE BORER (*Sanninoidea exitiosa graefi*) - OREGON - Adults emerging in peach orchards of Jackson County. (Berry)

DRIED-FRUIT BEETLE (*Carpophilus hemipterus*) - TEXAS - Heavy populations of larvae tunneling into ripening peaches and causing economical damage near Robstown, Nueces County. (Nolan)

A BRANCH AND TWIG BORER (*Melalgus confertus*) - OREGON - Medium adult population occurring on prunes, ornamental plums and maples in Roseburg area of Douglas County. (Vertrees)

APHIDS - MAINE - *Aphis pomi* increasing in several areas; winged migrants low for time of season. (Boulanger, July 9). CONNECTICUT - *A. pomi* troublesome in many orchards; growers advised to check problem blocks. (Savos, July 13). ALABAMA - *Eriosoma lanigerum* heavy on apple trees in St. Clair County. (Jackson, Ledbetter). UTAH - *Myzus cerasi* above normal damage in Utah County cherries. (Barlow, Knowlton).

ITALIAN PEAR SCALE (*Epidiaspis piricola*) - CALIFORNIA - Heavy on prune trees in Saratoga, Santa Clara County. (Cal. Coop. Rpt.).

APPLE MAGGOT (*Rhagoletis pomonella*) - MAINE - First adults taken in emergence cage in Monmouth, Androscoggin County, July 5. Strong increase in numbers by July 8. (Boulanger, July 9). MASSACHUSETTS - Now most important pest; adult emergence began June 30 in Amherst area and nearly week earlier in more eastern areas. Fly emergence still on upswing. Early ripening varieties particularly susceptible at this time. (Crop Pest Cont. Mess., July 11). CONNECTICUT - Adult emergence still heavy during past week in New Haven. (Savos, July 13). RHODE ISLAND - Adults present on unsprayed apple in Exeter, Washington County. (Mathewson, Novak). NEW YORK - Increasing in Niagara County. (N.Y. Wkly. Rpt., July 11). VERMONT - Adult activity beginning. (McCollom, July 9). WISCONSIN - First adults of season appearing in Madison area. Total of 5 adults caught in Madison ammonia bait trap July 9-10; first adult taken July 8. Populations appear high for initial emergence. None found in Door County as of July 12. (Wis. Ins. Sur.). MINNESOTA - Flies active on commercial and home orchard apple trees. (Minn. Ins. Rpt.).

FRUIT FLIES (Rhagoletis spp.) - MAINE - R. mendax emerging in numbers in Jonesboro area, Washington County. (Boulanger, July 9). NEW YORK - R. cingulata emerging in large numbers in one area of Niagara County. (N. Y. Wkly. Rpt., July 11).

EUROPEAN RED MITE (Panonychus ulmi) - GEORGIA - Light to moderate on unsprayed apple trees in Union County. (Taylor, Harris). NEW JERSEY - Building up in some southern counties. (Ins.-Dis. Newsltr.). MASSACHUSETTES - Increasing rapidly in some orchards due to hot weather. (Crop Pest Cont. Mess., July 11). MAINE - Generally moderate in most areas; eggs of third generation appearing in some orchards. Damage light. (Boulanger, July 9). OHIO - Populations high on unsprayed or improperly sprayed orchards throughout State. In Licking County orchard, 60 mites per leaf on mature apple trees. (Rose). MICHIGAN - Buildup continues in fruit areas. (Wooley).

ORCHARD MITES - RHODE ISLAND - Probably Panonychus ulmi appearing in commercial apple orchards in Providence County. (King, July 8). CONNECTICUT - P. ulmi and two-spotted species building up; weather conditions very favorable for development. Some bronzing of foliage due to P. ulmi in most orchards. (Savos, July 13). MARYLAND - P. ulmi and Tetranychus sp. increasing on apples in Hancock area. (U. Md., Ent. Dept.). INDIANA - Populations of P. ulmi and Tetranychus spp. increasing. Maximum mobile populations observed 64.8 and 12.4 per leaf, respectively. (Dolphin, July 11). COLORADO - Tetranychus spp. damaging foliage of apples and pears in Mesa and Delta Counties, with some burning of leaves in pear orchards in Mesa County. (Bulla). UTAH - T. mcdanieli increasing on fruit trees in Salt Lake County orchards; moderate in Utah County orchards. (Knowlton). IDAHO - P. ulmi present in most Canyon County orchards. Tetranychus urticae effectively controlled. (Homan).

SPITTLEBUGS - GEORGIA - Moderate to heavy numbers causing small nuts to shed in Spalding County. Heavy in Loncoln, Evans, and Tattnall Counties. Moderate in Wayne County (Rogers); light in Grady County (Fletcher). ALABAMA - Clastoptera achatina light in pecans in Montgomery and Lee Counties. (Ledbetter et al.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Continues to damage pecans in many areas. Pupation has begun in central area. (Okla. Coop. Sur.).

BLACK-MARGINED APHID (Monellia costalis) - TEXAS - Heavy populations inflicting economic damage to pecans near Henderson, Rush County. (Burton).

CITRUS

CITRUS RED MITE (*Panonychus citri*) - CALIFORNIA - Medium on citrus nursery stock in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

ARMORED SCALES - CALIFORNIA - *Lepidosaphes beckii* and *Aonidiella aurantii* heavy on citrus locally in Spring Valley, San Diego County. (Cal. Coop. Rpt.). FLORIDA - *Parlatoria pergandii* and *Unaspis citri* infesting stems and leaves of Citrus spp. nursery plants in Seminole County. (Kipp, July 5).

SMALL FRUITS

CURRENT FRUIT WEEVIL (*Pseudanthrenus validus*) - MASSACHUSETTS - More numerous than for several years in cultivated blueberries in southeastern area. (Tomlinson, July 8).

BLACK-HEADED FIREWORM (*Rhopobota naevana*) - NEW JERSEY - This species and others active in cranberry bogs. (Ins.-Dis. Newsltr.).

CRANBERRY FRUITWORM (*Acrobasis vaccinii*) - MASSACHUSETTS - Eggs abundant on newly set cranberries in southeast area. Half-grown larvae common in cultivated blueberries in Plymouth and Barnstable Counties. (Tomlinson, July 8).

A LEAF ROLLER MOTH (*Sparganothis sulfurana*) - MASSACHUSETTS - Moths abundant and laying eggs in cranberry bogs in southeast area. (Tomlinson, July 8).

STRAWBERRY LEAF ROLLER (*Ancyliis comptana fragariae*) - MARYLAND - Larvae moderate in new strawberry planting in Prince Georges County. (U. Md., Ent. Dept.).

ORNAMENTALS

IMPORTED WILLOW LEAF BEETLE (*Plagioderma versicolora*) - NEW HAMPSHIRE - Adults active; small to medium larvae skeletonizing weeping willow at Durham. (Sutherland, July 2). NEW YORK - Adults and larvae numerous on willow in Ithaca area. (Johnson, July 11).

BAGWORM (*Thyridopteryx ephemeraeformis*) - OKLAHOMA - Moderate to heavy populations damaging evergreens in Muskogee, Cleveland, Murray, Choctaw and Nowata Counties. (Okla. Coop. Sur.). KENTUCKY - Above normal on arborvitae, cedar, junipers, spruce and silver maple this year. (Miller, July 11). MARYLAND - Heavily damaged arborvitae at Scaggsville, Howard County. (U. Md., Ent. Dept.).

CATALPA SPHINX (*Ceratonia catalpae*) - NEW JERSEY - Larvae defoliated several catalpa trees in Hillside area. (Ins.-Dis. Newsltr.).

PEAR-SLUG (*Caliroa cerasi*) - ILLINOIS - Abundant and causing severe browning of hawthorn leaves in northern area. (White).

EUROPEAN EARWIG (*Forficula auricularia*) - UTAH - More troublesome than normal in many Davis County communities. (Rogers). Annoyance, with damage to lilac foliage and some garden flowers, increased in Cache, Salt Lake, Weber and Wayne Counties. (Knowlton). OREGON - Populations in gardens and home areas much greater this year than last. Some dahlia growers report losses due to flower damage. (Larson).

GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) - IDAHO - Spring controlled Oregon-grape infestation still low while leaves of adjacent spirea bushes heavily infested. (O'Keefe, Portman).

AN ARMORED SCALE (*Phenacaspis cockerelli*) - FLORIDA - Moderate to severe on 25 of 50 nursery plants of Chamaerops humilis in Seminole County. (Kipp, July 11).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - FLORIDA - Eggs and adults observed in 30 percent of Paurotis wrightii and 120 of 300 Ardisia crisper nursery plants, Polk County. (Schmidt, June 27).

AN ERIOPHYID MITE (Aculus teucarii) - OHIO - Two beds of germander (Teucrium sp.) plants 90 percent infested in Summit County; this new county record. Previously found in Lake and Stark Counties. (Kelly, Walker).

FOREST AND SHADE TREES

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Larvae killed jack pine on 200-300 acres in Vilas County. (Wis. Ins. Sur.).

AN OLETHREUTID MOTH (Eucosma gloriola) - MICHIGAN - Larvae damaging Scotch and Austrian pines in number of Ottawa County plantations. (Newman).

PANDORA MOTH (Coloradia pandora) - WYOMING - Moths present in Medicine Bow National Forest near Laramie, Albany County. (Fronk).

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - Severely defoliated several spruce plantations in north central and northeast areas. (Minn. Ins. Rpt.).

WHITE-PINE WEEVIL (Pissodes strobi) - RHODE ISLAND - Wilting of terminals becoming conspicuous; appears heavy. (Mathewson).

PINE BARK APHID (Pineus strobi) - GEORGIA - Infesting needles and twigs of pines in Dougherty County. (Hays). RHODE ISLAND - Heavy on pine in Wakefield. (Kerr, July 7).

BLACK PINE-LEAF SCALE (Nuculaspis californica) - WISCONSIN - Crawlers emerging on mugho pine near Arena. (Wis. Ins. Sur.).

SOFT SCALES - OHIO - Lecanium fletcheri eggs hatched, crawlers moving about on yews in southeastern area. (Ellis). NEW HAMPSHIRE - Physokermes piceae eggs hatching at Laconia. (Conklin, Mason, July 6).

ELM LEAF BEETLE (Pyrralta luteola) - NEVADA - Damage heavy on untreated trees in western counties. (Cooney et al.). COLORADO - Heavy leaf damage on Chinese elm in Denver County. (Swingle). NEW MEXICO - Light to heavy on Chinese elm in Rio Arriba and Santa Fe Counties. (Heninger). OKLAHOMA - Second-generation egg laying well underway in Tulsa County. Adults moderate in most areas of State. (Okla. Coop. Sur.). MISSISSIPPI - Damage light to moderate on elm trees in Oktibbeha County; occurrence appears statewide. (Dinkins). KENTUCKY - Numerous on Chinese and American elms. (Miller, July 11). NEW JERSEY - Damaging elm leaves in central counties. (Ins.-Dis. Newsltr.).

A LEAF BEETLE (Anomoea laticlavata) - MISSOURI - Adults causing heavy damage on locust in Boone County. (Houser).

AN AMBROSIA BEETLE (Platypus compositus) - TENNESSEE - Infesting oak trees in Knox and Blount Counties. (Williams, July 8).

LOCUST LEAF MINER (Xenochalepus dorsalis) - INDIANA - Heavy on black locusts in Harrison and Floyd Counties. (Huber). OHIO - Larval infestations on black locust foliage widespread throughout east central area; most observations indicate moderate populations and light damage. Strip mine reforestation plantings of black locust especially susceptible to severe damage. (Galford, Cannon, Rose).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - MICHIGAN - Larvae caused widespread defoliation of oak trees in Montmorency and Oscoda Counties; infestations less severe in Otsego, Ogemaw and Crawford Counties. Pupal stage predominates. Species caused severe injury to oak in Lower Peninsula in 1956 and 1957. (Flink).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Webs up to 2 feet in diameter observed in upper Arkansas River Valley as far north as Franklin County. (Boyer, Roberts). MISSOURI - First webs of season appeared in Boone County. Infestation light but expected to increase. (Houser). MARYLAND - Webs common on roadside trees in several areas of State. (U. Md., Ent. Dept.).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Continues light to medium on mimosa and honeylocust trees throughout State; pupation of first generation underway in Franklin, Marion and other northern counties. (Ponder, Price et al.). ARKANSAS - Light in Conway County. (Boyer, Roberts). ILLINOIS - Causing light damage to honeylocust as far north as La Salle County. (White). OHIO - Larvae active on honeylocust in east central and southeastern areas. (Galford, Ellis). NEW JERSEY - Damage appearing in central and southern counties. (Ins.-Dis. Newsltr.).

SAWFLIES - WISCONSIN - Larval feeding by Pristiphora geniculata heavier than last year in Vilas County. (Wis. Ins. Sur.). MINNESOTA - P. erichsonii causing heavy defoliation of tamarack in northeast and north central areas. (Minn. Ins. Rpt.).

BIRCH LEAF MINER (Fenusa pusilla) - MAINE - Damage very severe in many eastern areas on birch, particularly gray birch. Stands along Interstate 95 between Bangor and Waterville and in coastal areas of Hancock and Washington Counties showing severe injury; later broods still to appear. (Boulanger, July 9). WISCONSIN - Damage more evident than normal in Door and other northeastern counties. (Wis. Ins. Sur.).

ELM LEAF APHID (Myzocallis ulmifolii) - UTAH - Injury to elm trees more extensive than normal in Cache and Weber Counties. (Knowlton). OKLAHOMA - Heavy on elms in Payne County. (Okla. Coop. Sur.).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEVADA - Heavy on elm; causing deposits of honeydew on trees, cars, streets and walks in Pershing County. (Martinelli). NEW MEXICO - Light to moderate on American elm in Sante Fe County. (Henger). NEBRASKA - Heavy in some areas of Sheridan County. (Peters).

CALICO SCALE (Lecanium cerasorum) - MARYLAND - Collected from silver maple at Laurel, May 17, 1965, by J. Gilpin. Det. by R. F. Wilkey. This is a new State record. (U. Md., Ent. Dept.).

MAN AND ANIMALS

MOSQUITOES - OREGON - Heavy around fair grounds at Prineville, Crook County. Control measures initiated. (Hanna). CALIFORNIA - Populations below seasonal average for dry year. Few problems developed in local areas. (Cal. Coop. Rpt.). NEVADA - Aedes dorsalis adults light to heavy in Lovelock, Pershing County. (Cooney et al.). UTAH - Fogging reduced mosquito annoyance at Logan, Cache County. (Knowlton). TEXAS - Populations in Jefferson County reduced considerably; however still above average. Psorophora confinnis, Culex salinarius, C. pipiens quinquefasciatus dominant species. (Texas Coop. Rpt.). GEORGIA - Large number of Aedes sollicitans adults biting people on Little St. Simons and St. Simons Islands. (Nolan, Snoddy). FLORIDA - Mosquitoes unusually abundant and troublesome in Miami area following very heavy rainfall in late June. Aedes taeniorhynchus breeding on offshore islands and invading nearby southwest Miami areas. (Heidt). MINNESOTA - Recent rains caused heaviest hatch of Aedes vexans this season. Mansonia perturbans and Culex tarsalis abundant. (Minn. Ins. Rpt.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Heavy on cattle in Mayes, Cleveland, and Bryan Counties. Decreased in many areas due to hot, dry weather. (Okla. Coop. Sur.). NEBRASKA - Averaged 100 or more per side on untreated cattle in sandhills

area. Light to heavy on cattle exposed to backrubbers. (Roselle). NORTH DAKOTA - Counts on Hereford range cows up to 600 and averaged 500 per animal in Dunn County. (Brandvik). WYOMING - Adults becoming numerous and annoying cattle in northeast areas; 75-200 per animal. (Marks). UTAH - Troublesome on beef and dairy cattle throughout Weber County. (Knowlton, Stenquist).

STABLE FLY (*Stomoxys calcitrans*) - GEORGIA - Biting man, horses and cattle on Little St. Simons, St. Simons and Jekyll Islands. (Nolan). MARYLAND - Averaged 26 per head in 5 cattle herds in Frederick County. (U. Md., Ent. Dept.).

FACE FLY (*Musca autumnalis*) - UTAH - Annoyance to horses and cattle increasing in Cache, Box Elder and Weber Counties. (Knowlton). SOUTH DAKOTA - Numbers low. (Kantack, July 8). IOWA - Counts 2-12 per head on beef cattle on pasture in central area. (Iowa Ins. Inf.). ILLINOIS - Remains very low, 0-3 per face in northwest district. No heavy populations observed this year. (White). MARYLAND - Averaged 27 per face in 5 cattle herds in Frederick County. (U. Md., Ent. Dept.).

CATTLE GRUBS (*Hypoderma* spp.) - NORTH DAKOTA - Adults 5 per head on cattle in McKenzie County. (Brandvik).

LONE STAR TICK (*Amblyomma americanum*) - OKLAHOMA - Adults 5 per head on cattle in Atoka County. Larvae on cattle increasing. (Okla. Coop. Sur.). INDIANA - Female collected from man in Tippecanoe County, June 14 by J. Wappes. Det. by W. L. Butts. (Huber).

AMERICAN DOG TICK (*Dermacentor variabilis*) - WASHINGTON - Collected at Dayton, Columbia County. Appears to be second specimen from area since 1944, suggesting species may be established. (Sunderland, July 8).

HOUSEHOLDS AND STRUCTURES

A FALSE CHINCH BUG (*Nysius raphanus*) - CALIFORNIA - Heavy populations moving into entire subdivision in Los Banos, Merced County. Created considerable nuisance in residences in past few years. (Cal. Coop. Rpt.).

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) - WYOMING - Adults migrating from granary into homes at Worland. (Gale, Marks, July 8).

LEAD-CABLE BORER (*Scobicia declivis*) - OREGON - Probably this species causing numerous complaints from homeowners in Medford area, Jackson County; damaging plasterboard walls, plaster casts, hardwood paneling and floors. (Berry).

A DRYWOOD TERMITE (*Incisitermes snyderi*) - TEXAS - Caused economic damage to houses in La Porte and Bellaire areas of Harris County, and Beaumont in Jefferson County. (Parker, Donnelly).

BENEFICIAL INSECTS

Beneficial Insects in Cotton in California - Abundant in many fields and appear to be keeping some pest populations under control in San Joaquin Valley. Big-eyed bugs particularly abundant in parts of west side of valley, in Madera County and in some Kern County fields. *Orius* spp. very abundant in some Shafter area fields. Green lacewings abundant in western Fresno County; numerous in Kern County. A parasitic wasp very abundant in some Kern County fields, apparently parasitizing Spodoptera exigua and Trichoplusia ni. (Leigh, July 8). Generally abundant in Imperial County. Big-eyed bugs and damsel bugs most common; melyrid beetles, minute pirate bugs, lady beetles and lacewings easily found. (Campbell, July 7).

Beneficial Insects in Cotton in Louisiana - Heavy populations of lady beetles, spiders, lacewings and other predators present in untreated fields. Should be preserved as long as possible by delaying treatments until insect counts indicate need. (Tynes, July 11).

LADY BEETLES - MICHIGAN - Adults of various species averaged 2.3 per 10 sweeps in 3 fields of second-growth alfalfa in Washtenaw County July 12. (Ruesink). WYOMING - Adults of several species numerous in alfalfa in northeastern area. (Marks). IDAHO - Adults and eggs present among Rhopalisiphum maidis infesting corn in Canyon County. (Bechtolt).

A CLERID BEETLE (Enoclerus sp.) - CALIFORNIA - Heavy adult populations swarming on and around ponderosa pine trees in a 1-acre area in Lake County. Pines infested with Dendroctonus brevicomis. (Cal. Coop. Rpt.).

LACEWINGS - NEVADA - Holding most cotton pests below economic levels in Pahrump Valley, Nye County. (Slater). IDAHO - Green lacewing adults and eggs, along with aphid mummies, present among Rhopalosiphum maidis infesting corn in Canyon County. (Bechtolt). MISSISSIPPI - Hemerobius spp. (brown lacewings) larvae and adults prevalent in several cotton fields; 25-30 per 1,000 feet of row. (Pate et al.). INDIANA - All stages of green lacewings common in apple and peach trees. (Dolphin, July 11).

BIG-EYED BUGS (Geocoris spp.) - NEVADA - These and Collops spp.) holding most cotton pests below economic levels in Pahrump Valley, Nye County. (Slater).

DAMSEL BUGS - MICHIGAN - Adults of various species average 4 per 10 sweeps in second-growth alfalfa in Washtenaw County July 12. (Ruesink).

STINK BUGS - INDIANA - Eggs on apple and peach foliage parasitized by hymenopterus egg parasites. (Dolphin, July 11).

A BRACONID (Aphidius sp.) - NEVADA - Increasing in Acyrtosiphon pisum infested fields in Lyon and Pershing Counties. (Batchelder, Ferraro).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Larvae collected July 7 in Calhoun County have been positively determined as this species. A quick survey of area indicated a local infestation near the northeast corner of Duck Lake in Clarence Township. Large last-instar larvae have defoliated willow trees in area. Larval feeding is almost complete and pupation is underway. The 1966 find is in an area where 5 moths were taken in 3 separate traps during the 1961 survey season. Sprays were applied in 1962 and no moths have been taken since. It is surmised that spray coverage near the lake was inadequate as all precautions were taken to avoid insecticidal drift in the water. Survey plans call for installation of 500 traps to delimit the infested area. (Turner). RHODE ISLAND - Ovipositing in Providence County. (Veilleux).

EUROPEAN CHAFER (Amphimallon majalis) - MASSACHUSETTS - Collected in eastern part of State, Metropolitan Boston area, for first time. Delimiting survey now in progress. (Kuzmiski). Collected at sites in Middlesex, Essex, Worcester and Suffolk Counties; first infestation found June 27, Middlesex County. Det. by O. L. Cartwright. (PPC).

GRASSHOPPERS - OREGON - Large numbers in range areas near Crane, Harney County. (Novotney). CALIFORNIA - Oedaleonotus enigma and Melanoplus sanguinipes heavy in 7-acre pasture and yard in Orange County. (Cal. Coop. Rpt.). UTAH - Damaging crops and gardens in Wayne, Kane, Garfield, Cache and Davis Counties. Population necessary throughout North Ogden and Pleasant View areas of Weber County. Population lower than in 1965. (Knowlton et al.). WYOMING - Cooperative control program begun on approximately 15,000 acres of rangeland in Natrona County. Large infestations present on rangeland in Converse, Johnson, Washakie, Campbell and Niobara Counties. Melanoplus spp. adults and nymphs 5-8 per square yard in alfalfa in Johnson, Sheridan, Campbell and Crook Counties. (Marks). NORTH DAKOTA - Cropland survey in eastern counties shows average of 5 per square yard. Development first

to fifth instar. Dominant species Melanoplus femurrubrum, M. bivittatus and M. sanguinipes. (Scholl). Marginal infestations averaged 7 and field counts 1 grass-hopper per square yard in Dunn, Golden Valley and Slope Counties. (Brandvik). MINNESOTA - M. femurrubrum egg hatch reached peak in southern half of State. Infestations widely scattered with few fields having economic numbers. (Minn. Ins. Rpt.). SOUTH DAKOTA - Continue to increase; heaviest in Cheyenne River area, Pennington County. M. differentialis, M. bivittatus and M. sanguinipes 10-12 per square yard. (Burge, July 8). IOWA - Grasshoppers averaged 1 per square yard in fence rows in Wayne County. (Iowa Ins. Inf., July 6). NEBRASKA - Building up in field margins. Nymphs up to 30 per square yard in field margins in some parts of Nemaha, Jefferson and Hall Counties. (Roselle, Rine). Caused medium to heavy damage in lawns and gardens in areas of Sheridan County. (Peters). KANSAS - Light feeding damage observed in corn and sorghum in many fields in northeast and east central areas. (Simpson). NEW MEXICO - Averaged less than two nymphs per square yard in rangeland, Colfax County. Light to moderate on alfalfa in Valencia and Bernalillo Counties. (N. M. Coop. Rpt.). OKLAHOMA - Economic populations of 8-25 per square yard found in scattered areas of Delaware, Mayes, Creek and Muskogee Counties. Dominant species, M. bivittatus, M. differentialis and Ageneotettix deorum; fourth instar to adult. (Okla. Coop. Sur.).

ARKANSAS - Few reports of possible need for control in southwest area. Extremely dry weather could contribute to greater problem. (Ark. Ins. Sur.). ILLINOIS - Melanoplus spp. 0-40 per 100 sweeps in second-crop alfalfa in northwest district. (White). WISCONSIN - M. femurrubrum hatch continues; up to 5 per sweep common in many alfalfa fields in southwest and southern counties. Counts somewhat higher on sandier areas. Mostly first and second instars. Few M. sanguinipes adults noted in alfalfa in Spring Green area. (Wis. Ins. Sur.). OHIO - Populations of nymphs on second-growth alfalfa in central and east central areas ranging from two to five per sweep. (Rose).

JAPANESE BEETLE (Popillia japonica) - GEORGIA - Light to moderate on grapes in Hall County. (Butler). SOUTH CAROLINA - Numerous at Clemson and other upper Piedmont locations. (Nettles et al.). VIRGINIA - Highest numbers on shade trees in Pittsylvania County in 4 years. (Dominick). Adults very numerous in Prince Edward and Montgomery Counties. (Isakson, Peery, July 9). Adults observed on grapes, soybeans, and lambsquarters in Amelia County. (Holmes, July 9). OHIO - Adults damaging roses and other flowers in Franklin County. Collected from corn, legume forage and other vegetation in eastern part of State. (Galford, Rose). NEW JERSEY - Causing light damage to roses in Salem County. (Gardner). RHODE ISLAND - Very heavy local infestation in Ashaway adjacent to turf bank of U.S. Highway 95. Adult populations low in State otherwise. (Mathewson et al.). MASSACHUSETTS - Beginning to emerge in numbers. (Crop Pest Cont. Mess., July 11).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Most of field population in southwest summer adults. No eggs or larvae observed during recent days. Early emerging summer adults entering inactive diapause period. New finds recorded for Otsego, Alcona, Alpena and Presque Isle Counties. (Gomulinski, Turner). INDIANA - Majority of summer adults have emerged from oats and entering aestivation. Observed to complete life cycle on field corn in New Carlisle area this season; not previously observed. (Shade).

CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Adult population very low in Miami area. Catches averaging 40-50 per night per blacklight trap in early July. Numbers expected to increase again in late August and September. (Habeck).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Populations still light but increasing in control zone in High Plains area. Total of 2 overwintered weevils taken 3.5 miles north of Dickens. Low punctured square counts increasing in cotton below the Caprock. (Parker, Hanna, July 12).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Experimental control plots set up and sprayed to determine rates to control this pest. At least 300,000 acres

of rangeland infested in Colfax, Union and Harding Counties. (N. M. Coop. Rpt.). Ranchers have requested Federal-State assistance in controlling this outbreak. (PPC).

BROWN-TAIL MOTH (*Nygmia phaeorrhoea*) - MAINE - Defoliating oaks on Outer Brothers Island in Casco Bay. (Boulanger, July 9).

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - CALIFORNIA - Approximately 1,500 traps now in service in Lomita, Los Angeles County; all inspections negative since single male fly trapped June 21. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Several adults collected in Sarasota County with McPhail traps and in Henry County with sticky board trap. (Frederic, Nelson). Several records of *A. suspensa* at Sebring, Highlands County, indicate flies localized to one residence where Surinam cherries and peaches have been infested. Adults collected in Glades County. This is new county record. (Nelson, July 11). Four larvae collected from one tomato in residential area of Fort Lauderdale, Broward County, June 17. Det. by G. W. Dekle, G. C. Steyskal, R. H. Foote. This is first collection from tomato in State. (Fla. Coop. Sur.).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 17 cases reported in U. S. July 10-17 as follows: TEXAS - Brewster 1, Kerr 2, Bandera 2, Medina 1, Atascosa 1, McMullen 1, Jim Wells 1, Kleberg 2, Jim Hogg 1. ARIZONA - Yavapai 2, Maricopa 1, Gila 1. NEW MEXICO - Hidalgo 1. Total of 78 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 2, Sonora 40, Chihuahua 23, Coahuila 1, Nuevo Leon 2, Tamaulipas 10. No cases reported from Mexico south of Barrier Zone. Barrier zone area in which screw-worm eradication operations carried out in effort to prevent establishment of self-sustaining populations in the U. S. Sterile screw-worm flies released: Texas 15,106,250, New Mexico 7,592,000, Arizona 18,536,000, California 200,000, Mexico 99,688,000. (Anim. Health Div.).

WEATHER OF THE WEEK ENDING JULY 18

HIGHLIGHTS: (1) Hot spell interrupted North Central, Northeast; continues to the south. (2) Dry most areas but many locally heavy showers.

TEMPERATURE: A pattern of very hot weather has persisted in many central and eastern areas for the last 2 to 4 weeks. The heat was relieved in north central and northeastern areas by Canadian air which moved south of the Ohio River on Friday. Temperatures were near 100° in Minnesota and Wisconsin early in the week but dropped into the 40's late in the week. In the Northeast, temperatures also dropped into the 40's bringing the coolest weather since June 22. Most of these areas were hot again by Sunday. Hot weather continued unabated throughout the South and along the eastern slopes of the Rockies into Montana. Oklahoma City, Oklahoma, reported 100° or higher every day July 1-18; a sequence which threatens the record of 22 "century" days set in August 1936. St. Louis with 100° or higher daily July 9-14 had the longest such spell since 1953. Temperatures at 100° or higher were common in Georgia while Miles City, Montana, reported 107° on Friday. In the Southwest, it was normally hot but in the central valley of California and northward, temperatures averaged as much as 9° below normal; parts of Oregon and Washington have been cool for 4 weeks.

PRECIPITATION: California, Nevada, and nearby areas, also central Texas, received no significant rain. Most other areas had very widely scattered showers affecting unusually small areas so that most places were dry. Several Ohio locations received 4 to 6 inches and Sandusky reported a record 10.81 inches in about 8 hours with flash flooding. Heavy local showers also occurred in Alabama and in many locations in the northern Plains as well as elsewhere. Drought conditions are intensifying in the Great Basin and in the Northeast where showers were also scattered and locally variable. High temperatures are rapidly intensifying the drought conditions in Oklahoma, Kansas, Missouri, and Arkansas. (Summary supplied by Environmental Data Service, ESSA).

INSECT DETECTION

New United States Record

A STRATIOMYID FLY (Neoexaireta spinigera (Wied.)) - CALIFORNIA - Specimens collected from greenhouse in nursery in Santa Barbara, Santa Barbara County, by M. Suskin December 17, 1965. Det. by W. W. Wirth. Previously known from Australia and Hawaii. (Cal. Coop. Rpt.).

New State Records

EUROPEAN CHAFER (Amphimallon majalis) - MASSACHUSETTS - Found for first time in State in Metropolitan Boston area. (p. 710).

A MEALYBUG (Spilococcus geraniae) - CALIFORNIA - Collected from Artemisia douglasiana in Sacramento County. (p. 696).

CALICO SCALE (Lecanium cerasorum) - MARYLAND - Collected from silver maple at Laurel. (p. 708).

AN ENCYRTID WASP (Anarhopus sydneyensis) - HAWAII - Collected at several localities past 2 years. (p. 714).

New County Records

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH CAROLINA - Found for first time in Oconee and Anderson Counties. (p. 693).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Found for first time in Otsego, Alcona, Alpena and Preque Isle Counties. (p. 711).

PEA LEAF WEEVIL (Sitona lineata) - WASHINGTON - Found for first time in Franklin County. Also new locality record for eastern part of State. (p. 696).

AN ERIOPHYID MITE (Aceria teucrii) - OHIO - Recorded for first time in Summit County. (p. 707).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adults collected in Glades County. (p. 712).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Found for first time since 1961. (p. 710).

Corrections

CEIR 16(24):553 - POPLAR-AND-WILLOW BORER (Sternochetus lepathi) should read (Sternochetus lapathi).

CEIR 16(25):595 - CORN PLANTHOPPER (Perigrinus maidis) should read Peregrinus maidis.

CEIR 16(26):600 - SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) should read (Zeadiatraea grandiosella).

CEIR 16(26):616 - WHARF BORER (Nacerdes melanura) - INDIANA - Should read: Fill used in constructing parking lot of State Office Building at Indianapolis contained considerable discarded wood. Condition favorable for this insect; several entering basement of building. (Osmun).

HAWAII INSECT REPORT

New State of Hawaii Insect Record - An ENCYRTID WASP (Anarhopus sydneyensis) collected at several localities in State in past 2 years. This primary parasite of Pseudococcus adonidum appears well established. First local specimen collected in Wailupe Valley, Oahu, April 19, 1964, and later on Kauai, Maui and Hawaii Islands. All collections from elevations of 2,000 feet or above. Maui specimens reared from P. adonidum. Determined and reported by J. W. Beardsley. (Haw. Ins. Rpt.).

Insects of Regional Significance - All stages of ORIENTAL FRUIT FLY (Dacus dorsalis) heavy on Eugenia sp. (roseapple) in Puhī area of Lihue, Kauai. All fruits 100 percent infested. The parasitic braconid wasp, Opius oophilus, observed in light numbers. (Au).

Tomatoes - LEAF MINER FLIES (Liriomyza spp.) heavily attacked several vegetable crops, especially tomatoes, at different localities throughout islands of Kauai, Oahu, Maui, Molokai and Hawaii. Difficult to control. (Haw. Ins. Rpt.).

General Vegetables - DIAMONDBACK MOTH (Plutella maculipennis) larvae medium on mustard cabbage (kai choi) in Waianae area of Oahu. (Yamamoto).

Forest and Shade Trees - A PLATYPODID BEETLE (Platypus sp.) active on monkeypod trees in Poipu and Kalapaki, Kauai. Numerous sap exudations on trunks and branches indicated severity of attack. Heaviest activity in March and April, 1966, since declined. (Au). Two more specimens of a PSYLLID (Psylla uncatoides) caught in light traps in Honolulu, Oahu; to date, 4 specimens collected. (Joyce).

Man and Animals - During June, 46 light trap stations on Oahu collected 90 Aedes vexans nocturnus and 6,367 Culex pipiens quinquefasciatus; average of 1.9 and 138.4 per station, respectively. In May, these 2 species averaged 3.0 and 161.2 per station, respectively. Light traps in Waipio Peninsula area showed very high counts from heavy breeding in lowland and ditches in canefield. (Mosq. Cont. Br., Hawaii Dept. of Health).

Beneficial Insects - Adults of a FIG WASP (Euprestina verticillata) swarming near Waialae golf course, Honolulu, Oahu. (Oberhausen, July 8). This polinator of Ficus retusa (Chinese banyan) imported from Philippines and Hong Kong in 1938. (Haw. Ins. Rpt.). Larvae and adults of a PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) very active and infesting few remaining Tribulus cistoides (nohu) in Maalaea, Maui. T. terrestris (puncture-vine) growing along highway in Puunene, Maui, lightly infested. (Miyahira). Adults of a CHRYSOMELID BEETLE (Diachus auratus) light to medium on terminal leaves of blackberry and Acacia koa (koa) in Kokee State Park, Kauai. Intensive damage to koa seedlings at Makaweli Flat and to blackberry at Kalalau Lookout. (Au). Larvae of a HISPID BEETLE (Uroplata girardi) recovered for first time at Puukapele, Kokee State Park at about 2,500 feet elevation on Kauai; 147 adults initially liberated in December 1965. (Haw. Ins. Rpt.).

Corrections - Continued from page 713.

CEIR 16(27):632 - GRASS BUGS - Leptoterna ferrugata should read Leptoterna ferrugata.

CEIR 16(28):664 - PICKLEWORM (Diaphania nitidalis) should read Diaphania nitidalis.

CEIR 16(28):672 - A MINT FLEA BEETLE (Longitarsis waterhousei) should read Longitarsis waterhousei.

CEIR 16(28):674 - GARDEN SYMPHYLAN (Scutigera immaculata) - Credit should read Waterhouse.



UNITED STATES DEPARTMENT OF AGRICULTURE
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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN LEAF APHID populations high on corn in Wisconsin and the Dakotas; of some concern in other areas. (p. 719). POTATO LEAFHOPPER increasing on alfalfa in Lake States; heavy in Maryland. (pp. 719, 720, 741). SIX-SPOTTED LEAFHOPPER remains high in Minnesota and Michigan. SPOTTED ALFALFA APHID heavy in Oklahoma. (p. 720).

EUROPEAN CORN BORER first-brood larval injury and level of infestation generally higher in Michigan than in recent years; higher than 1965 in Wisconsin, lowest since 1961 in Illinois; second-generation larvae light in southeast Missouri due to intense hot weather. (pp. 720, 721, 741). CORN ROOTWORM adults emerging in several areas. (p. 721). SORGHUM WEBWORM and SORGHUM MIDGE damaging in Texas; sorghum midge caused up to 90 percent damage in some fields in many central and southern counties. (pp. 721, 722). CHINCH BUG counts high in Indiana corn and Oklahoma sorghum; activity increasing in New Jersey. (p. 722).

PLANT BUGS heavy in alfalfa in several Central States and in Wyoming and Arizona. (p. 723). GARDEN WEBWORM heavy on alfalfa in Missouri and Arkansas and soybeans in Missouri; some alfalfa completely destroyed and some heavy moth flights observed in Missouri. (p. 724).

BOLL WEEVIL infestations at high level in several Southern States; conditions ideal for further buildup in other areas. Population in Alabama recovered from extreme winter conditions of 3 years ago; damaging in all counties. BOLLWORMS serious in eastern South Carolina, increasing in western Tennessee; could become problem earlier than usual in California. (p. 726). CABBAGE LOOPER could develop economic infestations in California, and LYGUS BUGS continue of concern in areas of State on cotton. (p. 727). SPIDER MITES becoming problem in cotton in South Carolina, Tennessee and Mississippi (p. 728); building up on soybeans in Delaware and causing severe russetting of this crop in Illinois. (p. 724).

EUROPEAN RED MITE problem in orchards in several areas. BLACK SCALE at highest level in 15 years of record on Florida citrus. (p. 731). HORN FLY problem on livestock increasing in several States. HORSE FLIES severe on cattle in Georgia, and DEER FLIES caused some loss of milk production in Wisconsin. (p. 735).

First EUROPEAN CHAFER adult flights occurred in Ohio and Pennsylvania. JAPANESE BEETLE damaging some crops and flowers. (p. 737).

Detection

- GYPSY MOTH adults, larvae and pupae observed at infestation site in Michigan. (p. 738).

New State records include a WEEVIL (Cosmobarus americana) in Oregon and a PERIL-AMPID WASP (Perilampus chrysopae) in Delaware. (p. 739).

For new county and island records see page 739.

Reports in this issue are for week ending July 22 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....719

Insects Affecting

Corn, Sorghum, Sugarcane.....720	Beans and Peas.....729
Small Grains.....722	Cole Crops.....729
Turf, Pastures, Rangeland.....722	General Vegetables.....729
Forage Legumes.....723	Deciduous Fruits and Nuts.....730
Soybeans.....724	Citrus.....731
Peanuts.....725	Small Fruits.....732
Cotton.....725	Ornamentals.....732
Tobacco.....728	Forest and Shade Trees.....733
Sugar Beets.....728	Man and Animals.....735
Miscellaneous Field Crops.....728	Households and Structures.....736
Potatoes, Tomatoes, Peppers.....728	

Beneficial Insects.....736

Federal-State Plant Protection Programs.....736

Insect Detection.....739

Corrections.....739

Hawaii Insect Report.....740

Additional Notes.....741

Light Trap Collections.....742

White-Fringed Beetle Quarantine Map - see centerfold

WEATHER OF THE WEEK ENDING JULY 25

HIGHLIGHTS: (1) Cooler Central, Northeast. (2) Widespread local showers, Central and East.

TEMPERATURES: Extended heat spells in many north central and northeastern areas ended as weekly average temperatures were 2° to 5° below normal; the coolest week since mid-June. Relief came with a welcome mass of refreshing cool air moving southward. By Monday, July 25, the cool air was replaced by warm, humid air once again. Hot weather continued from the southwestern deserts eastward to the Mississippi River and over the northern Rocky Mountains. The California valleys warmed to slightly above normal but Oregon and Washington temperatures were below normal for the fifth week. Temperatures at Salt Lake City averaged 6° above normal with 100° or higher on 4 days. In contrast, St. Louis reported only 1 day over 100° and new York City only 1 day over 90°. The high at Oklahoma City was 108° on Tuesday but only 85° on Thursday.

Weather continued on page 740.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - WISCONSIN - Occasional larva found in smaller corn in few areas. (Wis. Ins. Sur.). MINNESOTA - Trace numbers found in small grain in Marshall and Polk Counties. (Minn. Ins. Rpt.). NORTH DAKOTA - Light defoliation evident in barley in Richland County. Larvae up to 6 per square foot. (Brandvik). COLORADO - Adults averaged 42 per week in Baca County light trap. (Campbell).

BUDWORMS (*Heliothis* spp.) - NORTH CAROLINA - Populations declined on tobacco. Relatively high from early season. (Mistic).

CORN EARWORM (*Heliothis zea*) - NEW JERSEY - Increasing in sweet corn throughout State; however, light trap collections do not reflect larval increase in several areas. (Ins.-Dis. Newsltr.). VIRGINIA - Larvae in some tassels of field corn in Bland County, and in tassels of corn in Carroll County. (Isakson, Tabor). GEORGIA - Light on peanuts in Tift County. (French). KANSAS - Very light in corn and sorghum; less than 1 per 25 plants. Those in sorghum in whorl. (Simpson). COLORADO - Found in early sweet corn in Mesa, Delta and Montrose Counties; 10-16 eggs per 10 silks. Preliminary counts in field corn showed 0-30 eggs per 10 silks. Adults in light traps low, 0-4 per trap per night. (Bulla). Adults average 10 per week in Baca County light trap. (Campbell). UTAH - Control underway in market and home garden corn in Salt Lake and Davis Counties. (Knowlton, July 18). NEW MEXICO - Medium to heavy on corn in Curry, Lea and Eddy Counties. (Campbell). Larval infestations in sweet corn in Mesilla Valley 98 percent in untreated fields. (Durkin).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEW MEXICO - Treatments applied to some sorghum in Curry and Roosevelt Counties. (Campbell). UTAH - Numerous on spring barley in Cache County. (Knowlton). COLORADO - Infesting corn in Eaton and Hudson areas, Weld County. Lady beetle adults 0-2 per plant. Should keep aphids under control. (Urano). WYOMING - Very light on corn in Goshen and Platte Counties. (Marks). SOUTH DAKOTA - Appearing in corn and sorghum. Ranged 150-200 per plant on sorghum in Hutchinson and Yankton Counties. (Kantack, July 15). Heavy on tassels of corn in southeastern area. Predators common, but numbers variable. (Jones). MINNESOTA - Colonies present on emerging tassels and upper leaves of corn. Predators present, but aphid colony size apparently increased past week. (Minn. Ins. Rpt.). WISCONSIN - Populations high in western counties, but some evidence predation and parasitism will be controlling factors noted. (Wis. Ins. Sur.). ILLINOIS - Populations increasing; range 0.2 percent plants infested in southeastern area to 17 percent in western district. (White et al.). INDIANA - Apterous forms appearing in scattered areas throughout northern half of State; 10-20 individuals per corn plant. In Benton County, 600 acres of corn required treatment; 30-60 percent of plants with tassels covered. (Everly, Huber). MICHIGAN - Beginning colonies common near tassel of corn plants in many Lower Peninsula counties. (Thompson, Janes, Wells). VIRGINIA - Light to heavy on corn in southwest area; 40-90 percent of tassels infested with 20-1,500 aphids per tassel. Many lady beetle larvae present. (Isakson). NORTH CAROLINA - Heavy in field of corn in Bladen County and field in Pamlico County. Heavy in 5-acre field in Washington County; 80 percent of tassels infested, with 50 percent of tassels emerged. Field suffering from lack of moisture. (Sasser, Rea, Mount). ALABAMA - Extremely heavy in several corn fields in Dallas County. (McQueen). OKLAHOMA - Increased considerably in grain sorghum in some areas of Grady County. Light numbers present in most northeast area fields. (Okla. Coop. Sur.).

HORNWORMS (*Manduca* spp.) - NORTH CAROLINA - Increased on tobacco past 10 days, but still relatively light. Populations previously extremely low. (Mistic).

POTATO LEAFHOPPER (*Empoasca fabae*) - MICHIGAN - Adults increasing; 26 per 10 sweeps in second-growth alfalfa in Monroe, Lenawee and Washtenaw Counties. (Ruesink). ILLINOIS - Populations decreasing in central area. Adults 338 and nymphs 205 per 100 sweeps in second and third-crop alfalfa. Some yellowing apparent in one-third of fields. (White). WISCONSIN - Continues increase in alfalfa although yellowing

not yet noticeable. Averaged 3 per sweep in Columbia, Green Lake and Fond du Lac Counties. Adults on snap beans in Waushara County; 1-2 per plant on wax beans in Durand area. (Wis. Ins. Sur.). MINNESOTA - Counts in alfalfa increased past week; average per 100 sweeps: South central 54; central 110; west central 60. (Minn. Ins. Rpt.). COLORADO - Ranged 2-4 per 100 sweeps on potatoes in Weld, Adams and Morgan Counties. (Jenkins).

POTATO PSYLLID (*Paratrioza cockerelli*) - WYOMING - Adults 1.5-2 per 100 sweeps in potato fields in Laramie and Goshen Counties. Controls recommended where nymphs present. (Marks). COLORADO - Adults 1-2 per 100 sweeps, with one nymph per 10 leaves in shaded spots on potatoes in Weld and Adams Counties. In Morgan County, adults 2-6 per 100 sweeps, with 2 nymphs per 10 leaves. (Jenkins).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - MINNESOTA - Counts remained high in west central and northwest districts on small grain; 106 and 300 respectively per 100 sweeps. (Minn. Ins. Rpt.). MICHIGAN - Adults 1.8 per 10 sweeps in second-growth alfalfa in Monroe, Lenawee and Washtenaw Counties. (Ruesink). COLORADO - Continues to appear in Baca County light trap; 248 taken. (Campbell).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WYOMING - Counts 8-10 per 100 sweeps in Goshen County alfalfa. (Marks). COLORADO - None taken in alfalfa in Weld, Morgan and Adams Counties. (Jenkins). OKLAHOMA - Moderate to heavy in alfalfa in Grady, Cleveland, Kingfisher, Washita and Kiowa Counties. Ranged 6-50 per 100 sweeps in Nowata and Washington Counties. (Okla. Coop. Sur.). ARKANSAS - Not found in Lee and Conway Counties, although medium in Conway County field 2 weeks ago. Rain apparently influential in reducing populations. (Boyer). MISSOURI - Light in southwest and central areas; 50-100 per 100 sweeps. (Houser, Peters). KANSAS - Light (15-50 per 100 sweeps) in Bourbon, Crawford, Cherokee, Labette, Neosho, Lyon and Miami Counties; moderate (175-350 per 100 sweeps) in Chase, Butler, Crowley, Elk and Greenwood Counties. In fields with high populations, lady beetle larvae high, up to 150 per 100 sweeps. (Simpson). SOUTH DAKOTA - Alates and winged forms 10 per 100 sweeps in alfalfa in Yankton County. (Jones). WISCONSIN - Little change noted since last week. (Wis. Ins. Sur.). ILLINOIS - Averaged 95 per 100 sweeps in second and third-crop alfalfa in central district. (White).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - SOUTH DAKOTA - Damaged 90 percent of whorls of corn in field in Yankton County; damage up to 50 percent in other fields. Damaged 10-20 percent of whorls on corn in Charles Mix County. (Kantack, July 15). Caused extensive damage in some untreated fields in northern Yankton County; up to 4 larvae per plant and 90 percent of plants infested. (Jones, Kantack). MINNESOTA - No egg masses found. Borers per 100 plants averaged as follows: Southwest 28, south central 5, west central 34, northwest 112. (Minn. Ins. Rpt.). NEBRASKA - Second-generation moths appearing in east. Pupation beginning in central area. (Hill, Rhine). MISSOURI - Peak moth emergence apparently occurred in southeast area week ending July 16. Second-generation larvae in area light due to intense heat. (Keaster, Jones). Pupation complete in southwestern area, moth emergence about 50 percent. Infestation in late corn very light. Moth emergence 10-15 percent in central area; pupation well underway, but larvae still present. (Houser). IOWA - First pupa of first-brood found at Ankeny July 7. Second-brood moths expected July 25. (Iowa Ins. Inf.). WISCONSIN - Pupation well underway in sandy areas. Populations appear higher than last year in early planted corn. Incidence of leaf feeding appears high in many corn fields. Percent infestation 18-24 in Trempealeau, Buffalo, Pepin, Dunn and Jackson Counties; 40-70 percent in early planted Sauk County corn. (Wis. Ins. Sur.). ILLINOIS - Borers per 100 plants by district as follows: West 3.2, lowest since 1961; west-southwest 5.25, highest since 1960; southeast 4.2. (White, Randell, Petty). INDIANA - Adult emergence underway in southern third of State. (Huber). MICHIGAN - Injury by first-brood larvae and level of infestation generally higher than during recent years. (Jones, Wells). OHIO - Causing some concern in north central and northwestern areas. (Blair). DELAWARE - Moths abundant in Sussex County. (Burbutis, Davis). VERMONT - First damage observed in sweet corn. (Nielsen, July 18).

VIRGINIA - Conspicuous on southwest area field corn. Infestation 20-60 percent. Some fields 95 percent infested in Clarke County. Corn stunted by drought most severely affected. (Isakson et al.).

FALL ARMYWORM (*Spodoptera frugiperda*) - DELAWARE - Light numbers of nearly full-grown larvae feeding in whorls of field corn in Sussex County. (MacCreary). MISSOURI - Third to fifth-stage larvae 1-2 per plant in whorls of 5-40 percent of plants in late corn in southwest quadrant of State; heaviest infestations in only few fields. (Houser). OKLAHOMA - Light in grain sorghum terminals in Mayes County. All larval stages present. (Okla. Coop. Sur.).

SORGHUM WEBWORM (*Celama sorghiella*) - TEXAS - Continues damaging many late-planted grain sorghum fields in central area. Generally moderate, but some heavy infestations reported from Brazos, Burleson, Bell and Williamson Counties. (Parker).

A SKIPPER (*Lerodea eufala*) - ARIZONA - Larvae 40 per 100 sweeps in late sorghum in Gila Valley. (Ariz. Coop. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - ILLINOIS - Adults emerged in Mercer County July 7. (Sechrist). KANSAS - Adults emerging in large numbers from untreated fields in Finney County; lower in treated fields in Finney and Rush Counties. (DePew). SOUTH DAKOTA - First adults observed July 11 in Lincoln County; 2 per corn plant in some fields in Yankton County July 14. Less than 5 percent of population adults. (Kantack, Nearman). Adults present in high numbers in some fields in southeastern counties. Adults 30+ per stalk in Hutchinson and Yankton Counties. (Jones, Kantack). WYOMING - Small numbers of adults present in widely scattered corn fields in Goshen and Platte Counties. Most heavily infested field in Platte County, where adults 4-6 per corn plant. (Marks).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - OHIO - Adults emerging in most areas. Infested corn in Clark County with one or more beetles on silk. (Polivka). INDIANA - Adults emerging in central areas; 8-12 per silk in Wabash River flood-plain field in Vermillion County. (Gould, Carlson). WISCONSIN - Adults appearing; pupation over 50 percent in several fields. (Wis. Ins. Sur.). MISSOURI - Adults 1-2 per silk mass in corn in northeastern area. (Thomas).

CORN ROOTWORMS (*Diabrotica* spp.) - KANSAS - *D. undecimpunctata howardi* light (2-10 per 10 plants) in most areas of southeastern section. Occasional fields with 2-3 per plant. (Simpson). NEBRASKA - *Diabrotica* spp. adult emergence 50-75 percent in central area, starting in northeast. Adults heavy in some parts of southern and southeast areas. (Perry, Roh). SOUTH DAKOTA - Surveys show *Diabrotica* spp. larval infestations more general than in 1965, but much lower than in 1963 and 1964 and range from few per plant with no serious root damage, to heavy infestations (40-50 per plant) and serious root damage. Young larvae still present in most fields; adults emerging in southern counties. (Jones, July 15). *D. undecimpunctata howardi* adults 8 per 100 sweeps in Yankton County alfalfa. Very few *D. longicornis* observed in corn this season. (Jones). MINNESOTA - *D. longicornis* and *D. virgifera* adults found in southern counties. First emergence noted July 8 at Southwest Experiment Station at Lamberton; this unusually early. (Minn. Ins. Rpt.). OHIO - Populations high on field corn in Clinton and Clark Counties. (Polivka).

CORN FLEA BEETLES (*Chaetocnema* spp.) - CALIFORNIA - *C. ectypa* abundant in milo plantings in Imperial County. (Campbell, Ext. Ser.). ARIZONA - *C. ectypa* heavy in late-planted sorghums in Gila Valley; 500 per 100 sweeps. (Ariz. Coop. Sur.). NEW YORK - *C. pulicaria* common but not abundant on unsprayed corn in Hudson Valley. (N. Y. Wkly. Rpt., July 18).

SAP BEETLES - ILLINOIS - *Glischrochilus quadrisignatus* adults 0-300 per 100 corn plants in west district. (White). INDIANA - *Glischrochilus* sp. adults 11-23 per infested corn plant in east central district. In northern third of State, adults 1-17 per plant in whorls and leaf sheaths. (Huber). MICHIGAN - Adults, probably *G. quadrisignatus*, widespread in southern counties. Especially numerous in corn

plants damaged by borers. (Welk et al.). OHIO - G. quadrisignatus infesting some corn and entering homes in Madison County. (Ewart, Jones). VIRGINIA - Carpophilus lugubris adults moderate on fully tasseled corn in Carroll County. (Isakson, Tabor).

WIREWORMS - NEW JERSEY - Severe in field corn in Salem County; necessitated re-planting. (Ins.-Dis. Newsltr.).

CHINCH BUG (Blissus leucopterus) - INDIANA - Generally light in east central district, none observed in west central area. Controls applied in few corn fields in Allen, Whitley and Grant Counties. Ranged 20-60 late nymphs and adults per plant in border rows of corn adjacent to wheat in east central area. (Huber, Lehker). OKLAHOMA - Up to 30 per plant in grain sorghum in northeast area. (Okla. Coop. Sur.).

SAY STINK BUG (Chlorochroa sayi) - ARIZONA - Increasing in sorghum fields of Graham County; light to moderate, mostly light. (Ariz. Coop. Sur., July 15).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Continued principal insect problem in State. Damage widespread in many central and southern counties on late-planted grain sorghum and in fields where growth delayed due to excessive moisture earlier in year. In many of these fields, damage as high as 90 percent. Variable infestations of Celama sorghiella usually accompanying midge damage. (Texas Coop. Rpt., July 15). Continued to inflict heavy damage to late-planted grain sorghum in central and gulf coast areas of State. Adult activity heavy on newly emerged heads of late grain sorghum in Rockwall County; however, damage light in other areas of State. In Swisher, Briscoe, Deaf Smith and Hall Counties, only light emergence from Johnsongrass reported. Adult activity light on grain sorghum heads in Lamb, Hale and Lubbock Counties. (Parker).

SPIDER MITES (Tetranychus spp.) - NEBRASKA - Building up on corn in central area. Some damage to lower leaves reported. Controls applied. (Roselle). COLORADO - General in corn over Weld County. Heavy in Johnstown area; chemical control applied. (Boyes). WYOMING - Light on lower leaves of corn plants in Goshen and Platte County fields. (Marks). UTAH - Damage appearing on corn in Salt Lake County. (Knowlton).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MINNESOTA - Counts up to 600 per 100 sweeps found in late planting of oats in northwest district. (Minn. Ins. Rpt.).

HESSIAN FLY (Mayetiola destructor) - OHIO - Infestations 20-80 percent in wheat in east central and northwestern areas. (Rose).

WHEAT STEM SAWFLY (Cephus cinctus) - OHIO - Damage to wheat appears less severe than in 1965. (Rose). NORTH DAKOTA - Larvae cutting stems of wheat in McHenry County. (Brandvik).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Populations range conspicuous to damaging in spring wheat in several areas of Salt Lake County. (Knowlton, July 18).

TURF, PASTURES, RANGELAND

A SKIPPER (Lerodea eufala) - ARIZONA - Larvae 15 per 100 sweeps in Bermuda grass. (Ariz. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - NEW JERSEY - Activity increasing in central and northern counties. (Ins.-Dis. Newsltr.).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Heavy on rangelands at Yuba City, Sutter County. (Cal. Coop. Rpt.).

WEBWORMS - KANSAS - Causing extensive damage to buffalo grass, turf and pastures in Rice and Stafford Counties. (Thompson). ILLINOIS - First Crambus trisectus moths for second generation observed in Champaign July 22. (Randell).

FORAGE LEGUMES

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Medium to heavy in alfalfa in Chaves, Eddy, San Juan and Rio Arriba Counties. (Mathews, Heninger). UTAH - Becoming numerous in some Duchesne and Uintah County alfalfa. (Knowlton). COLORADO - Low to moderate in second-cutting alfalfa in Mesa, Delta and Montrose Counties; 250-5,000 per 100 sweeps. (Bulla). Low to moderate on alfalfa in Weld, Morgan and Adams Counties; 200-300 per 100 sweeps. (Jenkins). WYOMING - Adults and nymphs 70-85 per 10 sweeps in alfalfa in Laramie, Goshen and Platte Counties. (Marks). NORTH DAKOTA - Remains low in most second-crop alfalfa; 300 per 100 sweeps in north central and southwestern counties. (Brandvik). WISCONSIN - Remains very low. (Wis. Ins. Sur.). MICHIGAN - Adults and nymphs 5.2 per 10 sweeps in second-growth alfalfa in Monroe, Lenawee and Washtenaw Counties. (Ruesink).

YELLOW CLOVER APHID (Therioaphis trifolii) - WISCONSIN - Heavy in red clover near Hixton; 20 per sweep. (Wis. Ins. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - INDIANA - Adults and nymphs 60-600 per 100 sweeps on third-growth alfalfa in southwestern district. Adults and nymphs 100-1,600 per 100 sweeps on second-growth alfalfa in northern third of State. (Huber, White). ILLINOIS - Adults 40 and nymphs 7.5 per 100 sweeps in second and third-crop alfalfa in central district. (White). KANSAS - Low, 0-5 per 10 sweeps, in most areas of southeastern section. (Simpson).

TARNISHED PLANT BUG (Lygus lineolaris) - OHIO - Some high populations noted on alfalfa in north central area; numbers highest in Ashland County, 10 per sweep. (Rose). MICHIGAN - Adults extremely numerous on wide variety of crops in Lower Peninsula. (Jones et al.). Averaged 35 per 100 sweeps in second-growth alfalfa in Monroe, Lenawee and Washtenaw Counties. (Ruesink). INDIANA - Adults and nymphs 80-700 per 100 sweeps on second-growth alfalfa in northern third of State. On third-growth alfalfa in southwest, adults and nymphs 100-500 per 100 sweeps. (Huber, White). ILLINOIS - Adults 50 per 100 sweeps in alfalfa in central district. No nymphs observed. (White). WISCONSIN - Nymphs and adults of L. lineolaris, Adelphocoris lineolatus and A. rapidus common in many alfalfa fields. (Wis. Ins. Sur.). NORTH DAKOTA - Up to 40 per 100 sweeps in second-crop alfalfa in Sioux, Grant, and Morton Counties. (Brandvik).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing in alfalfa seed fields in Gila Valley; 400 per 100 sweeps. (Ariz. Coop. Sur.). WYOMING - Counts 70-80 per 10 sweeps in alfalfa in Laramie, Goshen and Platte Counties. (Marks). KANSAS - Remain low in southeastern area; 5-15 per 10 sweeps in most alfalfa. (Simpson).

LEAFHOPPERS (Empoasca spp.) - INDIANA - Adults ranged 2-19 per sweep on blossoming alfalfa in northern half of State. (Huber). ARIZONA - E. mexara continues to increase in Yuma Valley alfalfa; 90 per 100 sweeps. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MICHIGAN - Adults 28 per 100 sweeps in second-growth alfalfa in Monroe, Lenawee and Washtenaw Counties. (Ruesink). WISCONSIN - Adults numerous in most areas; up to 50 per sweep. (Wis. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - SOUTH DAKOTA - Larval populations declined following first cutting of alfalfa. In Elk Creek Valley, Meade County, up to 50 larvae per 100 sweeps; up to 90 per 100 sweeps in Spearfish, White and Wood areas, Lawrence County. Larvae first to fifth instar. Pupae and teneral adults present. Up to 44 adults per 100 sweeps in latter area. These populations in second-crop alfalfa 8-10 inches high. (Jones). COLORADO - Larvae 5-30 per 100 sweeps in alfalfa in Mesa, Delta and Montrose Counties. (Bulla). All stages scarce in alfalfa research plots in Larimer County. (Simpson). NEW MEXICO - Ranged 10-30 per

25 sweeps in alfalfa in Rio Arriba County, 1-3 in San Juan County. (Heninger). CALIFORNIA - Larvae and adults, probably this species, heavy on 40 acres of alfalfa in Merced County, medium on 20 acres in Madera County. (Cal. Coop. Rpt.).

BLISTER BEETLES (Epicauta spp.) - KANSAS - Low in alfalfa in southeastern area; less than 2 per 10 sweeps. (Simpson). SOUTH DAKOTA - E. fabricii, E. maculata and E. pennsylvanica common on alfalfa in various areas; near Spearfish, Lawrence County, up to 20 adults per 100 sweeps. (Jones, July 15). NORTH DAKOTA - E. fabricii low in second-crop alfalfa in southwestern counties; 5 per 100 sweeps in Adams and Grant Counties. (Brandvik).

FLEA BEETLES - ARIZONA - Phyllotreta sp. heavy in several fields of alfalfa in Yuma Valley; 220-360 per 100 sweeps. (Ariz. Coop. Sur., July 15). SOUTH DAKOTA - Systema blanda 200 per 100 sweeps on alfalfa in Piedmont and Bear Butte areas of Meade County. (Jones, July 15).

GARDEN WEBWORM (Loxostege similalis) - ARKANSAS - Larvae 150-200 per 100 sweeps in Conway County alfalfa. Practically 100 percent of stems showed feeding. (Ark. Ins. Sur.). MISSOURI - Larvae heavy in Butler, Pemiscot, and Stoddard Counties on alfalfa. Some alfalfa completely destroyed. (Jones). Heavy moth flights observed in alfalfa in Springfield and Carthage areas; damage very heavy in Vernon County alfalfa. (Houser). Heavy damage to alfalfa reported from west central area. (Thomas). ILLINOIS - Larvae observed in very small numbers in alfalfa in central district. (White).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Averaged 37 per 10 sweeps in alfalfa in Washington County. Lighter in other northeast counties. (Okla. Coop. Sur.). KANSAS - Larvae 20-30 per 10 sweeps in alfalfa in Anderson, Woodson and Greenwood Counties. Larvae much lower but adults high elsewhere in southeast. (Simpson). COLORADO - L. commixtalis adults increased in Weld County light trap. (Reynold).

GREEN CLOVERWORM (Plathypena scabra) - ILLINOIS - Larvae 7.5 per 100 sweeps in second and third-crop alfalfa in central district. (White).

ALFALFA CATERPILLAR (Colias eurytheme) - COLORADO - Adults abundant in alfalfa in Mesa, Delta and Montrose Counties. (Bulla). NEW MEXICO - Adults abundant over alfalfa in northern Eddy County. (Campbell). Larvae 1-3 per 25 sweeps in San Juan County, with adults abundant over fields. (Heninger).

THRIPS - NEW MEXICO - Medium to heavy in alfalfa in Chaves, San Juan and Rio Arriba Counties. (Mathews, Heninger).

SOYBEANS

GARDEN WEBWORM (Loxostege similalis) - MISSOURI - Larvae heavy on soybeans in Butler, Pemiscot and Stoddard Counties. (Jones). Heavy damage to soybeans reported in west central area. (Thomas). ARKANSAS - Infesting small soybeans (2-4 inches high) in Monroe, Woodruff, Jefferson and Independence Counties. (Barnes et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ILLINOIS - Adults 0-60 per 100 sweeps in 19 to 31-inch soybeans in central district. (White).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Present on most soybeans in coastal and Piedmont counties, but not serious enough for controls; may build up later. (Nettles et al., July 20).

A THRIPS (Sericothrips variabilis) - ILLINOIS - Very common and causing light silvering in many soybean fields in central district. (White).

SPIDER MITES (Tetranychus spp.) - DELAWARE - T. atlanticus building up on soybeans in some areas of Sussex County. (Connell). ILLINOIS - T. telarius infesting 0-100 percent of soybean plants in central district fields; russeting severe in some fields. (White).

PEANUTS

CUTWORMS - GEORGIA - Light to heavy across peanut belt. (French).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NORTH CAROLINA - Adults noted moving to peanuts in Bertie County July 11-15. (Campbell).

COTTON

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Percent punctured squares 76 in 2 untreated Robeson County fields. In Scotland County, 3 fields treated twice averaged 32 percent and 4 fields treated 3 times averaged 3 percent punctured squares; 6 fields treated 3-5 times ranged 0-2 percent infestation. Cotton in these counties squaring freely, few blooms observed. (Mount, July 15). SOUTH CAROLINA - Buildup continues; first-generation adults now in all sections of State. Generally, percent squares punctured continues to rise even though more squares present on plants. (Sparks, July 18). Infestations increasing slowly in Florence area with activity of first-generation weevils, but still lower than normal due to hot, dry weather. Adults 0-3 per 100 squares in treated plots, 0-5 in untreated plots. Larval infestations 0.75-4.8 percent in treated plots, 2.2-40 percent in untreated plots. (Taft et al., July 20). TENNESSEE - Square counts 19 percent compared with 28 percent last week. Hibernating weevils about disappeared. Peak first-generation emergence should occur by July 29. In those areas where some rain has occurred, situation ideal for further buildup. Infestations heavier in southeastern portion of cotton-growing area. (Locke). ALABAMA - Survival of larvae and pupae in squares higher in northern part of State and emergence of first and second-generation adults medium to high, depending on controls applied 15-20 days earlier. Infestations much higher in area than at same time in 1965 and control efforts more general. Infestation in central and southern counties light to medium; few counties report high numbers. Hot, dry weather reduced "hatch out" of adults and general use of effective controls reduced numbers considerably. Damaging numbers in all counties including Lauderdale, Limestone, Madison and Jackson Counties in extreme north. General and widespread infestation at this time equal to or greater than any time since 1962. In 3 years and part of this season A. grandis has recovered from extreme weather conditions in winter of 1962-63. (McQueen).

GEORGIA - Percent punctured squares 1-80 in Colquitt, 1-2 in Worth and 3 in Tift Counties. (French). Second-generation emergence resulting in very heavy infestations in some southern area fields. (Jordan). MISSISSIPPI - Punctured squares found in 12 of 19 fields in delta counties. Infestation 4.5 percent (maximum 21) in these 12 fields. (Pfrimmer et al., July 21). Populations at high level throughout State. Considerable increase noted in southern delta area. Percent punctured squares 19-38 in 8 fields in Carroll County; 5-10 in Leflore County; 6-25 in several hundred acres in Yazoo County. Heavy "hatchout" noted in north-eastern hill section. Punctured squares 60-70 percent in several counties. In northern delta region, punctured squares ranged light to heavy. Percent punctured squares by county as follows: Marshall 10-20; De Soto 10-30; Tunica 60 in "hot spots", with 10-15 in other areas; Tallahatchie 20-30; Panola 60-70 in "hot spots", with 10-30 in other areas; Coahoma very light with isolated "hot spots" noted in some areas; Pontotoc 60-70. (Dinkins). LOUISIANA - Some emergence from squares occurred in "hot spots" in older fields first week of July; egg laying more obvious past week, punctured squares more plentiful in these spots. Heavy emergence expected last week of July. Infestations higher in southern area than central and northern areas. (Tynes, July 18). Nine weevils found in 6 of 198 fields in Madison Parish. Punctures found in 98 fields; percent damaged squares 1-21 per 100 squares; averaged 1.7 percent per 100 squares for 198 fields. (Cleveland et al., July 21). ARKANSAS - Present in 62 percent of 5,781 fields compared to 44 percent last week; 68 or 1.2 percent of infestations at recommended treatment level, compared with 17 fields or 0.3 percent last week. (Barnes, Boyer). OKLAHOMA - Percent punctured squares 20-30 in cotton adjacent to wooded areas in Grady County. Moderate in Cotton County and light in Bryan County. (Okla. Coop. Sur.). TEXAS -

Percent punctured squares 8.6 (maximum 60) in 73 fields in Waco area. Squares becoming scarce in many early planted fields. (Cowan et al.).

For Boll Weevil in Texas High Plains and in Arizona, see page 737.

A FLEA BEETLE (*Phyllotreta* sp.) - ARIZONA - Heavy in few cotton fields in Yuma and western Maricopa Counties. Damage appears moderate. Averaged 400 per 100 sweeps in more heavily infested fields. (Ariz. Coop. Sur., July 15).

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - More serious than *Anthonomus grandis* in many eastern area fields. (Cott. Ltr., July 18). Percent larval infestation in Florence area 0-2 in treated plots, 0-3 in untreated plots. Total of 35 *H. zea* and 7 *H. virescens* taken in light trap. Generally light in area with some hard-to-kill populations reported. (Taft et al., July 20). TENNESSEE - Increasing over western area; eggs and larvae present. Reached control levels in many fields. (Locke). GEORGIA - Eggs 6 and larvae 4-9 per 100 terminals in Colquitt County; eggs 12-19, larvae 0-1 in Worth County; eggs 27 and larvae 43 in Tift County. Infestation increasing in southern area cotton; egg counts very high. (Jordan). ALABAMA - Larvae not generally serious except in isolated areas of south and west sections. (McQueen). MISSISSIPPI - Eggs found in one of 19 fields in delta counties; injured squares found in 9 fields. Injury averaged 0.9 percent (maximum 2). Moth flight increased slightly. Moth activity may increase sharply due to recent rains. (Pfrimmer et al., July 21). *H. zea* and *H. virescens* light throughout State; new generation hatching, however. Continue light in Pontotoc, De Soto, Tunica, Coahoma, Tallahatchie and Panola Counties. None found in Marshall County. In Leflore County, eggs 4-8 and larvae 1-2 per 100 terminals. In Yazoo County, eggs 3-5 and larvae 1-2 per 100 terminals. (Dinkins). LOUISIANA - No *H. zea* larvae and very few eggs found in cotton. Increased egg laying expected next 7-10 days. (Tynes, July 18). Larvae found in 18 of 198 fields in Madison Parish. Ranged 1-10 per 100 squares in 18 fields, averaged 0.09 per 100 squares in 198 fields. Punctures found in 106 of these fields; 1-13 per 100 squares. Overall average for 198 fields 1.7. Larvae found in 18 of 194 fields where terminal checks made; 1-17 per 100 terminals in these fields; averaged 0.4 larva per 100 terminals in 194 fields. Eggs found in 62 fields; 1-16 per 100 terminals; overall average 0.8 egg per 100 terminals in 194 fields. (Cleveland et al., July 21).

ARKANSAS - Of 2,428 fields scouted, 42 percent infested compared with 25 percent last week; only 0.4 percent at treatment level. (Barnes, Boyer). MISSOURI - *H. zea* larvae 1-4 and eggs 1-5 per 100 terminals in 3 percent of 623 cotton fields in southeast "delta" area. (Jones). OKLAHOMA - Averaged 5 per 100 plants in irrigated cotton in Grady County. (Okla. Coop. Sur.). TEXAS - Infestation decreased slightly in Waco area. In 14 treated fields, eggs 0-2.8 and larvae 0-3.5 per 100 terminals. In 60 untreated fields, eggs 0-5.5 and larvae 0-15.6 per 100 terminals. Square injury 0-4.5 percent in 14 treated fields, 0-30.5 percent in 59 untreated fields. Boll injury 0.4 percent in 14 treated fields and 0.6 percent in 49 untreated fields. Thirty-seven percent of larvae collected and identified July 1-15 *H. virescens*; 15 percent of larvae collected July 16-22 *H. virescens*. (Cowan et al.). NEW MEXICO - Some control applied for *H. zea* in Chaves, Eddy and Dona Ana Counties. (Campbell, Garcia). Damage lower in other cotton-growing areas. (N. M. Coop. Rpt.). ARIZONA - *H. zea* scattered and light in Graham, Maricopa and Pinal Counties. No increase in egg counts noted. (Ariz. Coop. Sur., July 15). *H. zea* continues light and spotted; most infestations not economic. (Ariz. Coop. Sur.). CALIFORNIA - Numbers still high for time of year in Arvin and Wheeler Ridge areas of Kern County. Larvae not of immediate concern due to earliness of season; however, if numbers continue high, problem may develop earlier than usual. Due to earliness of crop, many fields have extremely heavy boll set. (Black, July 14). Populations low in most of San Joaquin Valley, although few very large larvae still evident. Some small larvae detected, particularly in parts of Kern County. Moth activity generally light, although eggs abundant in corn in Shafter and Causelo areas. (Leigh, July 15).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Evident throughout San Joaquin Valley cotton; heavier in northern end of valley. Moth activity strong, economic infestations could develop. (Leigh, July 15). OKLAHOMA - Small larvae abundant in cotton in some areas of Grady County. (Okla. Coop. Sur.). SOUTH CAROLINA - Some light infestations and diseased larvae seen in Florence area. (Taft et al., July 20).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Evident in Tulare Lake area on cotton; some moderate infestations present. Mostly large larvae; however, some egg masses observed. (Leigh, July 15). ARIZONA - First and second-stage larvae scattered on cotton throughout Graham County. Small number of light infestations reported in Pinal County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Primary pests of cotton in Imperial County. Nymphal development and adult migration continue. Increasing in some previously treated and untreated fields. (Campbell, July 15). Continue of most concern in Kern County cotton; however, pressure not as high as in previous weeks. No massive migrations occurred with recent cutting of alfalfa. Many fields still harbor high numbers; nymphs appearing in large numbers in many areas. (Black, July 14). Continue problem in cotton throughout San Joaquin Valley. Counts per 50 sweeps in Shafter 3-28, Corcoran 3-5, west Fresno County 8-19, Madera County 12-18; nymphs predominate. Treatment not needed in many fields; infestations have not built up. (Leigh, July 15). ARIZONA - Continue to cause moderate to heavy damage to cotton in Pinal, Pima and Maricopa Counties. Increasing in Graham County. (Ariz. Coop. Sur.).

PLANT BUGS - TENNESSEE - Causing light damage to very small squares over western area. Control not justified. (Locke). MISSISSIPPI - Lygus lineolaris and Psallus seriatus remain unchanged throughout delta area; no increase noted. (Dinkins). L. lineolaris found in 5 of 19 fields in delta counties; 2.3 per 100 terminals. (Pfirmer et al., July 21). LOUISIANA - P. seriatus and L. lineolaris infestations decreased in Madison Parish. P. seriatus found in 34 of 118 fields; 1-22 per 100 sweeps in these fields; averaged 0.9 per 100 sweeps for 118 fields. L. lineolaris found in 90 fields; 1-28 per 100 sweeps in these fields; averaged 2.9 per 100 sweeps for 118 fields. (Cleveland et al., July 21). MISSOURI - Plant bugs present in 74 percent of 623 cotton fields in southeastern "delta" area; numbers increasing. (Jones). TEXAS - P. seriatus continues to decline in Waco area; no damaging populations found. Averaged 5.9 per 100 terminals in 14 treated fields, 8.2 in 60 untreated fields. (Cowan et al.). NEW MEXICO - Spanogonicus albofasciatus and P. seriatus damaging cotton in Eddy, Chaves and Dona Ana Counties. (Campbell, Garcia).

COTTON APHID (Aphis gossypii) - ARIZONA - Moderate to heavy in areas of Pima County and in Queen Creek area of Maricopa and Pinal Counties. MISSOURI - Light in 14 percent of 623 cotton fields in southeastern "delta" area; decreasing. (Jones).

STINK BUGS - CALIFORNIA - Adults increased in many Imperial County cotton fields; nymphs appearing. Control problem due to migration from milo. These pests may be continual problem throughout season with 180,000 acres of milo under cultivation. (Campbell, July 15).

LEAFHOPPERS - CALIFORNIA - Continue to increase in some untreated Imperial County fields; relatively stable with some trend to decrease in other instances. (Campbell, July 15). Abundant in cotton in western Fresno County; however, economic damage does not appear to be occurring. Cotton growers on east side of San Joaquin Valley should be alert to possible economic infestations of Empoasca fabae. (Leigh, July 15).

CRICKETS - CALIFORNIA - Nymphs increasing in Imperial County cotton. In northern part of county, some fields with considerable leaf damage as well as damage to bolls, especially where bolls cracked prematurely and crickets have eaten out seed. (Campbell, July 15).

SPIDER MITES - SOUTH CAROLINA - Becoming problems in nearly all counties. Some infestations very heavy, defoliation occurring. Recommended miticides generally not giving good results; however, few giving excellent results. Lack of followup application responsible for most lack of control. Initial applications giving good control. (Cott. Ltr., July 18). TENNESSEE - Still increasing; extensive damage expected over western area if controls not applied. Conditions ideal for further buildup. (Locke). MISSISSIPPI - Continue problem in some fields in delta counties. (Pfrimmer et al., July 21). Tetranychus urticae numbers reduced considerably in Tallahatchie County due to heavy rains; currently light. Heavy in Leflore and Issaquena Counties. (Dinkins). MISSOURI - Mostly Tetranychus atlanticus light in field margins and spots within fields in 21 percent of 623 cotton fields in southeastern "delta" area. (Jones). CALIFORNIA - Spider mites under control with few exceptions in Kern County cotton. Controls needed on ends of rows near dusty roadways in some fields. Plants closing the middle so coverage increasingly difficult as season progresses. (Black, July 14). Abundant in some San Joaquin Valley cotton, particularly along field margins and roadways; however, mostly under control. (Leigh, July 15).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Increasing on tobacco in Johnston, Wayne and Lenoir Counties. (Mistic).

SUGAR BEETS

BEET WEBWORM (Loxostege sticticalis) - COLORADO - Second-generation adults appearing on sugar beets in Weld, Adams and Morgan Counties. (Jenkins). Trace numbers of larvae in Prospect Valley area. (Rothman). Adults increased in Weld County light trap. (Reynold). MINNESOTA - Eggs present in some fields in Red River Valley; counts low. (Minn. Ins. Rpt.).

A WEEVIL (Cosmobarus americana) - OREGON - Collected from sugar beets at Ontario, Malheur County, August 5, 1965, by B. J. Landis. Det. by R. E. Warner. This is new State record. (Landis).

STINK BUGS - KANSAS - Continue problem to sugar beet growers in southwestern area, 4-11 per plant in fields examined. Some controls applied but results erratic. (DePew).

SPINACH LEAF MINER (Pegomya hyoscyami) - UTAH - Damage common in sugar beets in Salt Lake County. (Knowlton, July 18).

MISCELLANEOUS FIELD CROPS

A MINT FLEA BEETLE (Longitarsus waterhousei) - OREGON - Damaging numbers found in Jefferson County mint field. This is new county record. (Morrison).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - OREGON - Moderate numbers appearing in some Jefferson County mint fields. (Morrison).

POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Larvae severe in potatoes dug 2 weeks ago at Waverly, Sussex County. (Isakson, Parson).

HORNWORMS (Manduca spp.) - MISSOURI - M. quinquemaculata and M. sexta injuring tomatoes in central area. (Wkly. Rpt. Fr. Grs., July 20).

A BLISTER BEETLE (Epicauta conferta) - OKLAHOMA - Damaging tomatoes in Perkins area of Payne County. (Okla. Coop. Sur.).

POTATO APHID (Macrosiphum euphorbiae) - COLORADO - Low, 1-5 per potato leaf, in Weld, Adams and Morgan Counties. (Jenkins).

Aphids on Potatoes in Maine - Populations generally very small on untreated potato foliage. At Presque Isle increase in numbers and percent of infested plants much below average during past week. In Lee district aphids over 4 times as abundant as at Presque Isle but rate of increase slightly below average. In Houlton district, where aphids most abundant, average of 2.25 aphids on 3 leaves per plant from top, middle and bottom of plant, but rate of increase much below average. Macrosiphum euphorbiae predominates followed by Aphis nasturtii and Myzus persicae or Acyrtosiphon solani. First fungus-killed aphid found July 18 near Presque Isle, slightly earlier than usual. (Shands et al.).

BEANS AND PEAS

BEAN APHID (Aphis fabae) - WISCONSIN - Colonies building up on leaves of wax beans near Durand; 30-40 per leaf. (Wis. Ins. Sur.).

STALK BORER (Papaipema nebris) - WISCONSIN - Larvae boring into pods of snap beans in Madison area. (Wis. Ins. Sur.).

COTTON SQUARE BORER (Strymon melinus) - TEXAS - Moderate in seed pods of green beans near Robstown, Nueces County. (Nolan).

ROSE CHAFER (Macroductylus subspinosus) - VERMONT - Feeding on beans in Burlington area. (Nielsen, July 18).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - Adult numbers high in central and eastern areas past 2-3 weeks; large numbers of larvae anticipated. (N. Y. Wkly. Rpt., July 18).

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Increasing on cabbage throughout State. (Ins.-Dis. Newsltr.). NORTH CAROLINA - Populations of this species, Pieris rapae and Plutella maculipennis declined sharply on crucifers on experiment station at Faison due to dry conditions. (Brett).

DIAMONDBACK MOTH (Plutella maculipennis) - NORTH DAKOTA - Light damage evident in cultivated mustard, Ward County; 100 larvae per 100 sweeps. (Brandvik).

GENERAL VEGETABLES

ONION MAGGOT (Hylemya antiqua) - COLORADO - Damage to onions general in Gilcrest area, Weld County. (Urano).

ONION THRIPS (Thrips tabaci) - COLORADO - Low in most onion fields in Weld, Adams and Morgan Counties. Some damage on early leaves. (Jenkins).

SPINACH LEAF MINER (Pegomya hyoscyami) - UTAH - Damage common in table beets and spinach in Salt Lake County. (Knowlton, July 18).

FLEA BEETLES - GEORGIA - Moderate on sweetpotatoes in Berrien County. (Barber).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Carpocapsa pomonella*) - INDIANA - Adult captures in Vincennes area increased. Flight activity pronounced July 12-13. Most first-brood burrows in fruit vacated. (Dolphin, July 18). MISSOURI - Only occasional new entry reported from any area except northwest. (Wkly. Rpt. Fr. Grs., July 20). TEXAS - Heavy, widespread infestations noted in apple orchards throughout Cooke County. (Tibbets). NEW MEXICO - Increasing in San Juan County light traps. Up to 84 moths per trap in untreated orchards. (Durkin).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - COLORADO - Peak moth flights occurred in Palisade area, Mesa County, July 15; 137 moths taken in 15 bait traps on 3 properties. (Bulla). MISSOURI - Few found in peaches in extreme southeast area. (Wkly. Rpt. Fr. Grs., July 20). INDIANA - Adults increased in peach block near Vincennes. (Dolphin).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - NEW YORK - Second-brood moths emerged July 7 in Monroe County. (N. Y. Wkly. Rpt.). INDIANA - One adult taken in bait trap in Vincennes area. (Dolphin, July 18). MICHIGAN - Second-brood larvae small in southwest apple orchards. (Wooley, Carpenter). WISCONSIN - Adults laying eggs in Door County. (Wis. Ins. Sur.). MISSOURI - Some feeding noted on apples in northwest area. (Wkly. Rpt. Fr. Grs., July 20).

PEACH TREE BORER (*Sanninoidea exitiosa*) - WISCONSIN - Damaging peach, plum and cherry trees in Kenosha County. (Wis. Ins. Sur.).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - INDIANA - Adult male captures down; 297 last period, 117 this period. (Dolphin).

FALL WEBWORM (*Hyphantria cunea*) - INDIANA - Nest size increasing in Vincennes area. Most unsprayed apple trees infested. (Dolphin, July 18).

PLUM CURCULIO (*Conotrachelus nenuphar*) - CONNECTICUT - Found at Storrs July 18. This one of latest dates of adult activity in State. (Savos). TEXAS - Damage heavy to peaches near San Antonio, Bexar County. (Parker).

SCARABS (*Cotinis* spp.) - INDIANA - First *C. nitida* adult of year collected by beating peach foliage. (Dolphin, July 18). OKLAHOMA - *C. nitida* causing heavy damage to ripe peaches in Perkins area, Payne County. (Okla. Coop. Sur.). ARIZONA - *C. texana* feeding on stone fruits in Graham, Cochise and Pima Counties; damage moderate to heavy on many backyard fruits. (Ariz. Coop. Sur., July 15).

DRIED FRUIT BEETLE (*Carpophilus hemipterus*) - ARIZONA - Light to moderate on stone fruits and fig in Tucson area, Pima County. (Ariz. Coop. Sur.).

PEAR-SLUG (*Caliroa cerasi*) - UTAH - Damage to pear and cherry foliage common in Salt Lake County orchards and about homes. (Knowlton, July 18).

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) - NORTH CAROLINA - Second-generation crawlers appearing July 6 on peaches in sand hills area. (Smith).

PERIODICAL CICADAS (*Magicicada* spp.) - WISCONSIN - Localized infestation observed in Columbia County. Cast pupal skins scarce. Some racoon and skunk predation evident. (Wis. Ins. Sur., July 15). ILLINOIS - *M. septendecim* observed for first time this season in Mason County July 5. (Moore).




APPLE MAGGOT (*Rhagoletis pomonella*) - CONNECTICUT - Adult emergence from early ripening apple varieties continues at high rate in New Haven; increased on later varieties. Dry conditions probably holding down emergence. (Savos, July 20). VERMONT - Most important problem in orchards at present time. Emergence continues and expected to increase over next few weeks. (Nielsen, July 18). WISCONSIN - Initial adult emergence high in several areas. (Wis. Ins. Sur.).

FLORIDA

REGULATED ARTICLES ARE:

1. Forest, field, nursery, herbaceous plants with true bulbs, corms, tubers, and roots.
2. Soil, compost, manure, gravel, whether independent or not, nursery stock, other plants, when freshly cut (Irish) when freshly cut and peanut shells.
3. Grass sod; plant crowns, true bulbs, corms, tubers, plants, when freshly cut (Irish) when freshly cut and peanut shells.
4. Uncleaned grass, grain, seed cotton and cottonseed.
5. Scrap metal and junk; slabs, pipes, and building materials.
6. Forest products, such as lumber, timbers, posts, and poles.
7. Used harvesting machines and maintenance equipment.

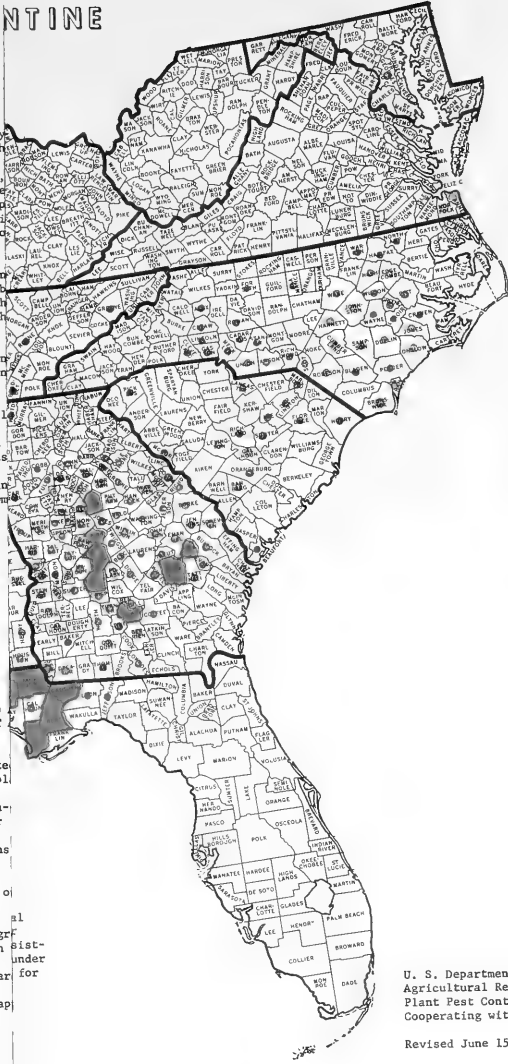
COUNTIES ENTIRELY COLORED
COUNTIES WITH COLORED DOT

-  - Generally infested areas where treatments not planned
-  - Suppressive areas where treatments planned or in progress
-  - State regulations

Restrictions are imposed on movement of regulated articles from an infested area as follows:

1. Red into or through groves.
2. Green into or through groves.
3. Within green groves.
4. Blue into any other area.

*If required by the agricultural inspector.



U. S. Department of Agriculture
Agricultural Research Service
Plant Pest Control Division
Cooperating with affected States

Revised June 15, 1966

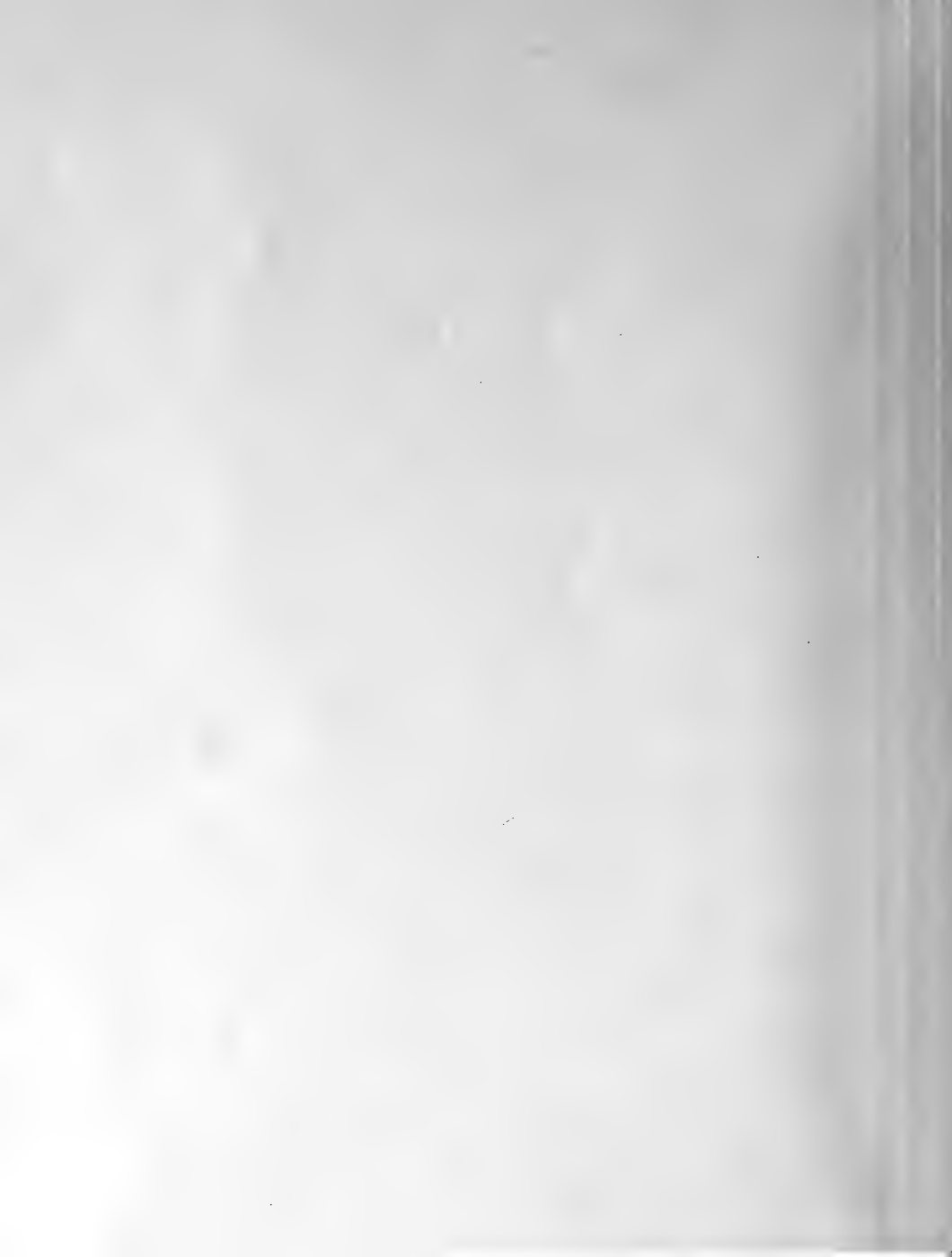
infested 88 percent of groves; 32 percent economic. Population diminishing but still above average and in high range. Decrease expected. Highest districts south, east and central. **PURPLE SCALE (*L. beckii*)** infested 70 percent of groves; 7 percent economic. Currently below normal abundance and will decrease further. Highest district south. **CHAFF SCALE (*Parlatoria pergandii*)** infested 66 percent

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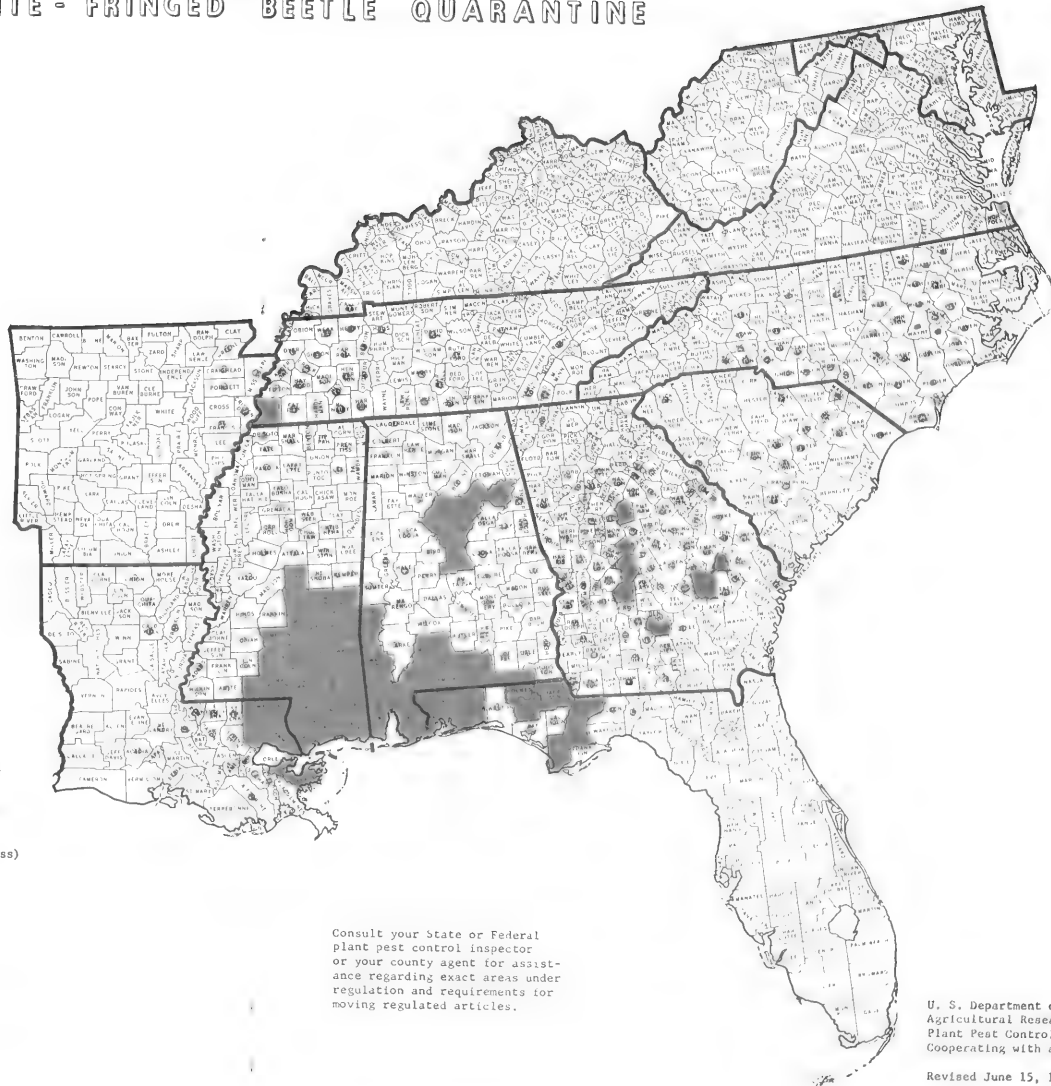
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WHITE - FRINGED BEETLE QUARANTINE

REGULATED ARTICLES ARE:

1. Forest, field, nursery, and greenhouse-grown woody or herbaceous plants with roots.
2. Soil, compost, manure, peat, muck, clay, sand, and gravel, whether independent of or associated with nursery stock, other plants, plant products, or other products or articles, except that processed sand and gravel are not included as regulated articles.
3. Grass sod; plant crowns and roots for propagation; true bulbs, corms, tubers, and rhizomes of ornamental plants, when freshly harvested or uncured; potatoes (Irish) when freshly harvested; peanuts in shells, and peanut shells.
4. Uncleaned grass, grain and legume seed; hay, straw, seed cotton and cottonseed.
5. Scrap metal and junk; brick, tile, stone; concrete slabs, pipes, and building blocks; and cinders.
6. Forest products, such as cordwood, stump wood, logs, lumber, timbers, posts, poles, and cross ties.
7. Used harvesting machinery and used construction and maintenance equipment.



COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;
COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

-  - Generally infested area--State and Federal regulations. (Eradication treatments not planned or in progress)
-  - Suppressive area--State and Federal regulations. (Suppressive treatments planned or in progress)
-  - State regulations only. (Suppressive treatments planned or in progress)

Restrictions are imposed on movement of regulated articles from a regulated area as follows:

1. Red into or through green, blue, or white.
2. Green into or through white, blue, or green.
3. Within green.
4. Blue into any other area.*

*All required by the appropriate State quarantine or by an authorized inspector.

Consult your State or Federal plant pest control inspector or your county agent for assistance regarding exact areas under regulation and requirements for moving regulated articles.

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Revised June 15, 1966

DECIDUOUS

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Dry conditions probably holding down emergence. (Savos, July 20).
VERMONT - Most important problem in orchards at present time. Emergence continues
and expected to increase over next few weeks. (Nielsen, July 18). WISCONSIN -
Initial adult emergence high in several areas. (Wis. Ins. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - VERMONT - Built up in some blocks during past week of dry hot weather. (Nielsen, July 18). NEW YORK - Extremely heavy in many orchards of Monroe County. (N. Y. Wkly. Rpt., July 18). INDIANA - Increasing rapidly on apple trees in research plots where miticides not used. Some commercial peach growers report damaging populations in Vincennes area. (Dolphin). NORTH CAROLINA - Moderately abundant in few peach orchards in sand hills area July 6. (Smith). MISSOURI - This species and Tetranychus spp. remain major problem in orchards statewide. Building up in Kansas City area; control required. Many growers experiencing difficulty with control in northwest area. Populations very erratic in southeast. (Wkly. Rpt. Fr. Grs., July 20).

SPIDER MITES (Tetranychus spp.) - CONNECTICUT - Low throughout State except for moderate to heavy infestations at Storrs. (Savos, July 20). NEW JERSEY - Moderate in peach orchard near Middletown, Monmouth County. (Ins.-Dis. Newsltr.). GEORGIA - On apples in Fannin, Carroll, Gilmer and Clarke Counties. (Jordan et al.). COLORADO - Damaging foliage of apple and pear in Mesa County; 10-30 per leaf in heavily infested orchards. Well under control in Delta County orchards; 1-3 per leaf. Fourth cover spray posted for Mesa County, July 23. (Bulla). NEW MEXICO - T. mcDanieli populations webbing entire branches in unsprayed orchards; 2 sprays, applied on 7-day interval, necessary to maintain control. (Durkin).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Adults active in Payne and Lincoln Counties. Second-generation egg laying underway. (Okla. Coop. Sur.).

PECAN SPITTLEBUG (Clastoptera achatina) - SOUTH CAROLINA - Serious damage to pecans indicated again this year in Orangeburg County. (Nettles et al., July 20). ALABAMA - Medium and widespread in pecan orchard near St. Elmo, Mobile County. (Dillier, Seibels).

APHIDS - SOUTH CAROLINA - Heavy but spotty on pecans in coastal counties. (Thomas, July 20). GEORGIA - Yellow species heavy on pecans in Sumter County. (Fletcher). OKLAHOMA - Monellia costalis increasing on pecans in Payne County. Moderate to heavy in Cleveland County. (Okla. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Adult emergence continuing, with 70 per day taken in traps. Walnut fruit about 2 weeks advanced; with increased emergence, treatment underway in many locations. (Cal. Coop. Rpt.).

CITRUS

Citrus Insect Situation in Florida - Mid-July - CITRUS RUST MITE (Phyllocoptura oleivora) infested 57 percent of groves (norm 59 percent); 34 percent economic (norm 35 percent). Population about average for July and appears near summer peak. No downward trend expected until mid-August. Highest districts west and south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 65 percent of groves (norm 72 percent); 46 percent economic (norm 46 percent). Population slightly below average and expected to peak in late July near current level. Highest districts west, east, central and south. CITRUS RED MITE (Panonychus citri) infested 60 percent of groves (norm 76 percent); 35 percent economic (norm 44 percent). Below normal summer abundance, will increase through July, then decrease. Highest districts north and east. BLACK SCALE (Saissetia oleae) infested 92 percent of groves (norm 68 percent); 81 percent economic (norm 46 percent). Population continued increase beyond previous highs and is now at highest level in 15 years of survey. Although decrease expected after July, adults will be plentiful through August. New generation crawlers will be numerous on leaves, twigs and fruit. All districts high. GLOVER SCALE (Lepidosaphes gloverii) infested 88 percent of groves; 32 percent economic. Population diminishing but still above average and in high range. Decrease expected. Highest districts south, east and central. PURPLE SCALE (L. beckii) infested 70 percent of groves; 7 percent economic. Currently below normal abundance and will decrease further. Highest district south. CHAFF SCALE (Parlatoria pergandii) infested 66 percent

of groves; 14 percent economic. Population normal and at moderate level; decrease expected. Highest districts south and east. YELLOW SCALE (Aonidiella citrina) infested 73 percent of groves; 16 percent economic. Population above average but decreasing. Highest districts central and east. MEALYBUGS infested 86 percent of groves; 47 percent economic. Population continued increase beyond July 1, which is unusual, and is approaching record high level of June, 1964. Decrease expected in August. All districts high. WHITEFLIES infested 53 percent of groves; 18 percent economic. Population slightly below normal and at moderate level; decrease expected. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

COCCIDS - CALIFORNIA - Possibly Pulvinaria citricola medium on citrus trees locally in Alameda County. (Cal. Coop. Rpt.). ARIZONA - Aonidiella aurantii found on sour orange in Tucson area; moderate to heavy on lower portions of tree. (Ariz. Coop. Sur.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Damaging populations continue on citrus in Yuma County. Some treated groves contained moderate numbers after treatment. (Ariz. Coop. Sur., July 15).

SMALL FRUITS

ROOT WEEVILS - OREGON - Sciopithes obscurus, Trachyphloeus bifoveolatus and Nemocestes spp. caused substantial damage to numerous strawberry fields in Washington and Columbia Counties. (Every).

GRAPE ROOT BORER (Vitacea polistiformis) - FLORIDA - Larvae infesting Lake Emerald grape (Vitis sp.) at St. Petersburg, Pinellas County. (Forsyth, July 7).

STRAWBERRY LEAF ROLLER (Ancylics comptana fragariae) - OREGON - Present in many Washington County strawberry fields; control necessary in some young plantings. (Every).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - First egg laying, leading to second-brood larvae, observed in southwest area. (Carpenter).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Peak moth flight July 13 at East Wareham; small larvae common in cranberries and starting to pupate in blueberries in southeast area. Moderate activity expected next 2 weeks. (Tomlinson).

RED-NECKED CANE BORER (Agrilus ruficollis) - WISCONSIN - Many reports of cane damage from homeowners in Kenosha County. (Wis. Ins. Sur.).

BLUEBERRY MAGGOT (Rhagoletis mendax) - NEW JERSEY - Adult flight continues strong in wild blueberry, but suppressed in fields receiving regular treatments. Adult movement to cultivated blueberries expected soon. (Ins.-Dis. Newsltr.). MASSACHUSETTS - Near peak abundance; average 50 per sticky trap in Middleboro, Plymouth County, week of July 20. (Tomlinson).

SPIDER MITES (Tetranychus spp.) - WISCONSIN - Reached damaging levels on backyard and garden raspberry plantings. (Wis. Ins. Sur.).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - GEORGIA - Heavy on arborvitae in Twiggs County. (Pritchett). ILLINOIS - Causing severe browning to evergreens and deciduous trees in southern two-thirds of State. (White). KANSAS - Young larvae appearing on isolated cedars in Manhattan; control applied in some instances. (Smith).

A CECIDOMYIID MIDGE (Thecodiplosis cockerelli) - COLORADO - Widespread on ornamental varieties of pinyon pine in Larimer, Boulder and Denver Counties. Not yet taken on native pinyon pine. (Thatcher).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - FLORIDA - Moderate on 200 Ficus retusa plants in nursery at Pembroke, Polk County. (Schmidt, June 22).

RHODODENDRON LACE BUG (Stephanitis rhododendri) - NEW HAMPSHIRE - Nymphs of second generation active statewide. (Mason, July 11).

SOFT SCALES - MICHIGAN - Lecanium fletcheri crawlers active on yew foliage and twigs in many Lower Peninsula counties. (Wallner). FLORIDA - Saissetia coffeae moderate to severe on Cryptocoryne sp. (an aquatic plant) in water gardens at Winter Haven, Polk County. (Eisenschank, July 18).

TEA SCALE (Fiorinia theae) - FLORIDA - Continuous problem on camellia. Severe in 3 nurseries in Polk County. (McLeod, July 18).

MEXICAN MEALYBUG (Phenacoccus gossypii) - FLORIDA - Severe on leaves of Acalypha hispida (chenille) in nursery at Jacksonville, Duval County. (King, July 13).

SPRUCE NEEDLE MINER (Taniva albolineana) - IOWA - Damaging spruce at Burlington; terminals mined and webbed. (Iowa Ins. Inf., July 19).

MITES - UTAH - Damaging conifers in Cache County. (Burtenshaw, Knowlton). FLORIDA - Tetranychus urticae infesting 70 percent of 500 Australian umbrella trees (Brassaia actinophylla) in nursery at Pembroke, Polk County. (Schmidt, June 22).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Situation better than for past several years; however, drought could change situation rapidly. Few spots observed in Beaufort and Martin Counties. Numerous small areas showing in upper Piedmont for first time this summer. Beetles active in 10-20 percent of these spots. Few found in Granville and Vance Counties. (For. Pest Newsltr., July 10). VIRGINIA - Infestations not yet serious. Active in Mathews County, but less prominent than last year. Active in several spots in Charles City, Chesterfield and King William Counties. Only 3 active spots reported on Eastern Shore. New infestation in Fluvanna County; numerous in Buckingham and Cumberland Counties. Light in scattered areas of Halifax County; no new infestations in Nottoway County. (Va. For. Pest Sur. Rpt., June Sum.).

BARK BEETLES (Dendroctonus spp.) - VIRGINIA - Active in few loblolly and Virginia pines at locations in Richmond, King George and Westmoreland Counties. Active in white pine in Floyd, Rockbridge and Bath Counties. (Va. For. Pest Sur. Rpt., June Sum.).

ENGRAVER BEETLES (Ips spp.) - VIRGINIA - Ips avulsus killed 4 loblolly pines in single Brunswick County location. Ips spp. active in few trees in Richmond County. Activity noted in Patrick, Albemarle and Fairfax Counties. (Va. For. Pest Sur. Rpt., June Sum.).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Pupation nearly complete July 13 in Vilas County. Parasitism of larvae and pupae appeared light. (Wis. Ins. Sur.).

PINE WEBWORM (Tetralopa robustella) - VIRGINIA - Active on loblolly pine in Rockbridge County and on shortleaf pine in Wise and Scott Counties. (Va. For. Pest Sur. Rpt., June Sum.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - RHODE ISLAND - Injury typical of this insect observed on pitch pine in roadside plantings in Exeter, Washington County. (Mathewson).

WHITE-PINE SAWFLY (Neodiprion pinetum) - WISCONSIN - Nearly full-grown larvae defoliated two trees and feeding in small white pine plantation in Dane County. (Wis. Ins. Sur.).

LARCH SAWFLY (Pristiphora erichsoni) - RHODE ISLAND - Caused extensive defoliation of 5-acre plot in State park in Westerly, Washington County. (Veilleux). WISCONSIN - Defoliation zero to moderately heavy in northeastern area. Heavy defoliation occurring in northwestern Shawano County. (Wis. Ins. Sur.).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - Adult populations high again this year, especially in Scotch pine. (For. Pest Newsltr., July 19).

A THRIPS (Gnophothrips piniphilus) - MICHIGAN - Probably this species causing major feeding injury to pines in Muskegon and Wexford Counties. (Wallner).

ELM LEAF BEETLE (Pyrralta luteola) - TEXAS - Heavy in Upton County and moderate in Reagan County. (Lindsey). OKLAHOMA - Moderate to heavy across most of State. Second-generation larvae feeding in northeast area. (Okla. Coop. Sur.). ARKANSAS - All stages observed on Chinese elm in Lee County; however, adults more numerous than other stages. Egg laying expected to increase. (Boyer). MISSOURI - Second-generation pupation underway in Jasper County; few adults emerged. (Houser). UTAH - Damage more extensive than normal in Salt Lake County. (Knowlton, July 18).

COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) - NORTH DAKOTA - Adult and larval populations causing light damage to willow at Minot. Moderate populations and damage found on cottonwood at Taylor. (Brandvik).

LOCUST BORER (Megacyllene robiniae) - UTAH - Severe in Salt Lake City and Granite areas of Salt Lake County. (Knowlton, July 18).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - MISSOURI - First-generation adults emerging in Boone County July 7. (Williams).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Webs appearing in Washington County. (Boyer). KANSAS - Few small webs observed in Montgomery, Labette, Cherokee, Crawford and Elk Counties. (Simpson). MISSOURI - Light on preferred hosts over southwestern quadrant of State; 1-2 webs on occasional tree. Infestation expected to be much lighter than in past few years. (Houser). OHIO - First larval activity observed in wild chokecherry in Franklin County. (Campbell, Rose).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - MISSOURI - Larvae defoliated isolated plantings of soft maple in Miller and Lawrence Counties; pupation complete. (Houser).

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Causing light to severe browning of honeylocust throughout central area. (White).

AILANTHUS WEBWORM (Atteva aurea) - ILLINOIS - Webbing leaves of ailanthus trees in west-southwest district. (White).

WALNUT CATERPILLAR (Datana integerrima) - VIRGINIA - Larvae heavy on walnut trees in Bedford County. (Isakson, Boone). ILLINOIS - Defoliating walnut in many areas. (White).

COCCIDS - DELAWARE - Melanaspis obscura crawlers present on pin oaks in New Castle County. (Burbutis, Davis). OHIO - Pulyinaria innumerabilis infestations abundant

this year in north central area. A major infestation of soft maples occurred throughout Greater Cleveland area. (Rose et al.). TEXAS - Icerya purchasi damaging silver maple trees near Texarkana, Bowie County. (Hamman).

A LYGAEID BUG (Kleidocerys resedae) - NEW HAMPSHIRE - Numerous on birch at Keene. (Conklin, July 11).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - GEORGIA - Heavy on beef cattle in Hancock County. (Nolan). ARKANSAS - Numbers low during dry period but increased with recent rains; 150-200 per head on heifers and dry cows in Franklin County. (Roberts). OKLAHOMA - Heavy numbers continue to annoy horses in Payne County. (Okla. Coop. Sur.). MISSOURI - Adults 75-300 per animal on cattle in south central and southwestern areas. (Houser, Peters). SOUTH DAKOTA - On cattle, counts per side as follows by county: Charles Mix 100-200; Hutchinson 75-150; Lake and Moody 10-30. (Jones). NORTH DAKOTA - Up to 500 (average 230) per animal in Nelson County; up to 400 (average 200) per animal in McHenry County; and up to 200 (average 100) per animal in Barnes County. (Brandvik). WYOMING - Increasing on cattle in Laramie, Goshen and Platte Counties; 50-200 per animal. (Marks). UTAH - Populations increasing with increased annoyance to cattle in northern part of State. (Knowlton, July 18).

FACE FLY (Musca autumnalis) - VERMONT - Ranged 35-45 per animal in bright sun in Addison County. (Nielsen, July 18). OHIO - Normal on dairy cattle in Knox County; 10 per face. (Rose). SOUTH DAKOTA - Low on herds in southeastern area. In Charles Mix County up to 5 per side. (Jones, Kantack). NORTH DAKOTA - Remains low in most areas. Averaged 1 per animal in Barnes County. (Brandvik).

HOUSE FLY (Musca domestica) - UTAH - Problem around most dairy barns in Salt Lake County. (Knowlton, July 18).

STABLE FLY (Stomoxys calcitrans) - UTAH - Increasing about dairies in Salt Lake County. (Knowlton, July 18).

HORSE FLIES - VERMONT - Populations high and extremely annoying in all areas. (Nielsen, July 18). GEORGIA - Severe on cattle in Hancock County. Causing loss of large amounts of blood. (Nolan, Snoddy). MISSOURI - Adults 1-2 per animal on cattle in south central area. (Peters).

DEER FLIES (Chrysops spp.) - WISCONSIN - Continue principal pest of man and animals especially in northern areas. Irritation caused some loss in milk production in Pepin County. (Wis. Ins. Sur.).

MOSQUITOES - GEORGIA - Annoying to man and dogs in late afternoon in Clarke County. (Nolan). OHIO - Culex pipiens most common species collected around Toledo. Aedes vexans somewhat lower. (Brockway). IOWA - Light traps in Ames showed reduction of numbers by 66 percent following an aerial spray application, July 4. Aedes trivittatus and A. vexans dominant species. (Iowa Ins. Inf., July 19). KANSAS - A. vexans most numerous species in light trap collections July 15-21. (Simpson). MINNESOTA - During week ending July 16, 16 light traps collected 34,000 females, compared with 11,000 previous week. Over 20,000 Mansonia perturbans taken; 19,000 in one trap in northern Anoka County. Aedes vexans and Anopheles walkeri also abundant. (Minn. Ins. Rpt.).

FLEAS - CONNECTICUT - Becoming very troublesome in homes with pets as daytime temperatures remain above normal. (Johnson).

LONE STAR TICK (Amblyomma americanum) - GEORGIA - Continues heavy, with 125 per animal on untreated herds in Hancock County; moderate on man and dogs, and few on cats in same area. (Nolan, Snoddy).

AMERICAN DOG TICK (*Dermacentor variabilis*) - GEORGIA - Heavy on dogs in Hancock County. (Nolan). RHODE ISLAND - Greatly diminished in State. (Mathewson).

HOUSEHOLDS AND STRUCTURES

EARWIGS - NEW JERSEY - Entering homes in central and northern counties. (Ins.-Dis. Newsltr.). CONNECTICUT - *Forficula auricularia* abundant outdoors and entering homes in many towns along Long Island Sound; numerous in inland towns. Situation rather general. (Johnson).

A COREID BUG (*Jadera haematoloma*) - OKLAHOMA - Entering homes from nearby china-berry trees in Blaine and Harper Counties. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

Beneficial Insects in Cotton - LOUISIANA - Heavy population of predators present in untreated fields. (Tynes, July 18). CALIFORNIA - Populations remain moderate to high in Imperial County fields. (Campbell, July 15). Abundant in many Kern County fields; big-eyed bugs and lacewings increasing rapidly. (Black, July 14).

Beneficial Insects in Arkansas - *Nabis* spp. and *Geocoris* spp. most common species in older soybeans in southeast and east central areas. Nymphs large percentage of *Nabis* spp. population. (Boyer). Beneficial insects numerous in cotton. Numbers often drop sharply in mid-July. *Chrysopa* spp., lady beetles, *Nabis* spp. and big-eyed bugs important in cotton. (ARK. Ins. Sur.).

LADY BEETLES - ILLINOIS - Various species, 0-20 adults and 0-10 larvae per 100 sweeps in alfalfa in central district. (White). WYOMING - Several species numerous in alfalfa, small grain and corn fields in Laramie, Goshen and Platte Counties. (Marks).

A MELYRID BEETLE (*Collops quadrimaculatus*) - KANSAS - Ranged 100-150 per 10 sweeps in two alfalfa fields in Cowley County. *Therioaphis maculata* and lady beetles also high in these fields. (Simpson).

DAMSEL BUGS - ILLINOIS - Vary 0-220 per 100 sweeps in alfalfa fields in central district. (White). WYOMING - These and *Chrysopa* spp. numerous in alfalfa, small grain and corn fields in Laramie, Goshen and Platte Counties. (Marks).

A PERILAMPID WASP (*Perilampus chrysopae*) - DELAWARE - Adults collected in sweepings from alfalfa and lima beans at Ellendale, Sussex County, July 28, 1964, and at Houston, Kent County, August 22, 1965. Collectors P. P. Burbutis and L. P. Kelsey. Det. by B. D. Burks. Collection at Ellendale is new State record; Houston collection new record for Kent County. (Burbutis)

CICADA KILLER (*Sphecius speciosus*) - MICHIGAN - First seasonal adults reported in Ingham County. (Wells).

PREDACEOUS PHYTOSEIID MITES (*Typhlodromus* spp.) - OREGON - Active in Milton-Freewater orchards; holding *Tetranychus mcdanieli* in check in many orchards. (Every).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - CALIFORNIA - Approximately 1,000 acres of barley and rangeland in wildlife refuge treated in Tulelake area, Siskiyou County. (Cal. Coop. Rpt.). ARIZONA - *Schistocerca shoshone* heavy and damaging range grass and other vegetation in Wikeup area, Mohave County. (Ariz. Coop. Sur.). NEW MEXICO - Damaging fields adjacent to pastureland and damaging plantings around homes in Curry County. (Crystal). *Melanoplus* spp. heavy on irrigated pastures and crops in Guadalupe

County. (Durkin). UTAH - Very numerous in Cove and Smithfield foothills area of Cache County. Egg laying observed in 13,000-acre outbreak area near Moab, Grand County. Controls applied to 20,000 acres of rangeland in Uintah, Garfield and Iron Counties. (Thornley, Knowlton). Generally lower than during 1965. (Knowlton, July 18). OKLAHOMA - Moderate to heavy, in many rangeland areas. Melanoplus spp. damaging crops and some flowers. In past 2 weeks 22,000 acres of range and crop land in Kiowa and Comanche Counties sprayed. Dominant species Phliobostroma quadrimaculatum, Ageneotettix deorum and Boopedon nubilum, with others present. Control 90-95 percent effective. (Okla. Coop. Sur.). KANSAS - In Crawford, Bourbon and Woodson Counties, 10-15 per square yard in roadsides and alfalfa; light to severe on border rows of corn, sorghum and soybeans. M. differentialis dominant. (Simpson). NEBRASKA - Heavy in rangeland in parts of Sioux and Morrill Counties. (Burton, Hagen). MISSOURI - Adults and nymphs 15-20 per square yard in crops and pastures in margins and 5-10 in fields in southwest; light to moderate in most areas. Mostly third to fifth-instar. (Houser). ILLINOIS - Melanoplus spp. nymphs 0-80 per 100 sweeps in alfalfa and up to 9 per square yard in roadsides in central district; no appreciable damage. (White). WISCONSIN - Increasing slowly; 5 per 10 sweeps common in alfalfa. M. femurrubrum and M. differentialis dominant. (Wis. Ins. Sur.). MINNESOTA - Populations varied, most infestations light. Highest counts found in Chippewa County 25-30 M. femurrubrum per square yard. First to third-instar dominant. (Minn. Ins. Rpt.). NORTH DAKOTA - Remain low in rangeland in Billings, Golden Valley, and McKenzie Counties; 0-8 per square yard. A. deorum, Cordillacris occipitalis, M. femurrubrum and others main species; first through fourth instars. (Scholl, Stoltenow).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - High percentage of field population entered aestivation. (Turner).

EUROPEAN CHAFER (Amphimallon majalis) - PENNSYLVANIA - First flight of season observed June 8 in treated area at Harbor Creek Township. On June 21, specimens recovered from blacklight trap at Sayre, Bradford County; during last week of June, specimens trapped and netted at Allentown, Lehigh County, and at Pittston, Luzerne County. These new county records. (PPC East, Reg., June Rpt.). OHIO - First adult flights of season in east Cleveland June 22. (PPC Cent. Reg., June Rpt.).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Adults common on soybeans in some areas of northern Sussex County; injury noticeable. (Burbutis, Davis). VERMONT - Feeding on roses, grapes and crab apple, Burlington area. (Nielsen, July 18). OHIO - High population and accompanying damage to roses and other host plants at Westerville, Franklin County. (Barth). INDIANA - Adults feeding on soybeans in Kosciusko County. This first field crop damage reported in area. (Huber). MICHIGAN - Five adults taken from traps in Detroit area. Only other collection to date, in Calhoun County, was small infestation reported near golf course 5 miles north of Battle Creek. Few adults feeding on vegetation. (Turner).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations generally light but increase in punctured squares noticeable below the Cap Rock; most of these egg-laying punctures. (Parker, Hanna, July 14).

BOLL WEEVIL COMPLEX (Anthonomus grandis complex) - ARIZONA - Larvae found in field south of Stanfield, Pinal County. (Ariz. Coop. Sur., July 15).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Bloom inspections in southern Dona Ana County reveal light larval infestations on cotton. Heavier in southern Eddy County; populations progressively lighter northward in Pecos Valley. (Garcia). In Luna County 4 larvae found in 275 blooms east of Deming; some fields with no larvae. (Hare, Waltman). ARIZONA - New infestations found in Maricopa County. Damaged bolls and infested blooms found in many areas. Infestation in Rainbow Valley produced bolls with up to 5 exit holes. In Mesa area, 3-4 larvae frequently found in single boll. (Ariz. Coop. Sur.).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - Adults, larvae and pupae observed at infestation site in Calhoun County. Traps being installed in Calhoun, Eaton and Jackson Counties. (Turner). Infestation in northern NEW ENGLAND area extremely light with no reports of extensive defoliation. In southern NEW HAMPSHIRE and VERMONT, parasites, predators and wilt disease reduced heavy infestation of 1964 and 1965 to non-existence. Fall Mountain in Walpole, and Red Hill in Meredith, New Hampshire, two areas of annual defoliation, extremely green and lush with no noticeable defoliation. (PPC East. Reg., June Rpt.).

CITRUS BLACKFLY (*Aleurocanthus woglumi*) - MEXICO - Chemical Control Zone - Total of 48,183 trees inspected on 2,465 properties in States of Sonora, Baja California, Nuevo Leon and Tamaulipas. Light infestations found on 13 trees on 4 properties in Municipio Hualahuises, Nuevo Leon, and 2 trees on 2 properties in Municipio Matamoros, Tamaulipas. Total of 3,503 trees on 160 properties sprayed; initial application on 226 trees on 88 properties in Matamoros and 1,191 trees on 3 properties in Hualahuises; second application on 155 trees on 29 properties in Matamoros and 1,933 trees on 40 properties in Hualahuises. Biological Control Zone - Inspection of 8,957 trees on 27 properties in Municipios Mainero, Villagran, Hidalgo, Guemez and Padilla, Tamaulipas, revealed 853 lightly infested trees on 10 properties. Total of 573 trees on 4 properties sprayed in Municipios Mainero and Hidalgo. (PPC Mex. Reg., June Rpt.). TEXAS - Intensive surveys in Brownsville, Cameron County, and Laredo, Webb County, negative. Properties inspected in Hidalgo and Zavala Counties also negative. (PPC South. Reg., June Rpt.).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - MEXICO - Total of 2,849 inspections of 710 McPhail traps on 703 properties in Municipios Tecate, Ensenada and Tijuana, Baja California, yielded 1,977 irradiated flies as follows: Ensenada 2, Tecate 5 and Tijuana 1,970. Total of 6 native flies (5 females and 1 male) captured in Tijuana. Females reported as non-mated. (PPC Mex. Reg., June Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Larva collected from avocado (*Persea americana*) at Fort Lauderdale, Broward County. (Shirah, July 15). Larva and pupa found in fruit of limeberry (*Triphasia trifolia*) on ground at nursery in West Hollywood, Broward County. (Hickman, July 7). These new host records. (Fla. Coop. Sur.). Favored hosts, Surinam-cherry, peaches and roseapple, now past fruiting period; principal hosts in coming weeks cattley and common guavas and calamondin. Northernmost record now Rockledge, Brevard County, where adults taken from sticky board trap July 19. (Kendrick).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - ALABAMA - Surveys revealed new infestations in Blount, Cullman, Etowa, Fayette, Franklin, Limestone, Marion, Morgan, Randolph and St. Clair Counties. ARKANSAS - Surveys in 11 counties negative except for 1 mound in Ashley County. FLORIDA - Surveys in parts of Marion, Orange, Seminole and Volusia Counties negative. Small extension of infested area found in Lake County. GEORGIA - No new infested areas found during delimiting surveys in 14 counties. Few active mounds found in Butts, Liberty and Richmond Counties. LOUISIANA - Extensions of infested area found in La Salle, Union, Vernon and Caddo Parishes. New infestation in Natchitoches Parish treated when found. MISSISSIPPI - Few active mounds found in Covington, Jefferson Davis and Pike Counties. New infestations found in Itawamba, Lee and Pontotoc Counties. Surveys negative in 8 counties. NORTH CAROLINA - Surveys in Cumberland and Onslow Counties negative. OKLAHOMA - Detection surveys in 15 counties negative. SOUTH CAROLINA - Extensions of infested area found in Columbia, Richland County, area. TENNESSEE - All surveys negative. TEXAS - One infested property found in Bexar County and 3 acres of reinfestation found in San Antonio. (PPC South. Reg., June Rpt.).

PEAR SAWFLY (*Hoplocampa brevis*) - NEW YORK - Collected in Scriba Township, Oswego County, June 3. This is new county record. (PPC East. Reg., June Rpt.).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 20 cases reported in U. S. July 17-23 as follows: TEXAS - Brewster 1, Pecos 1, Kerr 2, Bandera 1, Bexar 1, Atascosa 1, Live Oak 1, Duval 1, Jim Hogg 1, Brooks 2, Willacy 1.

ARIZONA - Yavapai 3, Graham 1. NEW MEXICO - Hidalgo 1, Eddy 1. CALIFORNIA - Riverside 1. Total of 158 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 4, Territorio sur de Baja California 7, Sonora 69, Chihuahua 32, Coahuila 1, Nuevo Leon 6, Tamaulipas 39. Total of 619 cases reported from Mexico south of Barrier Zone. Barrier Zone is area in which eradication operations carried out in effort to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released: Texas 17,106,250, Arizona 21,428,000, New Mexico 7,724,000, California 1,292,000, Mexico 78,064,000. (Anim. Health Div.).

INSECT DETECTION

New State Records

A WEEVIL (Cosmobarus americana) - OREGON - Collected from sugar beets at Ontario, Malheur County, August 5, 1965. Det. by R. E. Warner. (p. 728).

A PERILAMPID WASP (Perilampus chrysopae) - DELAWARE - Adults swept from alfalfa and lima beans at Ellendale, Sussex County, July 29, 1964. Det. by B. D. Burks. (p. 736).

New County and Island Records

A MINT FLEA BEETLE (Longitarsus waterhousei) - OREGON - Found for first time in Jefferson County. (p. 728).

A PERILAMPID WASP (Perilampus chrysopae) - DELAWARE - Collected for first time at Houston, Kent County, August 22, 1965. Det. by B. D. Burks. (p. 736).

EUROPEAN CHAFER (Amphimallon majalis) - PENNSYLVANIA - Specimens trapped and netted in Lehigh and Luzerne Counties last week of June. (p. 737).

PEAR SAWFLY (Hoplocampa brevis) - NEW YORK - Collected June 3, 1966, in Oswego County. (p. 738).

A GRASSHOPPER (Schistocerca vaga) - HAWAII - Single female collected on Kauai Island. (p. 740).

A SOFT SCALE (Coccus acutissimus) - HAWAII - Collected from Litchi chinensis on Maui and Hawaii Islands. (p. 740).

CORRECTIONS

CEIR 16(28):664 - PICKLEWORM (Diaphania nitidalis) should read Diaphania nitidalis.

CEIR 16(29):695 - A DELPHACID PLANTHOPPER (Dikraneura carneola) should read A CICADELID (Dikraneura carneola).

CEIR 16(29):713 - New State Records - AN ERIOPHYID MITE (Aceria teucii) should read Aculus teucii.

CEIR 16(29):714 - Beneficial Insects - A CHRYSOMELID BEETLE (Diachus auratus) should be carried under Miscellaneous Insects.

HAWAII INSECT REPORT

Insects of Regional Significance - An adult female of a GRASSHOPPER (Schistocerca vaga) captured July 18 in Kalaheo, Kauai, on hibiscus plant. Initial survey in immediate vicinity negative. This is new island record. Previously found only on Oahu. (Au, Hiranaka). SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) adults light on corn and snap beans in Waianae, Oahu. (Yamamoto). All stages of a STINK BUG (Coptosoma xanthogramma) continue heavy on pigeon pea in Kaneohe and on Canavalia cathartica (maunaloa) in Nuuanu Valley, Honolulu, Oahu. (Kumabe, Shiroma).

General Vegetables - Adults of a MIRID BUG (Rhinacloa forticornis) medium on snap bean flowers in Makawao, Maui; 3 per flower. No damage observed. (Haw. Ins. Rpt.). Larvae and adults of a LEAF MINER FLY (Liriomyza sp.) heavy on 18 acres of watermelons in Waimanalo, Oahu. (Sato).

Fruits and Nuts - A MEALYBUG (Pseudococcus obscurus) generally under control in 200 acres of passion-fruit in Kahului, Maui. Approximately 30,000 specimens of Cryptolaemus montrouzieri released in orchard. P. obscurus population still heavy in few small areas but C. montrouzieri observed in these areas. (Miyahira). THREE-LINED POTATO BEETLE (Lema trilineata) larvae and adults heavy on Physalis peruviana (poha) in Waiakoa, Maui, at 3,100 feet; 1 larva or adult per leaf. (Miyahira). A SOFT SCALE (Coccus acutissimus) light on Litchi chinensis (litchi) in Pukalani, Maui; 1 adult per 10 leaves. Single specimen found on litchi in Hilo, Hawaii Island, June 16, 1966. No previous reports from Maui and Hawaii Islands; these new island records. First reported in State (Oahu) in 1920. (Chong).

Ornamentals - A WEEVIL (Brachyrhinus cribricollis) very light in flower growing areas of Kula, Maui, at 3,800 feet elevation; only one adult found in carnation blossom. Caused considerable damage to chrysanthemums in area in September 1965. Adults of a MIRID BUG (Rhinacloa forticornis) medium on carnation flowers in same area. Approximately 5 adults per blossom. (Haw. Ins. Rpt.).

Weather continued from page 718.

PRECIPITATION: Shower activity was rather general except in the Far West where an area where an area from California to Idaho and westward received little or no rain. Substantial showers came to eastern Arizona, New Mexico, and Colorado. From the Rockies eastward to the Atlantic, most areas received moderate to heavy showers. Though the showers were locally variable as usual, there seemed to be fewer areas missed than during the previous couple of weeks. A few spots in the Northeast drought area received generous amounts--4.39 inches at Chester, Massachusetts, is an example. Very dry conditions continued over southeastern Pennsylvania and vicinity. Torrential rains came to other scattered spots. Claiborne, Alabama, received 5.52 inches in 2 hours while other points in Mississippi and Alabama received 1 to 2 inches. However no rain has fallen in parts of Kentucky in 5 to 10 days. Goodland, Kansas, reported only 0.05 inch for the week while nearby Levant (25 mi. east) received 6.85 inches in 1 day. The gulf coast area received many heavy showers, e.g., 3.00 inches at Lake Charles, Louisiana, on Friday; also 1.97 inches at Mobile and 3.70 inches at Jacksonville Beach. (Summary supplied by Environmental Data Service, ESSA).

ADDITIONAL NOTES

VERMONT - POTATO LEAFHOPPER (Empoasca fabae) building up on forage crops; 4-5 per sweep. Yellowing noticeable in many fields. Also present on beans. Pupation of ALFALFA WEEVIL (Hypera postica) about complete; few adults still present. EUROPEAN RED MITE (Panonychus ulmi) built up rapidly; bronzing evident in some orchards. APPLE APHID (Aphis pomi) noticeable on terminals. APPLE MAGGOT (Rhagoletis pomonella) adult emergence continues. Blocks adjacent to abandoned or wild trees require protection. BIRCH LEAF MINER (Fenusa pusilla) egg laying continues. WOOLLY ALDER APHID (Prociphilus tessellatus) problem on soft maple. FLEAS annoying returning vacationers. EARWIGS continue problem in some areas. FACE FLY (Musca autumnalis) 40-50 per animal. BITING FLIES severe on pastured cattle. (MacCollom).

MARYLAND - ARMYWORM (Pseudaletia unipuncta) adults 20 per night in blacklight trap at Snow Hill week ending July 19. CORN EARWORM (Heliothis zea) light to moderate in ears and tassels of sweet corn in Queen Annes County. Small colonies of CORN LEAF APHID (Rhopalosiphum maidis) appearing in tassels and top leaves of more advanced corn in Dorchester County. POTATO LEAFHOPPER (Empoasca fabae) adults and nymphs very heavy in many alfalfa fields in central and eastern sections; over 100 per sweep in some fields. EUROPEAN CORN BORER (Ostrinia nubilalis) larvae heavy in whorls, stalks and tassels of early corn in Frederick and Worcester Counties. CORN FLEA BEETLE (Chaetocnema pulicaria) adults very heavy on field corn in whorl stage in northern Frederick County. SOUTHERN CORNSTALK BORER (Diatraea crambidoides) light in whorls of sweet corn near Queenstown, Queen Annes County. JAPANESE BEETLE (Popillia japonica) adults very destructive to silking corn near Snow Hill, Worcester County. Small Melanoplus spp. nymphs light to moderate on soybeans in Queen Annes County. BEAN LEAF BEETLE (Cerotoma trifurcata) adults causing light to moderate foliage injury to soybeans on Eastern Shore. POTATO LEAFHOPPER (Empoasca fabae) adults and nymphs evident on soybeans in Queen Annes and Talbot Counties. STRAWBERRY SPIDER MITE (Tetranychus atlanticus) conspicuous on border rows of several soybean fields on lower Eastern Shore. TARNISHED PLANT BUG (Lygus lineolaris) adults common on soybeans at Crumpton, Queen Annes County. Medium to heavy THRIPS populations continue to cause noticeable foliage injury to soybeans statewide. POTATO APHID (Macrosiphum euphorbiae) light to medium on tomatoes in Dorchester and Queen Annes Counties. BEAN APHID (Aphis fabae) heavy on lima beans at Churchill, Queen Annes County. Small CABBAGE LOOPER (Trichoplusia ni) larvae appearing on cabbage, kale and other cole crops in Caroline and Queen Annes Counties. IMPORTED CABBAGEWORM (Pieris rapae) butterflies laying eggs on collards and other cole crops in Caroline County. FLEA BEETLES (Phyllotreta spp.) heavy on cabbage at Kingstown, Queen Annes County. TWO-SPOTTED SPIDER MITE (Tetranychus urticae) building up generally and damaging foliage of cantaloups and watermelons on lower Eastern Shore. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) larvae caused heavy injury to cucumber planting in Cecil County. STALK BORER (Papaipema nebris) damaging dahlias at Hollywood, St. Marys County. MIMOSA WEBWORM (Homodaula albizziae) very destructive to mimosa in Prince Georges County. FACE FLY (Musca autumnalis) 12 per face in 6 dairy herds in Frederick County. STABLE FLY (Stomoxys calcitrans) 3-35 per animal in 6 dairy herds in Frederick County. CICADA KILLER (Sphecius speciosus) very active near sandy areas of golf course near Laurel, Prince Georges County. (U. Md., Ent. Dept.).

NEVADA - Larvae of a NOCTUID MOTH (Heliothis sp.) heavy in alfalfa seed field in Hualipi Valley, Washoe County; larvae prefer buds and flowers and causing considerable damage by reducing amount of bloom. (Bechtel, Martinelli). PEA APHID (Acyrtosiphon pisum) 200-500 per sweep in 2 alfalfa seed fields in Hualipi Valley. Fields recently sprayed, but control poor. Light in other seed fields in same area. Varied 15-35 per sweep in hay fields in Fish Lake Valley. Occasional specimens found in Hualipi Valley alfalfa seed fields. (Bechtel et al.). A WEEVIL (Brachyrhinus meridionalis) damaging strawberries in Reno. A WHITEFLY (Aleuroplatus berbericolus) heavy on Oregon-grape in Reno. WEEVILS (Brachyrhinus sulcatus and B. meridionalis) severely damaging roses and latter species damaging dogwood, peony and privet in Reno. (Ting). APHIDS (Cinara spp.) light to heavy on Pinus monophylla, mostly above 6,000 feet on eastern slopes of White Mountains; general in Wassuk Range south of Lucky Boy Pass. Heavy on many single trees. (Bechtel, Martinelli).



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN LEAF APHID populations continue high on corn in several areas. (p. 747). POTATO LEAFHOPPER populations on alfalfa highest in several years in Maryland; increasing on beans in Delaware. Second-generation EUROPEAN CORN BORER adults appearing. (p. 748). CORN ROOTWORM adults emerging; prevalent on silks in some areas. SPIDER MITES heavy and damaging some corn and sorghum. (p. 750). WEBWORMS of some concern on alfalfa and soybeans in some Central States. (p. 751). SAY STINK BUG severely damaged large acreages of wheat in Nevada; increased in cotton in Arizona. (pp. 750, 753).

BOLL WEEVIL infestations continue high in some areas, increasing in others. BOLLWORMS remain serious in cotton in several areas. (pp. 752, 753). LYGUS BUGS damaging cotton in Western States. SPIDER MITES major problem on cotton in Mississippi; increasing in Alabama and Tennessee; difficulty in control reported in South Carolina. (pp. 753, 754). TOBACCO FLEA BEETLE damaging tobacco in Maryland, increasing in Virginia. GREEN PEACH APHID increasing on tobacco in Maryland, and on late potatoes in Colorado. POTATO APHID also increasing on potatoes in San Luis Valley of Colorado. (p. 754). CABBAGE LOOPER of some concern on commercial cabbage in Wisconsin. (p. 755).

ORCHARD MITES of some concern in several fruit areas. PEAR PSYLLA populations higher than usual on pears in Oregon. (p. 756, 757). RED-HEADED PINE SAWFLY second-generation larvae may cause heavy defoliation of white pine in Minnesota; currently causing heavy defoliation of roadside trees. (pp. 758, 759). HORN FLY continues problem in several areas. (p. 760).

GRASSHOPPERS heavy in alfalfa with some severe damage in South Dakota; counts high with damage to some crops reported in other States. Heavy JAPANESE BEETLE infestation discovered on golf course north of Battle Creek, Michigan; turf heavily damaged. Adults damaging soybeans and other crops in other infested areas. WHITE-FRINGED BEETLE adults feeding on soybeans in Alabama. First male GYPSY MOTH adults trapped north of infestation site in Michigan. (pp. 761, 762).

Detection

● Detection Reminder - Look for These Stone Fruit Pests. (p. 766).

SOUTHERN POTATO WIREWORM reported for first time from California. (p. 755).

For new county and parish records see page 755.

CONTENTS

Special Insects of Regional Significance.....	747
Insects Affecting	
Corn, Sorghum, Sugarcane.....	748
Small Grains.....	750
Forage Legumes.....	750
Soybeans.....	751
Peanuts.....	751
Cotton.....	752
Tobacco.....	754
Miscellaneous Field Crops.....	754
Potatoes, Tomatoes, Peppers.....	754
Beans and Peas.....	754
Cole Crops.....	755
Cucurbits.....	755
General Vegetables.....	756
Deciduous Fruits and Nuts.....	756
Small Fruits.....	758
Ornamentals.....	758
Forest and Shade Trees.....	758
Man and Animals.....	760
Insect Detection.....	755
Beneficial Insects.....	761
Federal-State Plant Protection Programs.....	761
Hawaii Insect Report.....	763
Light Trap Collections.....	764
Look for These Stone Fruit Pests.....	766
A Root Mealybug (<u>Geococcus coffeae</u> Green).....	767

WEATHER BUREAU'S 30-DAY OUTLOOK

AUGUST 1966

The Weather Bureau's 30-day outlook for August calls for temperatures to average above seasonal normals over the western half of the Nation except for near normal in the Pacific coastal area. Below normal temperatures are predicted in the upper and middle Mississippi Valley, the Ohio Valley, the Great Lakes region and New England. Below normal temperatures are also expected for the south Atlantic coast. In unspecified areas near normal temperatures are in prospect. Rainfall is expected to exceed normal from the Great Lakes eastward to New England and also over much of the Southeast. The central and southern Plateau regions in the West are also expected to receive above normal rainfall. Subnormal totals are indicated for the northern and central Plains and near normal precipitation for unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - WISCONSIN - Considerable feeding on corn and scattered infestations in oats and grassy peas observed in Walworth, Rock, Dane and Columbia Counties. Infestation less than in 1964. (Wis. Ins. Sur.). MINNESOTA - Averaged 2 per square foot in barley field in Mahanomen County. Larvae in late instars. Trace numbers found in some fields in northwest district. (Minn. Ins. Rpt.). SOUTH DAKOTA - Severely damaged corn field in Clay County. (Kantack).

BEEF LEAFHOPPER (Circulifer tenellus) - WYOMING - Curly top symptoms appearing in Washakie County sugar beet fields. Incidence of symptoms ranged 0-20 percent; averaged 4-5 percent. Most heavily damaged fields near areas where large numbers of overwintering adults found in mid-April. (Marks). UTAH - Spread of curly top light to moderate in tomato fields in northern area, moderate to severe in Beaver County. (Knowlton).

CORN EARWORM (Heliothis zea) - NEW JERSEY - Present in sweet corn in central and southern counties. (Ins.-Dis. Newsltr.). DELAWARE - Light in whorls of field corn in some areas; adults average one per night in Sussex County blacklight trap. (Burbutis, Davis). MICHIGAN - Early stage and some fourth-stage larvae noted in sweet corn ears, Monroe County. (Newman, Morrin). UTAH - Damage moderate in Weber, Davis, Box Elder and Cache County sweet corn. (Duncan, Knowlton).

BUDWORMS (Heliothis spp.) - MARYLAND - Light to moderate on tobacco in Prince Georges and St. Marys Counties. (U. Md., Ent. Dept.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEVADA - Light in grain in Douglas County. (Atencio). ARIZONA - Light infestations appearing on late sorghum in Graham County. Future buildup likely with advent of summer rains. (Ariz. Coop. Sur.). OKLAHOMA - Heavy on sorghum in Grady County with heavy production of honeydew. Generally light in grain sorghum in northwest area and decreasing in Garvin County. (Okla. Coop. Sur.). COLORADO - Increasing very rapidly on corn in most areas of Weld County. General in field corn northeast of Fort Collins, Larimer County; injury serious in some fields. (Kaufman, Daniels). WYOMING - Small numbers appearing in corn in Fremont and Washakie Counties. (Marks). SOUTH DAKOTA - Infestations very heavy in many fields of corn. Predator populations high in most fields. (Jones). NORTH DAKOTA - Light on tassels of corn in most fields in southeastern counties. (Brandvik). MINNESOTA - Numbers high on tassels and top leaves in nearly all corn fields. Colonies increased and more noticeable with emergence of tassels. Predators numerous, should exert control. Syrphid fly larvae present in high numbers in some fields. Lacewings and lady beetles present in all fields. Controls not recommended on field corn. (Minn. Ins. Rpt.). IOWA - Ranged 1-500 per plant with 80 percent of fields in west central area infested. Corn tasseled. (Iowa Ins. Inf., July 25). WISCONSIN - Continues to increase despite predation and parasitism. Many colonies building up on ear tabs and silks. (Wis. Ins. Sur.).

ILLINOIS - Western section averaged 48 percent of plants infested, 13 percent heavy; northwestern section 82 percent infested, 8 percent heavy; and in the northeastern section 70 percent plants infested, 4 percent heavily infested. (Ill. Ins. Rpt.). INDIANA - Heavy in south central and southeastern districts. In north central and northeastern areas, infestations 8-32 percent. (Huber, White). OHIO - First of season observed in central, southeastern and southwestern areas. Largest populations noted in Pike County where 70 percent of plants infested in one field. Predators included *Ceratomegilla maculata* and *Orius insidiosus*. (Rose). VIRGINIA - Generally low in field corn in Alleghany County, but occasional stalk with very large numbers. Small colonies forming on 5-15 percent of corn plants in Fauquier, Culpeper and Madison Counties. (Isakson, Copenhaver). NORTH CAROLINA - Present in corn fields in Washington, Duplin, Jones and Pender Counties. (Whitford, Federonko). ALABAMA - Extremely heavy on corn in counties where maize dwarf mosaic virus occurring. High aphid populations associated with all fields examined and occurrence of disease more widespread than in 1965. (McCarter et al.).

HORNWORMS (*Manduca* spp.) - DELAWARE - Larvae present on tomatoes in Sussex County. (Burbutis, Davis). MARYLAND - Light to moderate on tomatoes in Queen Annes County. (U. Md., Ent. Dept.). WISCONSIN - M. quinquemaculata larvae noted in Dane County tobacco field. (Wis. Ins. Sur.).

PICKLEWORM (*Diaphania nitidalis*) - FLORIDA - All stages present on summer squash in acre of unsprayed experiment station plants at Gainesville, Alachua County. Larvae damaging 50 percent of fruits. (Habeck). ALABAMA - Heavy population destroying blossoms, some leaf stems, and young cucumbers in Lee County home garden. (McQueen).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - Continues to increase on untreated lima beans, but generally under good control in most areas. (Burbutis, Davis). MARYLAND - Populations on alfalfa in central areas heaviest in recent years; severe yellowing of foliage common. Very heavy on unprotected snap beans and lima beans in all sections. (U. Md., Ent. Dept.). VIRGINIA - Nymphs and adults 2-15 per sweep in alfalfa in Culpeper County; some yellowing present. (Isakson). MICHIGAN - Adults 28 per 10 sweeps in 3 fields of second-growth alfalfa in Wayne, Jackson and Hillsdale Counties July 20-22. (Ruesink). WISCONSIN - Large numbers noted in some lima bean plantings and in scattered fields of alfalfa in Dane and Columbia Counties. (Wis. Ins. Sur.). NEBRASKA - Total of 802 per 150 sweeps taken in Saunders County alfalfa field. (Kindler, Lindekugel).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Populations very spotted in San Luis Valley; very low in areas of Rio Grande and Saguache Counties. Adults 2 per 100 sweeps in Alamosa County; nymphs 2-7 per leaf. Adults 0-5 per 100 sweeps on matrimony-vine (*Lyium* sp.). Migration apparently late and in relatively low numbers, which moved directly into potato fields rather than to early summer hosts. (Jenkins). WYOMING - Averaged 1 adult per 100 sweeps in potato fields of Park County and 2-4 per 100 sweeps in Fremont County. No adults found in Hot Springs County fields. (Robb, Marks).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - MICHIGAN - Adults 1.8 per 10 sweeps in 3 fields of second-growth alfalfa in Wayne, Jackson and Hillsdale Counties July 20-22. (Ruesink).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Heavy in some alfalfa in Kiowa County; 170 per 10 sweeps in Roger Mills County. Very light in Harper, Alfalfa, Woodward, Kay, Grant and Garvin Counties. (Okla. Coop. Sur.). INDIANA - Averaged 3 per sweep in southeastern area alfalfa. (Huber). WISCONSIN - Noticeable increase occurred in number of locations. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NORTH DAKOTA - Larval feeding evident in 60 percent of corn plants in some fields in southeastern counties. (Brandvik). SOUTH DAKOTA - Second-generation adults collected in blacklight trap at Brookings July 25. (Kimble). NEBRASKA - Pupation 60 percent in Lincoln County area. (Rhine). MISSOURI - Occasional economic numbers of eggs and larvae found in late corn in southeastern area. Oviposition continuing. (Jones, Keaster). Adults light to heavy in northeastern area. (Peters, Craig). IOWA - One male and 1 female taken in light trap at Columbus Junction July 13. Development appears ahead of 1965. (Iowa Ins. Inf., July 25). WISCONSIN - No emergence noted as of July 27. (Wis. Ins. Sur.). INDIANA - Adults appearing in blacklight traps throughout State. (Huber). MICHIGAN - Larvae appearing in early sweet corn ears; many growers report considerable damage. Adults increasing in blacklight traps. (Snow, Newman). OHIO - Up to 50 percent of stalks infested in south central section. (Muntzing). MARYLAND - Pupae common in infested stalks and tassels of field corn in Frederick County. Moths at peak in blacklight trap at Centerville; 59 per night for week ending July 26. (U. Md., Ent. Dept.). DELAWARE - Adults continue to increase in blacklight trap collections in Sussex County; 34 per night. (Burbutis, Davis). NEW JERSEY - Now in sweet corn in central and southern counties. (Ins.-Dis. News-ltr.).

FALL ARMYWORM (*Spodoptera frugiperda*) - MARYLAND - First larvae of season found July 28 in whorls of field corn planted July 10 in Frederick County. (U. Md., Ent. Dept.). NEW JERSEY - Present in sweet corn in central and southern counties. (Ins.-Dis. Newsltr.).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - MICHIGAN - Adults taken at black-light traps in Berrien, Macomb, Monroe and Branch Counties. (Newman et al.). NEBRASKA - Light on sorghum in Lincoln and Dakota Counties. (Roselle, Rhine).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - MARYLAND - Newly emerged adults 2 per silk with conspicuous damage on field corn in Carroll County. (U. Md., Ent. Dept.). OHIO - Adults emerged over State. Populations light in southern counties. (Rose). INDIANA - Adults present throughout northern two-thirds of State. In one untreated Shelby County field, 11-23 per silk. (Huber, Matthew). WISCONSIN - Adult emergence accelerated; considerable feeding on silks. In Sauk County, 20 per leaf observed. (Wis. Ins. Sur.). SOUTH DAKOTA - Adults emerged in Lake County July 23, abundant July 27. (Nearman).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - MARYLAND - Adults prevalent on silks of field corn in Carroll and Frederick Counties. (U. Md., Ent. Dept.). OHIO - Adults common in central and south central counties; however, not causing much damage. (Blair, Rose). OKLAHOMA - Adults 15 per plant in irrigated corn in Texas County. (Okla. Coop. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - ILLINOIS - Found for first time in Henry County. (Ill. Ins. Rpt.). MISSOURI - Less than one adult per plant in Scotland County corn field. (Peters, Craig). Averaged 12-15 adults per silk mass; 5-10 unemerged beetles, 8-10 pupae and 6-8 larvae per root system. (Meek). KANSAS - Adults common in Mitchell County corn. Economic in some fields. (Simpson).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - Adult emergence of *D. longicornis* and *D. virgifera* increased. Counts varied between fields; adults present in most fields. Adults per plant by county: Carver 4.4, Scott 2.8, Wright 3, Lyon 0.8, Jackson 2, Dakota 4.8, Le Sueur 2, Rice 12. Larvae still found in southwest; only pupae in central and southeast districts. At Lamberton, Redwood County, half of adults emerged; 6-8 larvae per plant in research plots. Adults primarily in tassels and leaf axils, feeding on pollen rather than in silks. (Minn. Ins. Rpt.). IOWA - Heavy adult concentration in southwest area. One field in Madison County with 34 larvae, 10 pupae and 2 dormant adults per plant. *D. longicornis* dominant in north and east central areas; *D. virgifera* dominant in west, central and southern areas. (Iowa Ins. Inf., July 25). NEBRASKA - About 90 percent adult emergence in central and eastern areas. (Rhine).

FLEA BEETLES (*Chaetocnema* spp.) - MARYLAND - *C. pulicaria* adults 5 per plant on field corn in whorl stage in Carroll County. (U. Md., Ent. Dept.). ARIZONA - *C. ectypa* heavy on sorghums in Yuma and Gila Valleys. Damage apparent on 85 percent of plants in Gila Valley. (Ariz. Coop. Sur.).

SAP BEETLES (*Carpophilus* spp.) - MARYLAND - Increasing in silks and tassels of corn in all sections. (U. Md., Ent. Dept.).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - OREGON - Probably this species, heavy in scattered barley fields near Merrill and Wocus, Klamath County; causing difficulties in harvesting operations. (Wilcox).

A WIREWORM (*Melanotus communis*) - NORTH CAROLINA - Destroyed 0.5 acre of corn in Alleghany County; field planted twice. Overall damage in county very light. (Gray).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MARYLAND - Adults evident on silks of corn in Carroll and Frederick Counties. (U. Md., Ent. Dept.).

WESTERN BROWN STINK BUG (*Euschistus impictiventris*) - ARIZONA - Heavy and causing moderate damage to sorghums in Yuma Valley and in areas of Maricopa County. (Ariz. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Heavy on grain sorghum in Comanche County; 2-11 in Grady County. (Okla. Coop. Sur.).

A FALSE CHINCH BUG (Nysius raphanus) - NEW MEXICO - Heavy populations moving into several grain sorghum fields in Doña Ana County; feeding on maturing grain. Treatments planned. (Garcia).

SORGHUM MIDGE (Contarinia sorghicola) - ARKANSAS - Damaging 25-33 percent of tips of grain sorghum in dough stage in Phillips County. (Boyer).

SPIDER MITES - ARIZONA - Heavy and damaging sorghums in Yuma Valley. (Ariz. Coop. Sur.). COLORADO - Increasing rapidly in corn in Weld County; controls recommended where found on third leaf above ground level. (Boyes). NEBRASKA - Damaging marginal rows of corn in central and northeastern counties. (Hill, Roselle). DELAWARE - Tetranychus atlanticus heavy in many corn fields in eastern half of Sussex County; injury severe in some fields. (Burbutis, Davis).

SMALL GRAINS

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Damaging several wheat fields in Dunn County. (Brandvik).

SAY STINK BUG (Chlorochroa sayi) - NEVADA - Adults 1-2 per head on wheat in Diamond Valley, Eureka County. Damage severe, heads partially or completely destroyed on large acreages; infestations now confined to wet areas and near sagebrush in margins where head maturity late and heads not so severely damaged. (Lauderdale).

A FALSE CHINCH BUG (Nysius sp.) - NEVADA - Heavy on wheat heads in Diamond Valley, Eureka County, in conjunction with Chlorochroa sayi. (Lauderdale).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - OHIO - Populations on clover and alfalfa very low since mid-June. (Rose). MICHIGAN - Adults and nymphs 3 per 10 sweeps in 3 fields of second-growth alfalfa in Wayne, Jackson and Hillsdale Counties July 20-22. (Ruesink). WYOMING - Decreasing slightly on alfalfa in Big Horn Basin area. Adults and nymphs 45-60 per 10 sweeps in Fremont, Hot Springs, Washakie, Big Horn and Park Counties. (Marks). UTAH - Becoming numerous in some Summit, Piute, Wasatch and Uintah County alfalfa. (Knowlton). NEVADA - Increasing on seed alfalfa in Orovada, Humboldt County. Infestations reduced in Mason Valley, Lyon County, alfalfa but still heavy in most areas. Some controls applied. Counts 50 per sweep in Douglas County, 0-10 per sweep in Lincoln County alfalfa. (Cooney et al.).

PLANT BUGS - NEVADA - Lygus spp. per sweep in alfalfa 20-25 in Mason Valley, Lyon County, and 2-40 in Alamo and Pahrnagat Valley, Lincoln County. (Martinelli, Cooney). UTAH - Lygus spp. adults and nymphs numerous in some untreated alfalfa seed fields in Uintah and Duchesne Counties. (Knowlton). WYOMING - Lygus spp. adults and nymphs 20-26 per 10 sweeps in alfalfa in Fremont, Hot Springs, Washakie, Big Horn and Park Counties. (Marks). NEBRASKA - L. lineolaris adults 504 and nymphs 977 per 150 sweeps in Saunders County alfalfa field. (Kindler, Lindekugel). SOUTH DAKOTA - Adelphocoris lineolatus 12 per 10 sweeps in alfalfa in northwestern Day County. (Walstrom). WISCONSIN - L. lineolaris and A. lineolatus nymphs continue heavy on alfalfa in many areas. (Wis. Ins. Sur.). INDIANA - L. lineolaris nymphs and adults ranged up to 5 and Adelphocoris lineolatus up to 7 per sweep on alfalfa in northern third of State. (Huber, White). MICHIGAN - L. lineolaris adults averaged 1.6 per 10 sweeps in 3 fields of second-growth alfalfa in Wayne, Jackson and Hillsdale Counties July 20-22. Additional plant bug species averaged 1.6 adults and 1.9 nymphs. (Ruesink).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Adults 0-7 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.). MICHIGAN - Adults 1.7 per 10 sweeps in 3 fields of second-growth alfalfa in Wayne, Jackson and Hillsdale Counties July 20-22. (Ruesink).

LEAFHOPPERS (Empoasca spp.) - INDIANA - Up to 40 adults per sweep on second-growth alfalfa in northern district; yellowing conspicuous. (Huber, White).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Larvae one per sweep in Smyth County and 15-20 per 100 sweeps in Washington County. Parasitism by Bathyplectes curculionis 26 percent and Tetrastichus incertus 12 percent in H. postica larvae collected in late June in Montgomery County. (Pienkowski). NORTH DAKOTA - Larvae 10 per 100 sweeps in first-crop alfalfa in McKenzie County. Pupation 99 percent, emergence 80 percent. (Brandvik). UTAH - Larvae damaging field of alfalfa near Vernal, lighter in other Uintah County fields. More numerous than normal in Piute County. (Knowlton). LOUISIANA - Since first find in East Feliciana Parish during 1964, collected in West Baton Rouge, Iberia and Tensas Parishes in 1965 and in East Baton Rouge Parish in 1966. All new parish records except East Feliciana. (Chapin).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Moderate numbers damaging alfalfa in Wagoner County. (Okla. Coop. Sur.). MISSOURI - Larvae present in large numbers over most of State; heaviest in alfalfa. (Peters). KANSAS - Loxostege similalis averaged 2 per sweep in alfalfa at Hays Experiment Station, Ellis County. Causing concern in eastern third of State. Controls applied in some cases. (Harvey).

VARIEGATED CUTWORM (Peridroma saucia) - UTAH - Infesting some alfalfa in Piute County. (Chapman, Knowlton).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Larvae and adults common on soybeans in Sussex County. (Burbutis, Davis). GEORGIA - Light on soybeans in Twiggs County. (Jones). ALABAMA - Light to medium on soybeans in Covington County; controls required in southern part of county. (Pike, Stephenson).

WEBWORMS (Loxostege spp.) - ARKANSAS - L. similalis observed on soybeans in Clay County. (White, Boyer). MISSOURI - Loxostege spp. infestations economic on some soybeans. (Peters). IOWA - L. similalis damaging soybeans in Mahaska and Jasper Counties. (Iowa Ins. Inf., July 25).

THRIPS - DELAWARE - Several species increasing on soybeans in most areas. (Burbutis, Davis).

TARNISHED PLANT BUG (Lygus lineolaris) - INDIANA - Adults 4 per sweep on blossoming soybeans in south central district. (Huber).

BROWN STINK BUG (Euschistus servus) - ALABAMA - Light numbers damaging young soybeans in Covington County. (Stephenson).

PEANUTS

CUTWORMS - ALABAMA - Light to heavy in isolated fields of peanuts in Houston, Henry and Covington Counties. Larvae extremely heavy at Headland in Henry County; cutting off newly developing fruits during night. (Ivey et al.).

SPIDER MITES - VIRGINIA - Heavy on peanuts in southeast area. (Smith, Miller).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Infestation 9 percent in 4 fields treated 5 times in Robeson and Hoke Counties; 7 percent in 6 fields treated 4 times. Infestation 72-76 percent in 2 untreated fields in Robeson County. (Mount). SOUTH CAROLINA - Increasing slowly in Florence area, but still lower than normal. Adults 0-1 per 100 squares in treated plots, 0-2 in untreated plots. Percent larval infestation 1.5-4.8 in treated plots, 10-42 in untreated plots. (Taft et al., July 27). General damage much less in areas where control program carried out compared with areas where controls not so extensive. Many fields in such areas show less than 4 percent of squares punctured; few fields show infestations above 5 percent. In areas where growers not on full season control program, large numbers of weevils expected soon in treated and untreated fields. (Cott. Ltr., July 25). TENNESSEE - Punctured squares 5-55 percent in western area; averaged 24 percent compared with 19 previous week, as first-generation weevils became active. As many as 5 adults found in one bloom in Hardeman County; unusual for time of year. Dry weather reducing infestations, but far from bringing population below control level. (Locke). GEORGIA - Infestation low, punctured squares 5 percent in Spalding County. (Beckham). Infestations increasing over southern part of State. (Jordan). ALABAMA - Infestations continue high throughout northern portion of State. (McQueen).

MISSISSIPPI - Of 29 fields examined in delta counties, punctured squares found in 25. Infestation averaged 3.3 percent (maximum 26). Increase in weevil activity apparently associated with recent "hatchout". (Furr et al., July 28). LOUISIANA - Weevil activity increased in northern area. Infestation at control level in some fields. All fields should be checked weekly. (Tynes, July 25). Percent punctured in 180 fields averaged 2.8 in 129 infested fields in Madison Parish. Only 10 weevils found in 180 fields. (Cleveland et al., July 28). ARKANSAS - Present in 63 percent of fields checked; 5.4 percent with infestations above treatment level. (Barnes, Boyer). OKLAHOMA - Punctured square counts 3-25 percent in Garvin County; averaged 25 percent in Grady County. First-generation larvae not pupated in Garvin County. Light in Caddo County. (Okla. Coop. Sur.). TEXAS - Infestation increased in Waco area as new weevils appeared; squares becoming scarce in many fields. Punctured squares averaged 15.7 percent in 7 treated fields (maximum 35.5); averaged 19.7 percent (maximum 37.2) in 22 untreated fields. (Cowan et al.). For Boll Weevil in High Plains area see page 762.

BOLLWORMS (*Heliothis* spp.) - NORTH CAROLINA - Infesting 10 of 12 fields examined in Robeson and Hoke Counties. Terminal infestation 9 percent. (Mount). SOUTH CAROLINA - Increasing rapidly in Florence area; hard-to-control populations also increasing. Egg counts up to 51 per 100 terminals observed. Percent larval infestation 0.8-7.4 in treated plots, 0-2 in untreated plots. Total of 102 *H. zea* and 28 *H. virescens* adults taken in Florence light trap. (Taft et al., July 27). Most fields in State apparently between broods. Most larvae very large; pupation expected next few days. Few eggs found; many more anticipated next 10 days. (Cott. Ltr., July 25). TENNESSEE - Increasing over cotton-growing area. Eggs and larvae 1-6 per 100 terminals. Controls recommended where other insects not problem. (Locke). GEORGIA - Moderate to heavy infestations common in southern area cotton. (Jordan). ALABAMA - Infestations continue light in northern area. Considerable increase of larvae in central and southern counties, especially Monroe, Montgomery, Henry, Mobile, Perry and Tuscaloosa Counties. (McQueen). MISSISSIPPI - Eggs found in 8 of 29 fields in delta counties. Injured squares found in 17 fields; averaged 1.6 percent (maximum 4). Moth flights remained about same as previous week. (Furr et al., July 28).

LOUISIANA - Increase in number of moths in flight and number of eggs observed past week in northern and central areas; increase should continue next 7 days. Beneficial insects will destroy eggs and small larvae. (Tynes, July 25). Percent damaged squares 1-23 in 145 of 180 fields in Madison Parish. Larvae found in 50 fields; infestation 1-10 percent. Eggs 1-6 per 100 terminals in 103 of 178 fields. Larval infestation 1-10 per 100 terminals in 77 fields infested. (Cleveland et al., July 28). ARKANSAS - Present in 50 percent of fields checked compared with 42

percent last week. (Barnes, Boyer). MISSOURI - Larvae 1-5 and eggs 1-7 per 100 terminals in 13 percent of 632 fields in southeastern "delta" area. Numbers increasing but remain subeconomic. (Jones). OKLAHOMA - Light to heavy in Garvin County cotton; infestation 10 percent in Grady County. (Okla. Coop. Sur.). TEXAS - Infestation remains light in Waco area, with only occasional irrigated or late-planted field having damaging population. In 12 treated fields, eggs 1.5 and larvae 2.5 per 100 terminals. In 22 untreated fields, eggs 1.5 and larvae 1.1 per 100 terminals, with maximum of 11 eggs and 13 larvae. Square injury 2.3 percent in 12 treated fields; 1.1 percent in 22 untreated fields. Boll injury averaged 0.6 percent in 33 fields. (Cowan et al.). NEW MEXICO - Light to moderate in cotton in southern Eddy County. (Hare). Infestation decreased in most Dona Ana County cotton past two weeks. (Clayshulte, Hare). ARIZONA - *H. zea* continues light and scattered throughout Pima, Pinal and Maricopa Counties. Increases noted near Eloy, Pinal County; 8 larvae per 100 plants. (Ariz. Coop. Sur.). CALIFORNIA - No major moth flight in recent weeks. Occasional larva found in most fields but below economic proportions in Imperial County. Numbers high in Arvin and Wheeler Ridge areas of Kern County. (Campbell, Black, July 25).

CABBAGE LOOPER (*Trichoplusia ni*) - ALABAMA - Larvae light in cotton in isolated east central area fields. (Sanford). OKLAHOMA - Small larvae continue heavy in irrigated cotton in Grady County. (Okla. Coop. Sur.). CALIFORNIA - Larvae abundant in Cocoran area field; may require control. Moths abundant in light traps at Shafter. (Leigh, July 23).

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) - ARIZONA - Increasing in Yuma County cotton; approaching economic proportions. Averaged 100 per 100 sweeps. (Ariz. Coop. Sur.).

APHIDS - NORTH CAROLINA - *Aphis gossypii* moderate in 1 of 12 fields in Scotland and Hoke Counties. (Mount). SOUTH CAROLINA - Aphids not problem in any western area county except Hampton County where some medium populations of 11-25 per leaf developing. (Cott. Ltr., July 25). GEORGIA - Aphids heavy in Sumter County field. (Jordan). ALABAMA - *A. gossypii* heavy on cotton in 80 fields in Mobile County. Aphids generally light on cotton throughout State. (Vickery et al.). ARIZONA - *A. gossypii* continues heavy in some fields in Chandler and Queen Creek areas, Maricopa County. (Ariz. Coop. Sur.).

PLANT BUGS - TENNESSEE - *Lygus lineolaris* and *Adelphocoris rapidus* present on cotton over western area; increasing slightly. Control not justified for these pests alone. (Locke). MISSISSIPPI - Little *L. lineolaris* activity noted in delta counties. (Furr et al., July 28). LOUISIANA - *Psallus seriatus* 1-21 per 100 sweeps in 29 of 107 fields in Madison Parish. *L. lineolaris* 1-23 per 100 sweeps in 53 infested fields. (Cleveland et al., July 28). *L. lineolaris* lower in cotton than previous weeks. Fleahoppers continue high in many cotton fields; movement from fields slow. (Tynes, July 25).

LYGUS BUGS (*Lygus* spp.) - CALIFORNIA - Continued problem of primary concern in cotton in Imperial and Kern Counties and San Joaquin Valley. (Campbell, Black, Leigh, July 25). ARIZONA - Continue to damage cotton in Pima, Pinal and Maricopa Counties although numbers declined. Some increases noted in Yuma County. Decreased rapidly in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Light with an occasional heavier infestation noted in Dona Ana County cotton fields. (N. M. Coop. Rpt.).

STINK BUGS - CALIFORNIA - Nymphs becoming more common in Imperial County cotton. Adults continue to move into cotton from milo. (Campbell, July 22). ARIZONA - *Chlorochroa sayi* increased in many fields in Pinal and Maricopa Counties; damage light to moderate. (Ariz. Coop. Sur.).

SPIDER MITES (*Tetranychus* spp.) - SOUTH CAROLINA - Some difficulty experienced in most western counties. Few reports of complete control received. Some growers using recommended miticide obtaining excellent control; other growers using same material obtaining little or no control. (Cott. Ltr., July 25). TENNESSEE - Continue to increase over western area; considerable damage resulting. Further

increase will continue as conditions ideal for buildup. (Locke). GEORGIA - Light to moderate in many southern area cotton fields. (Jordan). ALABAMA - General increase in presence and damage by spider mites in parts of Macon, Atauga, Monroe, and several other central and southern counties. Control efforts difficult. (Samford et al.). MISSISSIPPI - Continued as major problem in many cotton fields in delta counties. Hot, dry weather favorable for development. (Furr et al., July 28). CALIFORNIA - Abundant in some cotton in Kingsburg, Tulare and Shafter areas, particularly along dusty roads. *T. pacificus* abundant in some cotton in Five Points and Tulare Lake areas; difficult to control in latter area. (Leigh, July 23).

TOBACCO

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Adults causing considerable "shot-hole" injury on mature tobacco. (U. Md., Ent. Dept.). VIRGINIA - Adults increasing on tobacco in Pittsylvania County. (Dominick).

GREEN PEACH APHID (*Myzus persicae*) - MARYLAND - Building up to injurious levels on tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

MISCELLANEOUS FIELD CROPS

FIELD CRICKETS (*Gryllus* spp.) - NORTH DAKOTA - Up to 4 per square yard in margins of flax in Logan County. (Brandvik).

LYGUS BUGS (*Lygus* spp.) - UTAH - Numerous on sunflower blossoms on farms in Uintah and Duchesne Counties. (Knowlton).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - DELAWARE - Present on peppers in Sussex County. (Burbutis, Davis). PENNSYLVANIA - This and *Macrosiphum euphorbiae* moderate to heavy on early potatoes in Armstrong County. Less abundant on later potatoes. (Adams). COLORADO - Increase and spread noticeable on late plantings of potatoes in Weld County. (Simpson, Daniels). UTAH - Numerous on potatoes in Uintah County. (Knowlton).

POTATO APHID (*Macrosiphum euphorbiae*) - COLORADO - Increasing in potato fields in San Luis Valley near rivers and creeks where wild rose abundant. Colonies 0-5 per 10 plants; 0-2 colonies per 10 plants in majority of fields. (Jenkins).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - Light trap collections averaged 33.3 per night at Bridgeville; threatening peppers. (MacCreary).

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - RHODE ISLAND - Under control in most commercial plantings. (Kerr).

BLISTER BEETLES - GEORGIA - Damaging tomatoes in Spalding County. (Dupree).

FLEA BEETLES - SOUTH DAKOTA - Damaging potatoes near Garden City, Clark County. (Kantack).

PEPPER MAGGOT (*Zonosemata electa*) - NEW JERSEY - Total of 282 adults caught on 4 sticky board traps in Cumberland County. (Ins.-Dis. Newsltr.).

BEANS AND PEAS

GREEN CLOVERWORM (*Plathypena scabra*) - MICHIGAN - Adult taken in blacklight traps; counts higher in southern tier of counties. Growers in northern areas, particularly bean-producing counties, should be alert. (Newman).

LIMA-BEAN VINE BORER (Monoptilota pergratialis) - MARYLAND - Larvae injuring beans at Snow Hill, Worcester County. (U. Md., Ent. Dept.).

NOCTUID MOTHS (Heliothis spp.) - ALABAMA - First to third-stage larvae feeding on blossoms and pods of southern peas in Houston County. (Ledbetter).

COWPEA CURCULIO (Chalcodermus aeneus) - GEORGIA - Heavy on southern peas and unharvested pole beans in Spalding County. (Dupree). ALABAMA - Damaging acre field of southern peas in Houston County. (Ledbetter et al.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - IOWA - Larvae active on beans in Henry County. (Iowa Ins. Inf., July 25).

BEAN APHID (Aphis fabae) - DELAWARE - Populations very high along edge of bean field in southern Kent County. (Burbutis, Davis).

PLANT BUGS - DELAWARE - Lygus lineolaris populations high in fields of beans where no controls applied. (MacCreary). WISCONSIN - Nymphs of L. lineolaris and Adelphocoris lineolatus numerous on several lima bean plantings in Rock and Dane Counties. (Wis. Ins. Sur.).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - MICHIGAN - Moths taken in blacklight traps in Berrien, Macomb, Gratiot and Newaygo Counties; all growers of cabbage and related crops alerted. (Newman). WISCONSIN - Larvae common in commercial cabbage in Dane and Columbia Counties; considerable leaf feeding evident. Ranged up to 9 per plant. (Wis. Ins. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - WISCONSIN - Adults abundant on commercial cabbage; laying up to 10 eggs per leaf. (Wis. Ins. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - OREGON - Heavy in improperly treated cabbage grown for processing in Columbia County. (Walrod).

CUCURBITS

MELON APHID (Aphis gossypii) - MARYLAND - Heavy on 1 acre of cantaloups at Chester, Queen Annes County. (U. Md., Ent. Dept.).

SQUASH VINE BORER (Melittia cucurbitae) - MARYLAND - Larvae tunneled vines of garden squash at Cambridge, Dorchester County. (U. Md., Ent. Dept.). FLORIDA - All stages present, larvae damaging at least half of summer squash stems in acre of unsprayed experiment station plants at Gainesville, Alachua County. (Habeck).

INSECT DETECTION

New State Record

SOUTHERN POTATO WIREWORM (Conoderus falli) - CALIFORNIA - Adults collected in light traps in Riverside County in 1963 and 1964. No larvae detected. Det. by E. C. Becker. (p. 756).

New County and Parish Records

WESTERN CORN ROOTWORM (Diabrotica virgifera) - ILLINOIS - Found for first time in Henry County. (p. 749).

ALFALFA WEEVIL (Hypera postica) - LOUISIANA - Collected in West Baton Rouge, Iberia and Tensas Parishes in 1965 and in East Baton Rouge Parish in 1966. (p. 751).

GENERAL VEGETABLES

SQUASH BEETLE (Epilachna borealis) - MISSOURI - Adults observed on squash in southeast area. (Wkly. Rpt. Fr. Grs., July 27). NEW MEXICO - Serious on squash vines in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.). UTAH - Damaging squash at Notom and Caineville, Wayne County. (Chapman, Knowlton).

SOUTHERN POTATO WIREWORM (Conoderus falli) - CALIFORNIA - Adults taken in light traps at Boyd Research Center in Deep Canyon, Riverside County, May 2 - October 28, 1963, and June 24 - July 7, 1964, by E. I. Schlinger. Det. by E. C. Becker. No larvae detected. This new State record. Species also known in some southeastern States. (Becker).

CARROT WEEVIL (Listronotus oregonensis) - OHIO - Extensive larval damage noted in some celery fields in Huron County. (Sleesman).

LIMA-BEAN VINE BORER (Monoptilota pergratialis) - GEORGIA - Heavy in Peach County. (Dick).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae damaging sweetpotato foliage in Fresno County. (Cal. Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - COLORADO - Damage to onions general in Weld County. (UranO).

ONION THRIPS (Thrips tabaci) - NEVADA - Heavy on dry onions in Happy Valley, Storey County. (Atencio).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - CONNECTICUT - Second-generation larvae found on unsprayed apple trees at Storrs. (Savos, July 27). NEW JERSEY - Total of 23 adults caught in 2 baited jar traps in Gloucester County. (Ins.-Dis.Newsltr.). DELAWARE - Adults continue emergence from apples at Newark. (MacCreary). OHIO - Adults of first generation emerging in increasing numbers in Wayne County for past 2 weeks. Severe larval damage noted in Hocking County orchard. (Rose). INDIANA - Adult collections in bait traps increased from 11 to 13, as emergence of first brood continues. Recent entries in apples by first-stage larvae of second brood common in unsprayed blocks in Vincennes area. (Dolphin, July 25). MISSOURI - Infested apples numerous on unsprayed trees in northwest area. (Wkly. Rpt. Fr. Grs., July 27).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Adult captures in 5 bait traps in peach block increased to 18 in 2 weeks, as second-brood adults continue to emerge at Vincennes. (Dolphin, July 25). NEW JERSEY - Total of 6 adults caught in 2 baited jar traps in Gloucester County. (Ins.-Dis. Newsltr.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Adults in bait traps low in Vincennes area; 2 recovered. (Dolphin, July 25). MISSOURI - Few peaches showing damage in Kansas City area. Small numbers reported on apples in southeast area. (Wkly. Rpt. Fr. Grs., July 27).

LESSER PEACH TREE BORER (Synanthedon pictipes) - INDIANA - Male captures in virgin-female traps at Vincennes increased. (Dolphin, July 25).

SPIDER MITES - MAINE - Light to moderate Tetranychus spp. populations caused light injury in many areas. Panonychus ulmi populations and injury light to heavy, depending on controls. (Boulianger, July 23). NEW JERSEY - Bronzing leaves in several Camden County apple blocks damaged by May freeze. Mixed population of Tetranychus spp. and P. ulmi noted near Hammoncton. (Ins.Dis. Newsltr.). MICHIGAN - P. ulmi continues to build up in many orchards in southwestern fruit-growing areas. (Wooley, Carpenter). MISSOURI - Tetranychus spp. and P. ulmi

readily found on peaches in southeast area; bronzed some foliage. (Wkly. Rpt. Fr. Grs., July 27). UTAH - T. mcdanieli causing serious foliar discoloration in many orchards in Weber, Box Elder and Salt Lake Counties. (Knowlton). OREGON - T. urticae building up in pear trees of Jackson County; much later than usual. (Westergard).

ORCHARD MITES - MAINE - Aculus schlechtendali populations and damage light to heavy at Wilton, Readfield, Bridgton, Livermore Falls, Turner and Buckfield. Found on most apple varieties but degree of infestation varies. Light or non-existent in orchards treated for fruit thinning in early post-bloom period. (Boulanger, July 23). NEW JERSEY - Aculus cornutus abundant in 2 peach orchards near Hammonton. (Ins.-Dis. Newsltr.). INDIANA - Mites continue to increase in Vincennes area wherever miticides omitted. In research block apple trees Tetranychus spp. more numerous than P. ulmi; this opposite of conditions 2 weeks ago. (Dolphin, July 25). UTAH - Injury to fruit trees by undetermined species becoming more severe. (Knowlton).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - Adults continue emerging in large numbers from dropped plums in Wayne County. (Rader). MICHIGAN - Adults appearing in blacklight traps in Berrien, Macomb, Monroe and Branch Counties. (Newman et al.).

APPLE MAGGOT (Rhagoletis pomonella) - MAINE - Ratio of males to females in cages at Monmouth indicates emergence near peak. Populations and activity in abandoned orchards troublesome. (Boulanger, July 23). CONNECTICUT - Emergence probably at peak. (Savos, July 27). RHODE ISLAND - Adults common around apple trees in Providence County. (Mathewson). NEW JERSEY - Total of 40 adults caught on 6 sticky board traps in Gloucester and Mercer Counties. (Ins.-Dis. Newsltr.). INDIANA - First adult of season observed on apple fruit in unsprayed block at Vincennes. (Dolphin, July 25). MINNESOTA - Flies present in Washington County commercial orchards; 24 or more per trap taken in abandoned orchard near Excelsior, Hennepin County. Traps in abandoned orchard near Rochester caught 1 fly by July 25. Small numbers, 3-4 per trap, found in abandoned orchard in La Crescent area. More found in commercial orchards at La Crescent. Apparently numbers down this season. (Minn. Ins. Rpt.).

APPLE APHID (Aphis pomi) - WISCONSIN - Total of 82 adults collected on 8 sticky boards in Door County week ending July 26. Heavy on unsprayed apple foliage in Bayfield County. (Wis. Ins. Sur.). MAINE - Populations remain low; may be below normal for season. (Boulanger, July 23).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - Adults moderate in apple and peach trees in Vincennes area. (Dolphin, July 25).

PEAR PSYLLA (Psylla pyricola) - OREGON - Populations higher than usual on pears in Jackson County. Anticipate difficulties in harvesting. (Berry).

PEAR-SLUG (Caliroa cerasi) - OREGON - Second-generation larvae appearing on pear trees in Jackson County. Parasitism moderate. (Westergard).

WALNUT CATERPILLAR (Datana integerrima) - VIRGINIA - Larvae feeding on leaves of English walnut and pecan trees in Prince Edward County. (Isakson, Peery).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Full-grown second-generation larvae present in pecans in Garvin County. First generation destroyed 21 percent of terminals in 1 grove. (Okla. Coop. Sur.).

A FRUIT FLY (Rhagoletis suavis) - MICHIGAN - Adult emergence first observed July 11 in Berrien County and July 13 in Van Buren County; some growers reported 100+ per day during hot, humid weather. Controls recommended. (Taylor, Newman).

PECAN PHYLLOXERA (Phylloxera devastatrix) - ALABAMA - Medium on pecans at Linden and Demopolis, Marengo County. (Yates).

SMALL FRUITS

CYCLAMEN MITE (Steneotarsonemus pallidus) - MINNESOTA - Heavy on strawberry plants in Lonsdale area. (Minn. Ins. Rpt.).

PACIFIC SPIDER MITE (Tetranychus pacificus) - CALIFORNIA - Medium on grapevines in Fresno County. (Cal. Coop. Rpt.).

A SAP BEETLE (Stelidota geminata) - MICHIGAN - Adults and larvae feeding on blackberries in Berrien County July 25-26. (Carpenter, Wooley).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MICHIGAN - This species and Schizura ipomeae observed on blueberries in Allegan County. (Wooley, Carpenter).

FRUIT FLIES (Rhagoletis spp.) - NEW JERSEY - Well past peak in most blueberry areas. (Ins.-Dis. Newsltr.).

ORANGE TORTRIX (Argyrotaenia citrana) - OREGON - This species and Archips spp. caused some losses to red raspberry and boysenberry growers in Washington County; infesting crates of packed berries ready for processing. (Torvend).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - GEORGIA - Several heavy infestations noted on arborvitae and junipers in Twiggs County (Jones); continues problem in Spalding County (Tippins). ARKANSAS - Heavy on arborvitae at Conway. (Loftin). OKLAHOMA - Continues heavy on ornamental evergreens in many areas; most larvae full grown. Moderate infestation noted on Tamarix gallica (salt cedar) in river bottom area of Dewey County. (Okla. Coop. Sur.). MISSOURI - Infesting numerous ornamental trees and shrubs in central area. (Wkly. Rpt. Fr. Grs., July 27).

A LYGAEID BUG (Crophius bohemani) - CALIFORNIA - Heavy on Thuja sp. nursery stock in Elverat, Sutter County. (Cal. Coop. Rpt.).

EUROPEAN EARWIG (Forficula auricularia) - MAINE - Light to severe and damaging flowers in Rockland area. Entering homes in Rockland, Camden and Thomaston. (Boulanger, July 23).

SPIDER MITES (Tetranychus spp.) - ARIZONA - Moderate to heavy and damaging ornamentals in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

FOREST AND SHADE TREES

WHITE-PINE WEEVIL (Pissodes strobi) - MICHIGAN - Larvae, pupae and adults observed in terminals and leaders of Norway spruce in Ottawa County July 27. (Wallner).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - DELAWARE - Adults emerging from pine in Sussex County. (MacCreary).

APHIDS - NEW MEXICO - Adelges cooleyi very common on blue spruce in northern mountain area. (Heninger). UTAH - A. cooleyi moderately numerous on Colorado blue spruce trees at Vernal, Uintah County. Schizolachnus piniradiatae causing Pinus ponderosa to become gray in Uinta Canyon, Duchesne County; lighter in Daggett and Salt Lake Counties. (Knowlton). PENNSYLVANIA - Adelges spp. difficult to control on spruce because of very late emergence. (Udine).

CONIFER SAWFLIES - MINNESOTA - Neodiprion lecontei larvae causing heavy defoliation to roadside trees especially along U. S. Highway 61 between Moose Lake and Hinckley and to lesser degree along U. S. Highway 371 north of Brainerd. In Highway 61 area, as many as 10-12 masses of larvae noted on many trees under 8 feet high, causing extensive mortality. Many Diprion similis larvae in last stage;

and over 50 percent formed cocoons. About 10 percent adult emergence noted. First-generation population high in several north central and east central areas; possible heavy defoliation of white pine by second-generation larvae expected. (Minn. Ins. Rpt.).

LARCH SAWFLY (Pristiphora erichsonii) - RHODE ISLAND - Pupation apparently complete in Hopkinton, Washington County; beginning in Westerly, Washington County. (Veilleux). MINNESOTA - Larvae of all stages observed, most in last instar and many pupated. Defoliating tamarack in Pine Island Forest; as little as 20 percent foliage remaining. (Minn. Ins. Rpt.).

ELM LEAF BEETLE (Pyrrhalta luteola) - DELAWARE - New adults feeding heavily on elms in New Castle County. (Burbutis, Davis). ARKANSAS - Damaging Chinese elm in most areas of State. (Boyer). OKLAHOMA - Pupation of second generation beginning in Dewey County; 75-80 percent of trees defoliated. Heavy infestations continue in most areas. (Okla. Coop. Sur.). KANSAS - Severe damage reported in Hays, Ellis County. (Harvey).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - KANSAS - Several elm trees appear to be dying from bark beetle attack in Hays, Ellis County. (Harvey).

LOCUST LEAF MINER (Xenochalepus dorsalis) - MARYLAND - Larvae causing severe browning of black locust foliage in many sections of State. (U. Md., Ent. Dept.). OHIO - Light in black locust in Holmes County. Pupae present and few adults emerging. (Cannon, Jumper).

BAGWORM (Thyridopteryx ephemeraeformis) - VIRGINIA - Heavy populations noted on sycamore and hickory trees in Culpeper County. (Isakson). DELAWARE - Abundant on pin oaks and causing heavy injury in Sussex County. (Burbutis, Davis).

WALNUT CATERPILLAR (Datana integerrima) - VIRGINIA - Larvae defoliating large number of hickory and black walnut trees in Halifax County. (Isakson, Reynolds). OHIO - Walnut foliage lightly infested by late-stage larvae in Delaware County. (Lincoln).

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Webs up to 1 foot in diameter observed along Rappahannock River in Culpeper County. (Isakson). WISCONSIN - Webs fairly common on elderberry, apple and other plants in southern Columbia County. (Wis. Ins. Sur.). NEW MEXICO - Light to moderately heavy; defoliating poplar trees in Espanola and Jemez Valleys. (Heninger).

MIMOSA WEBWORM (Homadula albizziae) - OHIO - First-generation adults heavy on honeylocust in Marion, Tuscarawas and Muskingum Counties. (Peacock, Galford).

A CLEARWING MOTH (Paranthrene robiniae) - CALIFORNIA - Larvae and pupae heavy locally in Lombardy poplar trees in Spring Valley, San Diego County. (Cal. Coop. Rpt.).

A LEAFHOPPER (Caladonus coquilletti) - CALIFORNIA - Heavy and damaging foliage of sycamore trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

AN APHID (Periphyllus populicola) - UTAH - Very numerous on cottonwood in Duchesne and Daggett Counties. (Knowlton).

ARMORED SCALES - CALIFORNIA - Lepidosaphes ulmi medium on poplar trees in San Anselmo, Marin County. Parlatoria oleae medium on ash tree nursery stock in Paradise, Butte County. (Cal. Coop. Rpt.). DELAWARE - Melanaspis obscura crawlers active on oak trees in New Castle County. (MacCreary).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - MAINE - Infestations appearing in Dryden. Trees in Farmington sprayed again this year. (Boulanger, July 23).

TWIG PRUNER (Elaphidionoides villosus) - CONNECTICUT - Active over most of State. (Savos, July 30).

BIRCH LEAF MINER (Fenusa pusilla) - MAINE - Damage heavy throughout Franklin County. (Boulanger, July 23). WISCONSIN - All stages present in Door County where earlier reports indicated second brood had begun about July 8. (Wis. Ins. Sur.).

MAN AND ANIMALS

MOSQUITOES - FLORIDA - Mansonia perturbans continues annoying residents of southwestern Gainesville, Alachua County. (O'Berry). LOUISIANA - Larval collections July 21-29 contained Anopheles crucians, A. quadrimaculatus, Culex pipiens quinquefasciatus and C. territans. Aedes taeniorhynchus and A. sollicitans increased in light trap collections. (Stokes). WISCONSIN - Increased activity noted past few days. Majority of those in Madison area Culex pipiens pipiens. (Wis. Ins. Sur.). MINNESOTA - Light trap collections decreased from previous reporting period. Aedes vexans dominant, with Mansonia perturbans, Anopheles walkeri and Culex tarsalis common. In 342 larval collections, A. vexans found in 23 percent, C. tarsalis 34 percent, C. salinarius 29 percent and C. territans 25 percent. Numbers expected to decrease if dry weather continues. (Minn. Ins. Rpt.). CALIFORNIA - Mosquito populations below average; usual local numbers occurred but no general infestations. Above normal temperatures and excessive irrigation may produce problem areas. (Cal. Coop. Rpt.).

AN EYE GNAT (Hippelates pusio) - FLORIDA - Probably this species annoying agricultural workers near Gainesville, Alachua County. Populations highest ever observed in central part of State. (Habeck, Maxwell, July 27).

FACE FLY (Musca autumnalis) - PENNSYLVANIA - Averaged 7-8 per animal on young stock in McKean County. Moderate where no sprays applied. (Adams, July 26). ILLINOIS - Averaged 10 per animal in northwestern area. (Ill. Ins. Rpt.). WISCONSIN - Problem in Ashland County. (Wis. Ins. Sur.). SOUTH DAKOTA - Remains low on herds in eastern area. (Balsbaugh). MISSOURI - Ranged 15-20 per animal in one herd in Scotland County. (Peters, Craig).

HOUSE FLY (Musca domestica) - OKLAHOMA - Heavy on and around beef cattle in Hughes County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - UTAH - Troublesome in many Summit, Wasatch, Uintah and Duchesne County beef herds. These and tabanids numerous in many Beaver County localities. (Knowlton). OKLAHOMA - Heavy on cattle in Comanche and Mayes Counties. (Okla. Coop. Sur.). NEBRASKA - Increasing rapidly on cattle in range areas. (Roselle). SOUTH DAKOTA - Increasing in some areas of State. Averaged 60 per side in Moody County. In untreated herds in Charles Mix County, 200-250 flies per side. In southwestern Custer County, up to 150-200 per side observed on herd of Hereford cows and calves. (Jones, Balsbaugh, Kantack). ILLINOIS - Averaged 20 per animal in northwestern area. (Ill. Ins. Rpt.).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Averaged 9 per animal in northwestern area. (Ill. Ins. Rpt.). SOUTH DAKOTA - Heavy, 175 per 10 sweeps, in vegetation along fence rows next to cows in pastures in Brookings County; 25-50 per animal common in Charles Mix County. (Balsbaugh, Kantack).

HORSE FLIES - OHIO - Tabanus spp. abundant in Pike County; 2-10 per animal on 2 cattle herds. (Rose). UTAH - Annoying livestock and people in Duchesne County. (Knowlton).

LONE STAR TICK (Amblyomma americanum) - GEORGIA - Heavy on cattle in Hancock County. (Snoddy).

BENEFICIAL INSECTS

LADY BEETLES - MICHIGAN - Adults of various species averaged 0.5 per 10 sweeps in 3 fields of second-growth alfalfa in Wayne, Jackson and Hillsdale Counties July 20-22. No larvae found. (Ruesink).

A MELYRID BEETLE (Collops sp.) - UTAH - Numerous on alfalfa fields infested by Acyrtosiphon pisum in Ashley and Ouray Valleys of Uintah County. (Knowlton).

DAMSEL BUGS - MICHIGAN - Adults of various species averaged 3.2 per 10 sweeps in 3 fields of second-growth alfalfa in Wayne, Jackson and Hillsdale Counties July 20-22. No larvae found. (Ruesink). ARKANSAS - Nabis spp. and big-eyed bugs (Geocoris spp.) continue as most important predators in older soybeans in east central area. Lacewing adults very numerous on sugar lines in Jefferson and Phillips Counties. (Boyer).

PREDATORS - OKLAHOMA - Numbers high in cotton and alfalfa in most areas. Orius insidiosus, Hippodamia convergens and Collops quadrimaculatus most common. (Okla. Coop. Sur.). CALIFORNIA - Remain abundant in many cotton fields. (Campbell, Black, July 25).

CICADA KILLER (Sphecius speciosus) - IOWA - Adults becoming active. (Iowa Ins. Inf., July 25).

A PREDACEOUS PHYTOSEIID MITE (Typhlodromus sp.) - OREGON - Active on phytophagous mites in Umatilla County orchards. (Every).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - MONTANA - Nymphal population economic in areas of Big Horn, Rosebud and Yellowstone Counties. (PPC West. Reg., June Rpt.). WYOMING - Melanoplus spp. adults and nymphs 5-10 per square yard in alfalfa in Fremont and Big Horn Counties. (Marks). UTAH - Very numerous in portions of Uintah and Duchesne Counties. Melanoplus sanguinipes mating. (Knowlton). COLORADO - Mixed populations of M. sanguinipes and Aeoloplides turnbulli 5-15 per square yard in small, scattered, isolated areas of rangeland near Fort Collins, Larimer County. (Wellso). OKLAHOMA - Melanoplus spp. moderate in alfalfa in northwest counties; 8-20 per square yard in Garvin County. M. differentialis and M. bivittatus dominant in both areas. (Okla. Coop. Sur.). KANSAS - Ageneotettix deorum and M. angustipennis dominant species; 15-25 per square yard in Reno, Rice, Stafford and Barton County pasturelands. (Martinez). NEBRASKA - Grasshopper numbers higher in Cherry and Thomas County range areas; up to 8 per square yard. (Roselle). Up to 361 per 150 sweeps in alfalfa field at Mead, Saunders County. (Kindler, Lindekugel). SOUTH DAKOTA - Grasshoppers very heavy in number of alfalfa fields with movement into corn common. M. femurrubrum dominant; 20-30 per square yard in alfalfa in Jerauld and Aurora Counties. Ranged 7-15 per square yard in corn; marginal damage observed. Damage severe on Tripp County alfalfa; 35 grasshoppers per square yard, in fields and margins; 55 percent M. femurrubrum, first instar to adult; remainder M. bivittatus and M. differentialis, third instar to adult. Rangeland damage in Custer County light to severe, counts 5-20 per square yard. A. deorum, Phlibostroma quadrimaculatum and Drepanopterna femoratum dominant. Infestation continues severe along Cheyenne River in Pennington County. Sweetclover stripped and grasshoppers moving out. Some trees, including apple, stripped. (Burge, Jones et al.). NORTH DAKOTA - Grasshoppers 3 per square yard in marginal infestations in Mountrail and Williams Counties. Less than 1 per square yard in alfalfa. M. femurrubrum, M. bivittatus and M. sanguinipes dominant. Grasshoppers moving into late-seeded flax in Sargent, Dickey, McIntosh and La Moure Counties. (Brandvik). MINNESOTA - Melanoplus spp. adults appearing in all districts; most still nymphs. M. femurrubrum in second to fourth instars. M. differentialis and M. bivittatus in third to fifth instars. In west central area counts 0-25 per square yard. Grasshoppers economic in scattered fields in Yellow Medicine, Chippewa, Big Stone, Otter Tail and Douglas Counties; moderate in occasional field in Lyon and

Redwood Counties, 10-20 per square yard. Counts generally low in northwest district. (Minn. Ins. Rpt.). WISCONSIN - Few *M. bivittatus* adults in Door County; *M. femurrubrum* in one 40-acre alfalfa field 10-200 per square yard. (Wis. Ins. Sur.). IOWA - *M. differentialis* heaviest in southern third of State; 0-35 per square yard. (Iowa Ins. Inf., July 25). INDIANA - Nymphs ranged up to 22 per sweep in alfalfa in north central and northeastern districts. Up to 15 per square yard along roadsides in southeastern and south central areas. (Huber, White). OHIO - Grasshopper nymphs up to 8 per sweep on alfalfa and clover in Pickaway and Jackson Counties. (Rose). MARYLAND - Small *Melanoplus* spp. nymphs very heavy in several alfalfa and red clover fields in Montgomery and Queen Annes Counties. Nymphs injured border rows of tobacco in Calvert County. (U. Md., Ent. Dept.).

JAPANESE BEETLE (*Popillia japonica*) - GEORGIA - Infesting wild grapes, chestnut oaks and sassafras in Union County. Numerous infestations reported on grapes, apples, blackberries, roses and many other plants in several northern counties. (Coleman, Taylor). SOUTH CAROLINA - Populations declined markedly during past week in sprayed areas. (Nettles et al., July 26). NEW JERSEY - Damaging soybeans in Hunterdon County. (Ins.-Dis. Newsltr.) OHIO - Infesting some soybeans in Ross County. (Muntzing, Blair). MICHIGAN - All trap setting complete. Seven finds made in city of Detroit, 5 in city of Monroe, and single find in Battle Creek Township, Calhoun County. Heavy infestation discovered at Marywood Golf Course 5 miles north of Battle Creek; turf heavily damaged. (Turner, Moore).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Adults feeding on soybeans in Covington County required control. (Stephenson).

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Damage in High Plains 8-county control zone lighter than previous week. Total of 956 cotton fields inspected; 78 found infested to July 26. Finds observed in Hall, Motley, Dickens and Kent Counties. Punctured square counts moderate. Beneficial insect populations remain high in most fields. (Parker, Hanna).

CEREAL LEAF BEETLE (*Oulema melanopus*) - MICHIGAN - Large percentage of adult beetles entering aestivation. (Turner et al.).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - All stages observed. Trapping underway on 48,000 acres with 6 traps per square mile. First male moths trapped July 25, one mile north of infestation area at Duck Lake, Calhoun County. (Moore, Turner).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Rosetted blooms continue present in Eddy County cotton fields. Small number of growers beginning chemical controls. (N. M. Coop. Rpt.). CALIFORNIA - Total of 45 moths collected this season through July 31 as follows: Imperial Valley 11, Palo Verde Valley 5, Bard Valley 29. First larva of season found July 26 on property east of Calipatria. (PPC West. Reg.).

CITRUS WHITEFLY (*Dialeurodes citri*) - CALIFORNIA - Survey in Sacramento area, Sacramento County, revealed 3 new infested properties in northern area, within quarantine zone. Treatment for adult emergence nearly complete. In Fresno, Fresno County, intensive inspection has not revealed any live specimens. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Total of 26 larvae taken from fruit of mango in dooryard at Miami Beach, Dade County, July 20. All fruit in 1 tree infested. (Dehaven).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 10 cases reported in U. S. July 24-30 as follows: TEXAS - Presidio 1, Live Oak 2. ARIZONA - Maricopa 1, Graham 1, Greenlee 1, Cochise 1, Yavapai 3. Total of 216 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 36, Sonora 85, Chihuahua 54, Nuevo Leon 3, Tamaulipas 38. Total of 922 cases

reported from Mexico south of Barrier Zone. Barrier Zone is area where screw-worm eradication operations underway to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released: Texas 13,986,250, New Mexico 8,104,800, Arizona 13,967,200, California 1,080,000, Mexico 85,772,000. (Anim. Health Div.).

HAWAII INSECT REPORT

Insects of Regional Significance - ORIENTAL FRUIT FLY (*Dacus dorsalis*) larvae causing heavy damage to peaches in Waimea, Hawaii Island, elevation 2,700 feet; 5 large trees with heavy crops 100 percent infested. Eggs and adults noted on fruits. (Yoshioka). Adults heavy on citrus in Wailuku, Maui; no controls applied. (Takishita). SOUTHERN GREEN STINK BUG (*Nezara viridula* var. *smaragdula*) nymphs and adults light on broccoli in Kainaliu, Hawaii Island. Few parasites of adult bugs noted in area. (Haw. Ins. Rpt.).

Turf - Adults of a BILLBUG (*Sphenophorus venatus vestitus*) medium in Bermuda grass lawns in subdivision near Barbers Point, Oahu. (Hironaka).

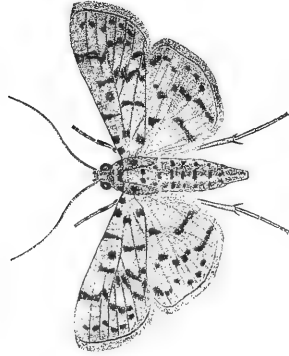
Citrus - A FALSE SPIDER MITE (*Brevipalpus phoenicis*) and CITRUS RUST MITE (*Phyllocoptura oleivora*) abnormally high on tangerines in Kalaheo, Kauai. All stages, mostly adults, medium to heavy. Scarified markings on fruits caused by B. phoenicis and russeting and bronzing by P. oleivora. Det. by F. Haramoto. (Au). FULLER ROSE BEETLE (*Pantomorus godmani*) adults caused light to medium foliar damage to citrus plants in Kailua-Kona, Hawaii Island. (Kunewa).

General Vegetables - All stages of CARMINE SPIDER MITE (*Tetranychus telarius*) medium to heavy on snap beans in Waimanalo and Kahaluu and heavy on snap beans in Waianae, Oahu. (Yamamoto, Sato). BEET ARMYWORM (*Spodoptera exigua*) larvae light on green onions in Wailua and heavy in Kaumakani, Kauai. Damage generally light in Kaumakani. (Au). LEEK MOTH (*Acrolepia assectella*) larvae causing 95 percent damage to green onions in Kainaliu, Hawaii Island. Practically every leaf infested. (Haw. Ins. Rpt.).

Ornamentals - FULLER ROSE BEETLE adults causing heavy foliar damage to *Cordyline terminalis* (ti) in Kainaliu and Kailua-Kona, Hawaii Island. (Yoshioka, Kunewa). An APHID (*Cerataphis* sp.) generally light but heavy on some vanda orchid stems in Makawao, Maui; some stems with 20-50 in clusters. (Haw. Ins. Rpt.). THREE-LINED POTATO BEETLE (*Lema trilineata*) larvae and adults heavy on *Datura* sp. in golf course in Kunia, Oahu; many plants completely defoliated. (Ozaki).

Beneficial Insects - Heavy adult population of a LADY BEETLE (*Stethorus vagans*) observed feeding on mites on papayas in Kahuku, Oahu. (Kumabe). Larvae, pupae and adults of a WEEVIL (*Apion antiquum*) light to medium on *Emex spinosa* (emex) in Waimea State Nursery, Hawaii Island. (Haw. Ins. Rpt.). Appreciable spread of a CHRYSOMELID BEETLE (*Octotoma scabripennis*) occurring on lantana in North Kona, Hawaii Island. Several larval mines noted in Puuanahulu, approximately 4 miles from Halepiula where insect recently became established. No releases of *O. scabripennis* made in Halepiula. (Yoshioka). Larval mines and adults of a HISPID BEETLE (*Uroplata girardi*) observed on lantana above Puuopae, near Fish and Game Checking Station, in Waimea Canyon Park, Kauai. First releases made in December 1965. (Au).

LOOK FOR THESE STONE FRUIT PESTS



Yellow Peach Moth Adults conspicuous, having orange wings with numerous black spots; wing expanse approximately 25 mm. Full-grown larva 15-25 mm. long, rather stout, pale or reddish brown with numerous flattened horny warts from which arise short bristly hairs; head red-brown, prothoracic shield large. *Dichocrocis punctiferalis* is known from southern and eastern Asia to Australia; also occurs in Japan and Korea. *D. punctiferalis* is one of the most destructive pests of peach in China and cotton in Australia where it causes serious injury to bolls. This pest also damages corn, grain sorghum, peaches, bananas, papaya and other fruits in Australia. Larval feeding on heads of grain sorghum is sometimes responsible for almost complete loss of crop in coastal areas of the country.

Plum Fruit Moth

Adult is smaller than codling moth; wing expanse 10-14 mm.; generally dark gray, with some external resemblance to oriental fruit moth. Hindwings uniformly dark brown, little more clear than forewings. Insect thick set; wings rectangular, large, strongly truncate on extremities and with poorly developed marginal fringes. Larva of *Grapholitha funebrana* is 10 mm. in length; more slender than *Carpocapsa pomonella* and reddish color is lighter, almost white; head and thoracic plate black. *G. funebrana* occurs in Turkey, Cyprus, Iran, Syria, Algeria and temperate Europe through Siberia. This species is a serious pest of plum in wide areas of Europe. Damage has also been reported in Algeria and western Asia. Plum is apparently the preferred host, but other stone fruits are attacked.



Peach Buprestid

Adults large, 15-27 mm. long; male smaller than female. Color generally dull black. Head large, sunk in thorax; eyes brown, elliptical; antennae serriform, 11-segmented, longer than head, folded under prothorax when insect at rest. Pronotum large, much broader than long, slightly wider than base of elytra, sides rounded. Surface with dense pruinose punctures and numerous glazed areas. Elytra sturdy, large, leather-like, uniformly dull black. Underwings membranous, well developed, smoky colored. Full-grown larva 60-65 mm. long, white, flabby, legless. *Capnodis tenebrionis* occurs generally in the Mediterranean region and as far east as Iran. Also known from southern Europe, parts of USSR, Lebanon, Tunisia, Syria, Turkey and Israel. Adults appear in early May on coasts of Algeria and Italy; feed for indefinite period; most abundant mid-July to early September. Flight awkward, noisy, rapid. Adult damage is of little importance compared with that of larvae which kill young trees by boring into lower trunks and roots. Adults feed on foliage and bark. *C. tenebrionis* is one of the most important pests of stone fruit in the Mediterranean region.



Capnodis sp.

None of these pests is known to occur in the United States.

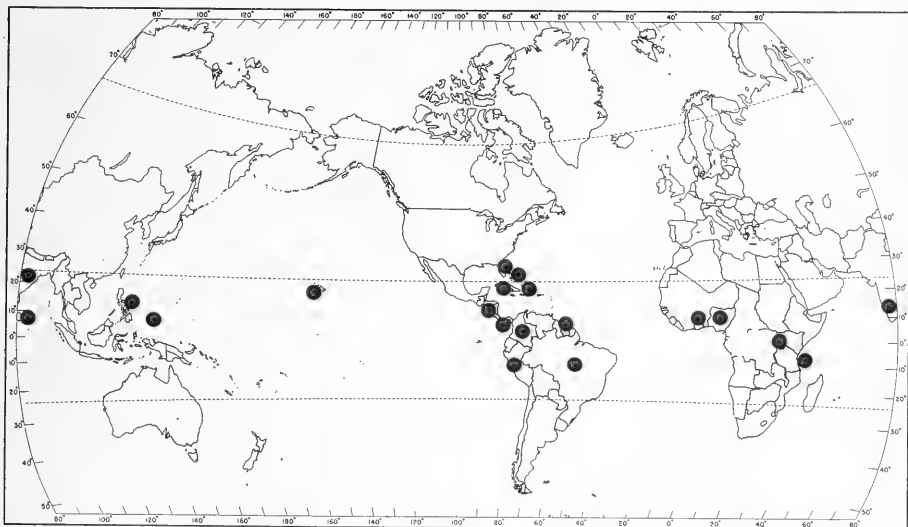
A ROOT MEALYBUG (Geococcus coffeae Green)

Introduction: The insect, described from specimens collected on roots of coffee tree (*Coffea liberica*) from Dutch Guiana (Green, 1933), was first found in Florida in 1958 on roots of *Dieffenbachia* sp. and *Philodendron selloum*, by H. M. Van Pelt. These foliage plants were commercially grown in a greenhouse in Apopka. Determination made by H. Morrison showed this to be a new record for Continental United States. In 1958, a special survey of greenhouses in Florida resulted in positive finds at Apopka, Altamonte Springs, Lockhart, Oviedo, and Zellwood. Attempts were made to eradicate each infestation by insecticides. In September 1965, a new infestation was found by C. O. Youtsey on the roots of both container-grown citrus in a Winter Haven greenhouse and those of Chinese boxorange adjacent to a greenhouse. Infestation of Chinese boxorange shows that *G. coffeae* is capable of attacking plants outside greenhouses in Florida. Eradication of the mealybug at Winter Haven was underway in December 1965.

Economic Importance: This ground-inhabiting species feeds on roots of plants. While it is known as an economic pest in some cacao and coffee-producing regions, its economic potential in Florida is unknown. As citrus is a host, every precaution is being taken to eradicate *G. coffeae* in Florida.

Hosts: Aglaonema, Caladium, Canna, Chamaedorea, Citrus, Codiaeum, Coffea, Cyperus, Desplatzia, Dichorisandra, Dieffenbachia, Eugenia, Eupatorium, Gnaphalium, Hedera, Indigofera, Ipomoea, Musa, Nerium, Osmanthus, Paspalum, Peperomia, Philodendron, Pilea, Schefflera, Scindapsus, Serissa, Severinia, Solanum, Syngonium, Theobroma and Xanthosoma.

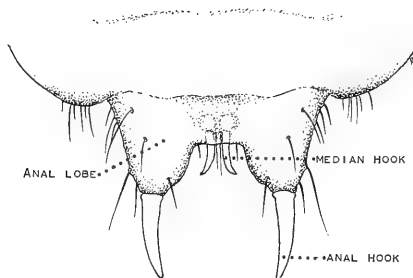
Distribution: Brazil, Canal Zone, Ceylon, Colombia, Costa Rica, Cuba, Dominican Republic, Dutch Guiana, Gold Coast, Guatemala, Honduras, India, Nigeria, Palau, Panama, Peru, Philippines, Uganda, El Salvador, Zanzibar and U.S.A. (Florida, Hawaii and Puerto Rico).



General Distribution of Geococcus coffeae

Description: Adult female snow white, elongate-oval 2-2.5 mm. in length. Anal lobes red-brown with prominent, upturned, chitonized, blunt anal hook at tip of each lobe (see illustration). Much smaller pair of downward curved, chitonized, median dorsal hooks appear to occur on last abdominal segment (see illustration). The prominent hooks are key characters for separating G. coffeae from other subterranean species in Florida.

Abstracted from: Florida Dept. Agr. Entomology Circular No. 43 (Dec. 1965) by G. W. Dekle



Anal lobes of adult female
(Illus. by R. E. Woodruff)

Literature Cited:

- Beardsley, J. W. 1959. Notes and Exhibitions. Hawaiian Ent. Soc. Proc. 17(1):10-11.
- Green, E. E. 1933. New Coccidae from Dutch Guiana. Stylops 2:49-58.
- Strickland, A. H. 1947. Coccids Attacking Cacao (Theobroma cacao L.) in West Africa, with Descriptions of Five New Species. Bul. Ent. Res. 38:497-523.
- Williams, J. D. 1958. The Mealy-Bugs (Pseudococcidae: Homoptera) Described by W. M. Maskell, R. Newstead, T. D. A. Cockerell and E. E. Green from the Ethiopian Region. Bul. British Mus. (Nat. Hist.) Ent. 6(8):205-236.



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

EUROPEAN CORN BORER adults heavy in light traps in several areas; first-generation borer counts highest since 1960 in Illinois, damage heavy in southeast Nebraska; second-generation hatch beginning in Missouri. (pp. 772, 773). FLEA BEETLES abundant on corn in Hudson Valley, New York, and southeast Nebraska, causing heavy damage to sorghums in Gila Valley of Arizona (p. 773); destroying young cole crops in Willamette Valley, Oregon, (p. 781). CORN ROOTWORMS adults heavy on corn in some areas; silk pruning critical in some fields in Missouri. (pp. 773, 774). GRASS-HOPPERS heavy in roadsides and field margins in some areas. SPIDER MITES abundant on corn in Colorado and damaging in Nebraska (774); damaging soybeans in Maryland and Missouri (p. 776); major problem on cotton in South Carolina, considerable damage to cotton in western Tennessee (p. 780); main concern of fruit growers in Missouri. (p. 784).

WEBWORM moths heavy in alfalfa in some areas; larvae of concern in this crop in some Central States. BEET WEBWORM egg masses prevalent on sugar beets in eastern North Dakota. (pp. 776, 780).

BOLL WEEVIL continues to increase in western Tennessee and northern Alabama; below normal for time of year in Louisiana; extremely low in South Carolina where good control program followed. BOLLWORM infestations continue to increase in some cotton-growing areas, remain low in others. PLANT BUGS most destructive pests in cotton in New Mexico; problem in some areas of Arizona and California; also active in other areas. (pp. 777-779).

COLORADO POTATO BEETLE damage to potatoes in Utah more severe than ever observed; species spreading to new areas. GREEN CLOVERWORM moth flight heavy in Michigan; larvae increasing on beans in Delaware. CABBAGE LOOPER moth catches unusually high for time of year on Eastern Shore of Virginia. (pp. 780-782).

FACE FLY severe on pastured cattle in Vermont; increasing in Utah and Michigan; numbers low in other areas. (p. 788). Additional JAPANESE BEETLE adult finds made in Michigan, Indiana and Ohio. GYPSY MOTH egg masses common in Duck Lake infested area in Michigan. (pp. 789, 790).

Outlook

Hessian FLY potential problem in Missouri. (p. 774). Heavy POTATO TUBERWORM infestation in eastern Virginia provides nucleus for infestation of late potato crop. (p. 791). This may be one of worst seasons for BEAN APHID on sugar beets in Washington. (p. 780). An OAK LEAF TIER expected to cause additional mortality of red oaks on several thousand acres in Pennsylvania. (p. 786).

Detection

- WHITE GARDEN SNAIL reported in local area of Los Angeles County, California. Delimiting survey underway. Pest not known to occur in U. S. (p. 791).

New State records include HOLLYHOCK WEEVIL in Alabama (p. 785) and a MEALYBUG in Pennsylvania (p. 786).

For new county records see page 791.

Reports in this issue are for week ending August 5 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	771
Insects Affecting	
Corn, Sorghum, Sugarcane.....	772
Small Grains.....	775
Turf, Pastures, Rangeland.....	775
Forage Legumes.....	775
Soybeans.....	776
Peanuts.....	777
Cotton.....	777
Sugar Beets.....	780
Miscellaneous Field Crops.....	780
Potatoes, Tomatoes, Peppers.....	780
Beans and Peas.....	781
Cole Crops.....	781
Cucurbits.....	782
General Vegetables.....	782
Deciduous Fruits and Nuts.....	783
Citrus.....	784
Small Fruits.....	785
Ornamentals.....	785
Forest and Shade Trees.....	785
Man and Animals.....	787
Stored Products.....	789
Beneficial Insects.....	789
Federal-State Plant Protection Programs.....	789
Insect Detection.....	791
Corrections.....	791
Hawaii Insect Report.....	792
Light Trap Collections.....	793
Boll Slicing: A Scouting Method for Boll Weevil.....	795
Survey of Forage Crop Insects in Massachusetts in 1966.....	796

WEATHER OF THE WEEK ENDING AUGUST 8

HIGHLIGHTS: (1) Violent frontal weather. (2) Cool East; hot West.

The week began and ended with a strong cold front pushing southeastward from the Canadian border. Most of the Country bore the brunt of intense shower activity as these frontal zones moved toward the gulf. High winds, hail, heavy rain, and funnel clouds accompanied localized thunderstorms from the Dakotas southward. Flash flooding was common along the eastern front ranges of Colorado. On Wednesday and Thursday range and forest fires started by lightning destroyed over 15,000 acres in the Garden Valley district of Idaho. By Monday the largest fires were still out of control in the Boise National Forest. Much of the Southeast received heavy rain when the first front became stationary from Texas through South Carolina.

Weather continued on page 782.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Damaging early potatoes in Weld County. (Hantsbarger, Urano).

ARMYWORM (Pseudaletia unipuncta) - SOUTH DAKOTA - Larvae noted on millet near Britton, Marshall County. (Durland). MINNESOTA - Larvae extremely light in grain fields in northwest district; should present no problem. (Minn. Ins. Rpt.). ILLINOIS - Larvae notched leaves of many corn plants throughout northern half of State and fed on occasional silks, but no serious damage observed. Larvae full grown and left many fields; doubtful if any serious damage will occur this season. (Ill. Ins. Rpt.). MICHIGAN - Damaging few fields of oats in Upper Peninsula counties of Schoolcraft and Marquette. Eggs of parasitic tachina fly evident on Marquette County specimens. (Nyquist et al.).

BEEF LEAFHOPPER (Circulifer tenellus) - COLORADO - Counts on sugar beets 0-30 per 100 sweeps throughout Arkansas Valley. (Schweissing).

CORN EARWORM (Heliothis zea) - NEW JERSEY - Eggs noted on silks of sweet corn in southern counties. (Ins.-Dis. Newsltr.). DELAWARE - Adults noted in several fields throughout State; averaged 3-4 per night in Sussex County blacklight traps. (Burbutis, Davis). MARYLAND - Moths increasing steadily in blacklight traps on Eastern Shore. Ear infestations light to medium on mature sweet corn in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). INDIANA - First larval infestation of season found on field corn in Washington County August 3. Early stages infesting 8 percent of ears in one field. (White). MINNESOTA - Few larvae found in silks and ears of corn in central district. (Minn. Ins. Rpt.). NEBRASKA - Present in many corn fields in eastern section; infestation over 20 percent in 2 fields in Saunders County. (Rhine). OKLAHOMA - Moderate to heavy in grain sorghum in Caddo and Cleveland Counties, light in Payne County. Ranged 3-4 per 10 sweeps in alfalfa in Grady and Jackson Counties. Counts per 100 terminals in peanuts 20 in Caddo and 12 in Greer Counties. (Okla. Coop. Sur.). COLORADO - Small numbers appearing on corn throughout Arkansas Valley. (Schweissing). Eggs 3-15 per 10 corn silks in Mesa, Montrose and Delta Counties; some increase in deposition noted. Controls applied in some fields. (Bulla). OREGON - First larvae of season noted in ears of sweet corn in Medford, Jackson County. (Berry).

CORN LEAF APHID (Rhopalosiphum maidis) - MARYLAND - Populations ranged light to very heavy on field corn on the lower Eastern Shore. One 5-acre field in western Wicomico County 100 percent infested. (U. Md., Ent. Dept.). VIRGINIA - Infesting corn in Giles County. Lady beetle adults 3-5 per plant; should keep aphids under control. (Isakson). OHIO - Present on corn in Delaware, Union, Auglaize, Mercer, Darke, Preble, Warren and Franklin Counties. Number of plants infested per field ranged 5-70 percent. Coleomegilla maculata, Orius insidiosus and Hippodamia convergens, numerous in most fields. (Rose). MICHIGAN - Colonies widespread; damage in 1966 will largely be limited to fields affected by drought and possibly late-planted fields. (Janes). INDIANA - In southern third of State, approximately 70 percent of field corn not yet tasseled infested; 25 percent of plants with counts in excess of 150 individuals. Total infestations on tasseled corn in area 8-32 percent; 4-8 percent moderate to heavy. In northern third of State, field corn with tassels in whorl with infestations of 20-100 (average 30) percent. Approximately 10-16 percent moderate to heavy. (Huber, White). ILLINOIS - Apparently reached peak in western area where 39 percent of corn plants infested, 15 percent heavy. Lady beetles and syrphids abundant in these fields. (Petty). Populations increasing in northern areas, with 11 percent of plants infested in northwest district and 15.6 percent in northeast district. In latter districts, lady beetle adults and eggs abundant but larvae scarce. Few syrphid larvae present. No parasitism evident. (White). MINNESOTA - Colonies in corn decreased rapidly. Extremely high numbers of lady beetles, lacewings and syrphid larvae present and exerting good control. Some parasitism evident but predators more important in control. (Minn. Ins. Rpt.). NORTH DAKOTA - Increasing in corn in southeastern area. Colonies evident in all fields with several thousand found in tassels of late planted corn; lower in earlier tasseled plants. Lady beetles and green

lacewings evident in all fields; populations of 3-4 per plant found in most fields. (Brandvik). SOUTH DAKOTA - Very heavy on 10 percent of corn tassels in field near Mitchell, Davison County; general in all fields sampled. (Kantack). OKLAHOMA - Continues heavy on grain sorghum in Grady County; up to 150 per plant on 40 percent of plants in Tillman County; light in Payne County. Heavy on late corn in Jackson County. (Okla. Coop. Sur.). NEW MEXICO - Aphids, mostly this species, very abundant on grain sorghum in Chaves County. Several growers treated. (Mathews). Very light on field corn near Estancia, Torrance County. (Heninger). COLORADO - Colonies present on 3-4 per 10 corn plants in Weld County. Lady beetle larvae 1-3 per aphid colony and reducing population. (Jenkins). Continues to appear on corn in all areas of Arkansas Valley, but not at economic levels. Found in all sorghum checked in Arkansas Valley. (Schweissing). WYOMING - Increasing in corn in Goshen and Platte Counties; 80-200 per plant. (Marks). NEVADA - Medium infestations generally present on barley in Orovida, Humboldt County. Some spots heavy with honeydew. (Lundahl).

HORNWORMS (*Manduca* spp.) - NORTH CAROLINA - Extremely light throughout tobacco-growing areas during last week of July. (Robertson).

POTATO LEAFHOPPER (*Empoasca fabae*) - NEW YORK - Damage in alfalfa evident in several fields in central and northeast portions of Dutchess County; 10-15 nymphs per 100 sweeps. (N. Y. Wkly. Rpt., Aug. 1). NEW JERSEY - Ranged 20-176 (average 63) per 25 sweeps in central part of State. (Ins.-Dis. Newsltr.). DELAWARE - Adults and nymphs common in some untreated lima beans in Kent and Sussex Counties. (Burbutis, Davis). OHIO - Causing injury to some second-growth alfalfa in Mahoning and Columbiana Counties; ranged 3-22 per sweep on alfalfa in Delaware, Auglaize, Mercer and Clinton Counties. Largest populations noted in Clinton County but damage insignificant. Minor populations observed on soybeans in Franklin and Darke Counties. (Rose, Flessel). NEBRASKA - Averaged 309 per 50 sweeps in Saunders County alfalfa field. (Kindler, Lindekugel).

POTATO PSYLLID (*Paratrioza cockerelli*) - WYOMING - Adult counts decreasing slightly in potato fields in Laramie and Goshen Counties. No adults found in Laramie County. Averaged 0.75-1 per 100 sweeps in Goshen County. (Marks).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - MICHIGAN - Adults low in alfalfa; however, incidence of aster yellowes on celery, lettuce, onions and carrots high in practically all muck-vegetable areas of Lower Peninsula. (Guyer, Wells).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEVADA - Heavy in alfalfa seed fields in Dixie Valley, Pershing County. Honeydew heavy. (Brinkerhoff, Martinelli). UTAH - Moderate in succulent second-crop alfalfa in Millard County. (Knowlton). WYOMING - Remains low in Goshen County alfalfa; 8-12 per 10 sweeps. (Marks). COLORADO - Increasing rapidly in alfalfa in Arkansas Valley, due primarily to migration of winged forms; 20-4,000 per 100 sweeps. Hot weather with adequate moisture from irrigation provides optimum environment for continued increase. (Schweissing). NEW MEXICO - Light to moderately heavy in Bernalillo and Chaves County alfalfa. (Mathews, Heninger).

TOBACCO BUDWORM (*Heliothis virescens*) - ALABAMA - Heavy flight noted in Monroe County. (Ledbetter et al.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - Few moths taken in blacklight trap in Hudson Valley. Moth emergence building up slowly. (N. Y. Wkly. Rpt. Aug. 1). DELAWARE - Adults continue to increase in blacklight trap in Sussex County; averaged 38 per night. (Burbutis, Davis). MARYLAND - Adults heavy in light traps; averaged 115 per night at Centreville, 141 at Snow Hill week ending August 2. (U. Md., Ent. Dept.). MICHIGAN - Adults increasing in blacklight traps; laying eggs for second brood. (Newman, Wells). INDIANA - Adult trap catches heavy in Posey County; 402 during period July 22-28. (Huber). ILLINOIS - First-generation

borer counts higher than in 1965; highest since 1960 in west-southwest district. (White). IOWA - Pupation 98 percent with 52 percent emergence at Ames July 20. In Marshalltown, 40 percent pupation and no emergence. (Iowa Ins. Inf.). MINNESOTA - Second-generation moth emergence up to 20 percent in southeast and south central districts. Development mostly in pupal stage in these districts. In west central district, 70 percent of larvae in fourth and fifth stages. In northwest district, 60 percent of larvae in second and third stages, 40 percent fourth stage. (Minn. Ins. Rpt.). NORTH DAKOTA - Larval feeding evident in up to 80 percent of plants in some fields in northeastern counties. Borers per 100 plants by county: Pembina 126, Walsh 49, Grand Forks 232, Traill 37, Nelson 72. In Cass and Richland Counties, larvae caused up to 20 (average 6) percent tassel breakage in some fields; 68 percent of larvae fifth stage, 21 percent fourth, 11 percent third. (Brandvik). SOUTH DAKOTA - Second-brood adults noted July 25 at Brookings. Egg laying period for second brood quite long, thus control difficult. Late planted fields should be checked for egg masses. (Jones). Late first-brood larvae in 50 percent of cornstalks in field near Estelline, Hamlin County. (Balsbaugh, Jones). NEBRASKA - First-generation damage heavy in southeast, lighter than usual in central and northeastern areas. Moths flying and ovipositing in all areas. (Rhine). MISSOURI - Adult emergence nearly complete in extreme northern areas. Egg masses on susceptible corn 57-153 per 100 plants. Hatch of second generation beginning. Infestation expected to increase. (Houser, Thomas, Peters). MISSISSIPPI - Larvae moderate in corn in Marshall County; pupation not yet begun. (Dinkins).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - MISSISSIPPI - Second-generation adults emerged in Oktibbeha County week of July 29. Second-generation larvae pupating in Marshall County. (Dinkins).

FALL ARMYWORM (*Spodoptera frugiperda*) - COLORADO - Small numbers appearing on corn throughout Arkansas Valley. (Schweissing). OKLAHOMA - Present in 100 percent of terminals in late corn in Jackson County; light in grain sorghum terminals in Tillman and Payne Counties. (Okla. Coop. Sur.). MISSISSIPPI - Moderate to heavy and causing heavy damage to young corn in Oktibbeha County. (Dinkins). MARYLAND - Light to medium in late field corn in Frederick and Montgomery Counties. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ARIZONA - Light on sorghum in Maricopa County. Damage light but some increase noted. (Ariz. Coop. Sur.).

FLEA BEETLES - NEW YORK - *Chaetocnema pulicaria* abundant in Hudson Valley corn. Late plantings should be checked for wilt. (N. Y. Wkly. Rpt., Aug. 1). MARYLAND - *C. pulicaria* adults caused heavy foliage injury to field corn in Queen Annes and Wicomico Counties. (U. Md., Ent. Dept.). NEBRASKA - *C. pulicaria* present in large numbers on some corn in southeastern area. (Hill). SOUTH DAKOTA - *Systena frontalis* present on weeds and corn near Norway Center, Lincoln County; up to 8 adults per cornstalk. Damage primarily on leaves of weeds. (Balsbaugh, Jones). ARIZONA - *Chaetocnema ectypa* continues heavy on sorghums and Sudan grass in Gila Valley. Heavy damage noticeable; averaged 800 per 100 sweeps. (Ariz. Coop. Sur.).

SAP BEETLES - NEW YORK - *Carpophilus dimidiatus* adults damaging grain of corn ears in some Hudson Valley fields. (N. Y. Wkly. Rpt., Aug. 1). ILLINOIS - *Glioschrochilus quadrisignatus* adults abundant in corn infested by aphids or European corn borer in northern areas. (White). GEORGIA - Larvae of unspecified species moderate on sweet corn in Cobb County. (Lanier).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - COLORADO - Large numbers of adults damaging corn silks in few Otero County fields. (Schweissing). Adults light to moderate on corn in Mesa, Montrose and Delta Counties; at high level in occasional field. (Bulla). WYOMING - Adult damage to corn silks evident in many fields in Goshen and Platte Counties. Adults 6-10 per corn plant in most heavily infested fields. (Marks). MISSOURI - Sharp increase in adult emergence occurred in research plots in Atchison County August 1. (Musick). Adult emergence nearly complete; 1-10 adults per plant in random fields. Silk pruning critical in some fields. (Houser, Thomas, Peters). Adults collected from corn in Columbia, Boone County,

August 3. This new county record. (Puttler). ILLINOIS - Adults abundant on corn in Mercer County (Petty); 2 adults found in one field in Whiteside County for a new county record (White).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - ILLINOIS - Adults abundant all over northern half of State. (White, Petty). INDIANA - Adults 6-16 per silk in few areas throughout northern two-thirds of State. Adult activity heavy in Scott County. Generally, 1-2 adults per silk present on 20-55 percent of corn in northern third of State. (Huber). OHIO - Variable populations noted in central and west central sections. Populations heaviest in Preble and Franklin Counties. (Rose et al.). MARYLAND - Adults noted on corn silks at Fairland, Montgomery County. (U. Md., Ent. Dept.).

CORN ROOTWORMS (Diabrotica spp.) - SOUTH DAKOTA - Extensive root damage to corn observed in some fields in Clay, Moody, Lincoln, McCook, Minnehaha, Turner, Yankton, Lake and Charles Mix Counties. Control good in most treated fields. Heavy, with severe lodging prevalent in 3 fields where partial control obtained. Fields sprayed in southeastern area for control of D. virgifera adults. Emergence this year well ahead of silking period; considerable silk damage evident. Adults 15-80 per stalk in some fields with 25-30 per stalk common. (Jones). D. virgifera adults up to 35 per stalk in corn near Norway Center, Lincoln County. In some Yankton County fields, 40-80 adults per stalk; average 30 per stalk. (Kantack, Jones). NEBRASKA - Adult populations high in some parts of southeast area. Some still emerging in late silking fields in Saunders County. (Rhine). IOWA - Populations generally low throughout State. (Iowa Ins. Inf.). MINNESOTA - Adult emergence nearly complete in southeast, east central and central districts. D. longicornis predominant species. (Minn. Ins. Rpt.). OHIO - D. undecimpunctata howardi adults noted in 2 fields in Preble and Warren Counties; 5-20 percent of silks infested, damage light. (Rose).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - COLORADO - Abundant in milo in Mesa and Delta Counties; controls necessary. (Bulla).

TARNISHED PLANT BUG (Lygus lineolaris) - OHIO - Adults and nymphs common on corn in central area. Adults 3-4 per plant in Darke County field. (Rose).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Heavy and damaging forage sorghum in McClain and Logan Counties. Very spotty but killing plants in infested fields. (Okla. Coop. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Heavily damaged several fields of late-planted grain sorghum in Milam County. (Moore).

SPIDER MITES - NEBRASKA - Heavy numbers common on corn in central, south and northwest areas; many fields sprayed. Damage noted on lower leaves of some fields in Cuming and Saunders Counties. This farthest east damage on corn observed in State. (Rhine). COLORADO - Tetranychus spp. numbers high in many untreated corn fields in Crowley and Otero Counties. Some fields treated with systemic insecticides showing infestations on lower leaves. (Schweissing). Moderate to abundant on corn in Mesa, Montrose and Delta Counties; injury evident. Mites up to fifth and sixth leaves. (Bulla). Light to moderate and found in all sorghum checked in Arkansas Valley. (Schweissing). WYOMING - Unspecified species light to medium on up to 3-4 corn leaves above ground in Goshen and Platte Counties. Controls applied in some areas. (Marks). UTAH - Tetranychus spp. damage unusually severe on field and sweet corn throughout Weber County. (Knowlton, Boyer). CALIFORNIA - Oligonychus stickneyi medium on sorghum seed heads in Blythe, Riverside County. (Cal. Coop. Rpt.).

BANKS GRASS MITE (Oligonychus pratensis) - NEW MEXICO - Light populations building up in corn near Estancia, Torrance County. (Heningr).

SMALL GRAINS

HESSIAN FLY (*Mayetiola destructor*) - MISSOURI - Stubble survey in 5 counties completed with following results. Percent infested straws: Ralls 9.0, Carroll 0.2, Holt 0.7, Lafayette 8.5, Barton 12.7. Puparia per 100 straws: Ralls 12.3, Carroll 0.2, Holt 1.0, Lafayette 10.5, Barton 22.5. (Brown). Potential problem could develop in northeast, west central and southwest counties. (Thomas et al.).

BARLEY THRIPS (*Limothrips denticornis*) - NORTH DAKOTA - Damage evident as barley fields mature. Up to 15-20 percent broken straws in some infested fields in Walsh, Pembina, Nelson, Grand Forks and Traill Counties. (Brandvik).

TURF, PASTURES, RANGELAND

SOD WEBWORMS - SOUTH DAKOTA - Appearing in some lawns; will probably become prevalent during August. (Jones). NEBRASKA - Crambus spp. heavy in areas of Hamilton and Lancaster Counties. (Cranfill, Roselle).

FALSE CHINCH BUG (*Nysius ericae*) - UTAH - Largely this species numerous about some farms in Maeser and Vernal areas and on range at Oaks Park, at 9,100 feet elevation in Uintah Mountains, Uintah County. (Knowlton).

LEAFHOPPERS - OREGON - Causing severe damage to field of seedling ryegrass in Linn County. (Capizzi).

A MARCH FLY (*Dilophus orbatus*) - CALIFORNIA - Locally heavy in lawns in South San Francisco, San Mateo County. (Cal. Coop. Rpt.).

FORAGE LEGUMES

PEA APHID (*Acyrtosiphon pisum*) - NEVADA - Heavy in Lovelock, Pershing County, alfalfa; controls applied. (Ferraro, Martinelli). Heavy in alfalfa hay in Orovida, Humboldt County; causing plants to shrivel and dry. (Day, Lundahl). Averaged 30 per sweep in hay fields in Fallon, Churchill County. (Cooney). UTAH - Damaged many alfalfa fields, controls required in Sevier County. (Knowlton). WYOMING - Adults and nymphs 70-80 per 10 sweeps in alfalfa in Laramie, Goshen and Platte Counties. (Marks). COLORADO - Low and decreasing on alfalfa in all areas of Prowers, Bent, Otero, Crowley and Pueblo Counties; 0-400 per 100 sweeps. (Schweissing). Low in Huerfano County alfalfa; 100 per 100 sweeps. (Jenkins). Few still present in Mesa County alfalfa fields where convergent lady beetle adults and larvae range 150-200 per 100 sweeps. (Bulla). NEW MEXICO - Mostly light in alfalfa in Bernalillo, Torrance and Chaves Counties. (Heninger, Mathews).

TARNISHED PLANT BUG (*Lygus lineolaris*) - NEBRASKA - Adults 276, nymphs 356 per 50 sweeps in alfalfa in Saunders County. (Kindler, Lindekugel). OHIO - Ranged 2-6 per sweep in alfalfa in Auglaize, Mercer and Clinton Counties. (Rose).

LYGUS BUGS (*Lygus* spp.) - COLORADO - Vary 0-50 per 100 sweeps in Arkansas Valley alfalfa. (Schweissing). UTAH - Adults and nymphs present in most alfalfa seed fields in Millard County. Repeated control applications resulted in shortage of honey bee and wild bee pollinators, most fields inadequately pollinated. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Infestations increasing in Pinal and Maricopa County alfalfa; 900 per 100 sweeps. (Ariz. Coop. Sur.).

LEAFHOPPERS (*Empoasca* spp.) - INDIANA - Adults and nymphs 2-6 per sweep in southern area alfalfa; 1-9 per sweep on full bloom, second-growth alfalfa in northern third of State. (Huber, White).

GARDEN WEBWORM (Loxostege similalis) - ARKANSAS - Necessitated treatment of alfalfa research plots in Washington County. (Boyer). MISSOURI - Heavy moth flights in alfalfa occurring in central and northern areas. Some fields over State remain severely infested with larvae. (Houser). NEBRASKA - Heavy in some alfalfa in Richardson County. (Aitken). IOWA - Active in alfalfa in Madison, Dallas and Taylor Counties. Large number of moths taken in Columbus Junction light trap. Adults active in Mahaska County alfalfa. (Iowa Ins. Inf., Aug. 1).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Heavy in alfalfa in Noble and Mayes Counties, light in Bryan County. Moth flights heavy in Grady County. (Okla. Coop. Sur.). KANSAS - Continue of concern in alfalfa. (Simpson).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Moderate in alfalfa and sorghum in most areas of Maricopa County. Damage light to moderate. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Small infestations found in alfalfa throughout Maricopa County. Few moderate infestations found on sorghums. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - NEW MEXICO - Infestation widespread but larvae 5-10 per 25 sweeps in Pajarito area alfalfa, Bernalillo County. (Heninger). COLORADO - Larvae appearing in alfalfa in Crowley and Otero Counties; 0-40 per 100 sweeps. (Schweissing). VIRGINIA - Counts per 100 sweeps by county: Giles 14 adults, 8 larvae; Botetourt 2 adults, 9 larvae; Floyd 1 adult, 22 larvae. (Pienkowski). NEW YORK - Some still found in Dutchess County though damage light. Second cutting of alfalfa light in many areas due to drought. (N. Y. Wkly. Rpt., Aug. 1).

SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults causing light to moderate foliage injury to soybeans on Eastern Shore. (U. Md., Ent. Dept.). VIRGINIA - Adults 5-10 per 10 row feet on soybeans in southeast area. (Isakson). NORTH CAROLINA - Most common economic insect present in 12 soybean fields examined in Johnston, Wayne, Beaufort and Washington Counties. Averaged 21.3 for 25 feet of row surveyed by shaking method; ranged 1-89. (Mount). MINNESOTA - Damaging soybeans in southeastern Renville County, some fields treated. (Minn. Ins. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Adults 2 per row foot on soybeans in Nansemond County. (Isakson). GEORGIA - Light in 3 of 25 soybean fields (1,000 acres) in Bleckley County. (Lawson).

GREEN CLOVERWORM (Plathypena scabra) - MARYLAND - Light on soybeans near Salisbury, Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Larvae 5 per 10 row feet on soybeans in Isle of Wight County. (Isakson).

GARDEN WEBWORM (Loxostege similalis) - NEBRASKA - Moved into soybeans when alfalfa cut; heavy in some areas of Richardson County. Some controls applied. (Aitken). ARKANSAS - Severely damaged field of soybeans in Randolph County. (White).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Damaging soybean plants in several fields in Bleckley County. (Lawson).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - MARYLAND - Damaging in many soybean fields in Wicomico and Dorchester Counties. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - MISSOURI - Damaging soybeans in central areas. (Craig).

PEANUTS

GRANULATE CUTWORM (*Feltia subterranea*) - ALABAMA - Full-grown larvae heavy in peanut fields in Houston, Geneva and Henry Counties. Larvae 20-30 per plant on farm in Geneva County. (Ledbetter et al.).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Light in peanuts in Geneva and Henry Counties. (Reynolds, Dennis et al.). OKLAHOMA - Averaged 8 per 100 terminals in peanuts in Fort Cobb area, Caddo County. (Okla. Coop. Sur.).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Averaged 24 per 100 terminals in peanuts in Greer County; light in Caddo County. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - GEORGIA - Light to moderate in Calhoun County peanuts. (French, Womack).

CUTWORMS - GEORGIA - Light in 13 of 18 fields in Bleckley County. Light to heavy across peanut belt. (French).

SPIDER MITES - GEORGIA - Moderate to heavy on peanuts in Pulaski and Dooley Counties. (Alligood, Hamilton).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Punctured squares averaged 9.5 percent (maximum 20.6) in 7 treated fields, and 26.3 percent (maximum 44.6) in 23 untreated fields in Waco area. (Cowan et al.). For Boll Weevil in High Plains area, see page 790. OKLAHOMA - Infestation 25-30 percent in Grady County, most fields at or below 10 percent. Up to 15 percent in Jackson County, 4-6 percent in Kiowa and Tillman Counties; 10-25 percent in Okmulgee and Sequoyah Counties; moderate in Caddo and Bryan Counties. (Okla. Coop. Sur.). ARKANSAS - Of 5,703 fields scouted, 71 percent infested compared with 63 percent last period. Twenty percent had infestations above recommended treatment level compared with 5.4 percent last week. (Barnes, Boyer). LOUISIANA - Infestations increased where rains occurred; up to 50 percent punctured squares in "hot spots". "Hot spots" spreading over some fields in northeast area. Infestation below normal for time of year over State. (Tynes, Aug. 1). Punctured squares 4.8 percent in 181 fields in Madison Parish; ranged 1-41 percent in 139 fields. (Cleveland et al., Aug. 4). MISSISSIPPI - Second generation emerging in Pontotoc County; punctured squares 60 percent in untreated fields, 10-15 in treated fields. Percent punctured squares in other counties as follows: Marshall 2-3; De Soto 5; Tunica 5-60; Tallahatchie 5; Panola 20-40; Carroll 5-16; Yazoo 4-45; high in local spots. Punctured squares light in Coahoma County. (Dinkins, July 29). Second generation emerging in Chickasaw, Lee and Itawamba Counties. Punctured squares 5-30 percent in each county according to area; 20-60 percent in Pontotoc County. In northwestern area, percent punctured squares by county: Marshall 10-30, Tunica 20-50, Coahoma 3-4, Tallahatchie 5-30, Panola 20-60. In west central area, counts 10-12 percent in Carroll County, 4-8 percent in Yazoo County. Weevils emerging in Carroll County. (Dinkins). Infestations increased in several test plots in delta counties. Of 27 fields, 22 averaged 3.8 percent punctured squares. (Pfrimmer et al., Aug. 4). ALABAMA - Continues to increase in northern part of State. No general increase in central and southern sections. (McQueen).

GEORGIA - Average percent punctured squares by county: Screven 10, Bleckley 6; Worth 1 and 4 in well-treated fields. (Scott et al.). TENNESSEE - Increase continues; some fields in western area with 95 percent punctured squares where no control started. Conditions ideal for increase. Some local migration to late cotton occurring. Infestations heavy in southeastern portion of infested area. Long range migration to counties bordering infested counties should begin by August 15. (Locke). SOUTH CAROLINA - Infestations continue extremely low for time of year where good control program followed. Weevil migration reported only in Jasper and Allendale Counties. (Cott. Ltr., Aug. 1). Migrating in Florence area

although populations still low. Adults 0-2 per 100 squares in treated plots, 0-5 in untreated plots. Percent larval infestation 1-12.8 in treated plots, 14-50 in untreated plots. (Taft et al., Aug. 3). NORTH CAROLINA - Punctured squares ranged 0-10 percent and averaged 3 percent in 13 fields in Union County, August 2; twelve fields treated 5-7 times and one treated 10 times. (Robertson).

BOLLWORMS (*Heliothis* spp.) - NORTH CAROLINA - Present in only 2 of 13 fields examined in Union County, August 2. Percent infested terminals in these fields 1 and 6. (Robertson). SOUTH CAROLINA - Surveys indicated another buildup of larvae and eggs. Egg counts increasing throughout coastal counties; expected in Piedmont areas soon. (Cott. Ltr., Aug. 1). Populations increasing in many areas with difficult control reported. Percent larval infestation in Florence area, 2.3-16.4 in treated plots, 1-4 in untreated plots. Total of 133 *H. zea* and 6 *H. virescens* adults taken in light trap. (Taft et al., Aug. 3). GEORGIA - Counts per 100 terminals by county: Bleckley 0-17 eggs, 0-6 larvae; Screven up to 38 eggs and 49 larvae; Worth 54 eggs, 9 larvae and 44 eggs, 3 larvae in 2 fields. (Lawson et al.). ALABAMA - Present in all counties; however, minor problem in most. High counts continue in Perry, Monroe and Fayette Counties. Egg laying light to heavy; becoming more noticeable on squares, bracts, old blooms and small bolls, and less common on terminal growth leaves. Larvae common on first and second-day blossoms. (McQueen). TENNESSEE - Continue to increase over western area. Not all fields infested; counts 1-10 eggs or larvae per 100 terminals in infested fields. Control levels reached in most infested fields. (Locke). MISSISSIPPI - *H. zea* and *H. virescens* generally light, but large numbers of eggs in most fields indicate infestations could increase to damaging levels next few days if not controlled. In some fields, eggs one per terminal. (Dinkins). Larvae more readily found in delta counties since recent rains. Of 27 fields, 13 with 1 percent square injury (maximum 11). Eggs found in terminals in 4 fields; however, many eggs on bracts and blossoms. (Pfrimmer et al., Aug. 4). First and second-stage larvae of *H. zea* and *H. virescens* 1-6 per 100 terminals, eggs 1-5. Infestations light in northern delta counties. (Dinkins, July 29).

LOUISIANA - Infestations increasing rapidly. Number of moths in fields in Shreveport area highest this year. Early morning egg counts as high as 20 per 100 terminals. Predators numerous; holding populations down but fields should be checked often. (Tynes, Aug. 1). Percent damaged squares 1-12 in 161 of 181 fields in Madison Parish. Larvae found in 74 fields; infestation 1-4 percent. Eggs 1-17 per 100 terminals in 61 of 181 fields. Larvae 1-10 per 100 terminals in 50 fields infested. (Cleveland et al., Aug. 4). ARKANSAS - Present in 55 percent of fields, with 1.1 percent having above 8 percent damaged squares, compared with 0.8 percent last week. (Barnes, Boyer). MISSOURI - Larvae ranged 1-5 and eggs 1-9 per 100 terminals in 22 percent of 621 fields scouted in southeastern "delta" area, but beneficial insects were effectively controlling the infestation. (Jones). OKLAHOMA - *H. zea* larval infestation up to 50 percent in some areas of Grady County. Eggs on 15 percent of plants in Jackson County; damage up to 30 percent in few fields. Eggs present on 0-28 percent and larvae on 0-20 percent of plants in Greer, Kiowa and Tillman Counties. Heaviest moth flights of season underway in Grady and Jackson Counties. (Okla. Coop. Sur.). TEXAS - Infestation remains very light with only occasional irrigated field treated in Waco area. In 9 treated fields, eggs 0.8 and larvae 2.0 per 100 terminals. In 23 untreated fields, eggs 0.9 and larvae 1.0 per 100 terminals (maximum 16 eggs and 16.5 larvae). Square injury 2.2 percent in 7 treated fields (maximum 3.2); averaged 0.8 percent (maximum 6.5) in 23 untreated fields. Injured bolls averaged 1.6 percent in 9 treated fields (maximum 3.2). In 20 untreated fields, averaged 0.5 percent (maximum 3.5). Of 212 larvae determined, 37 percent *H. virescens*. (Cowan et al.). NEW MEXICO - *H. zea* light to moderate and spotty in cotton in Roswell and Artesia areas in Pecos Valley. Only few fields treated. (Campbell). Larvae very light to light in cotton near Deming, Hermanas and Columbus, Luna County. (Hare). ARIZONA - Populations continue light and spotted in Pima, Pinal, Maricopa and Yuma Counties with only an occasional moderate infestation. Increased in Graham County but still light. (Ariz. Coop. Sur.). CALIFORNIA - In Imperial County moth activity and egg laying on increase. Egg counts in fields surveyed 0-15 per 25 terminals. Most eggs not yet hatched. In Kern County, found more frequently in sweep counts than

in past 3 weeks, mostly small larvae. Shafter area reports sharp increase in moth flights. (Campbell, Black).

CABBAGE LOOPER (Trichoplusia ni) - NORTH CAROLINA - Moderate in most cotton examined recently in Wayne County. (Lamm). ALABAMA - Second-generation larvae light to medium in several cotton fields in Greene County. (White et al.). OKLAHOMA - Larvae 1-10 per 20 plants in Jackson County cotton, 2-3 per plant in Grady County. Virus disease killed some larvae in Grady County. (Okla. Coop. Sur.).

LOOPERS - GEORGIA - Light to heavy in most Screven County cotton fields (Hodges); found in several Bleckley County fields (Lawson); heavy in Calhoun County (Womack, French).

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Present in many cotton fields in northeastern area. (Dinkins).

BEE T ARMYWORM (Spodoptera exigua) - MISSISSIPPI - Larvae feeding on cotton blooms in Carroll County; infestation considered light. (Dinkins). ARIZONA - Moderate populations causing light damage to cotton in areas of western Maricopa County. (Ariz. Coop. Sur.).

COTTON LEAFWORM (Alabama argillacea) - LOUISIANA - Appearing in many cotton fields in Church Point area. Although very light, should be watched closely for possible buildup. (Tynes, Aug. 1).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Heavy and damaging cotton foliage in Payne County. (Okla. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - General throughout Yuma Valley cotton; 200-450 per 100 sweeps. Small, light infestations found in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

APHIDS - SOUTH CAROLINA - Light infestations scattered on cotton throughout State. (Cott. Ltr., Aug. 1). GEORGIA - Present in many Bleckley County cotton fields (Lawson); heavy in spots in Screven County (Scott). LOUISIANA - Some small isolated infestations noted on cotton; spotted and should be kept under surveillance. (Tynes, Aug. 1). NEW MEXICO - Aphis gossypii minor problem in cotton in Roswell area, Chaves County. (Mathews).

PLANT BUGS - TENNESSEE - Lygus lineolaris and Adelphocoris rapidus causing light damage over cotton-growing area. Controls not yet necessary in infested fields. (Locke). MISSISSIPPI - L. lineolaris and Psallus seriatus still troublesome in few fields in delta counties. (Pfrimmer et al., Aug. 4). LOUISIANA - L. lineolaris and fleahoppers extremely low in most cotton; however, populations high in several fields in St. Joseph, Shreveport and Church Point areas where no insecticides used. Checking should continue, insecticides applied where justified. As next 4 weeks critical time for fruit set, squares should be protected. (Tynes, Aug. 1). P. seriatus 1-5 per 100 sweeps in 11 of 77 fields in Madison Parish; L. lineolaris 0.8 per 100 sweeps in 77 fields. (Cleveland et al., Aug. 4). MISSOURI - Plant bug adults and nymphs 1-34 per 100 terminals in 81 percent of 621 fields in southeastern "delta" area. Light damage evident. (Jones). NEW MEXICO - Spanogonicus albofasciatus and P. seriatus apparently building up in cotton near Artesia, Eddy County. Probably most destructive pests in cotton at present time. (Campbell).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Problem in some areas. Ranged 1-27 per 50 sweeps in Imperial County. Continue of considerable concern in Kern County; nymphal counts much higher. (Campbell, Black, Aug. 1). ARIZONA - Nymphs continue to damage cotton in Pinal, Pima and Maricopa Counties, although some decrease observed. Increases noted in Yuma and Graham Counties. (Ariz. Coop. Sur.). NEW MEXICO - Apparently building up in cotton near Artesia, Eddy County. These and other plant bugs probably most destructive pests in cotton at present time. (Campbell).

STINK BUGS - CALIFORNIA - Situation serious in some Imperial County areas; up to 15 per 50 sweeps in few fields. (Campbell). NEW MEXICO - Very light to light in Luna County cotton; mostly Chlorochroa ligata. (Hare).

CRICKETS - CALIFORNIA - Nymphs problem in some cotton, mainly in northern Imperial County. Leaf feeding and chewing on bolls severe in some cases. (Campbell).

SPIDER MITES - SOUTH CAROLINA - Continue major problem in many cotton fields. Most problems centered in areas where drought conditions exist. (Cott. Ltr., Aug. 1). TENNESSEE - Continue to increase rapidly where no controls applied; considerable damage occurring over western area. Weather remains favorable for further increase. (Locke). GEORGIA - Heavy in spots in Screven County; appearing in many fields in Bleckley County, moderate to heavy in most fields; heavy in Cordele area. (Hodges et al.). MISSISSIPPI - Tetranychus urticae greatly reduced in cotton by rain in Tallahatche County. (Dinkins, July 29). Spider mites remain problem in many fields in delta counties. In some areas with heavier rainfall, infestations declined. (Pfrimmer et al., Aug. 4). MISSOURI - T. atlanticus present in 12 percent of 621 fields scouted in southeastern "delta" area. Infestation down approximately 50 percent from preceding week. (Jones).

SUGAR BEETS

BEET WEBWORM (Loxostege sticticalis) - NORTH DAKOTA - Up to 22 egg masses per 100 plants found in Pembina, Walsh and Grand Forks Counties. Larvae light, 2 per 100 plants in Pembina County. Adults found in Traill and Grand Forks Counties. Many fields sprayed. (Brandvik). COLORADO - Second-generation larvae 1-2 per 10 sugar beet plants in Weld County. (Jenkins).

BEAN APHID (Aphis fabae) - WASHINGTON - Increasing rapidly on sugar beets in Yakima and vicinity, Yakima County. This may be one of worst seasons for this pest. (Landis).

SAY STINK BUG (Chlorochroa sayi) - COLORADO - Mostly nymphs, 0-5 per plant in most sugar beet fields in Prowers County. (Schweissing).

MISCELLANEOUS FIELD CROPS

HOP APHID (Phorodon humuli) - WASHINGTON - Alates developing on hops, migrations continuing at Toppenish, Yakima County. (Landis).

GARDEN FLEAHOPPER (Halticus bracteatus) - SOUTH CAROLINA - Damaging okra in Laurens County. (Outz, Nettles, Aug. 1).

TARNISHED PLANT BUG (Lygus lineolaris) - NORTH DAKOTA - Nymphs 200 per 100 sweeps in flax near Gilby and Thompson, Grand Forks County. (Brandvik).

PACIFIC SPIDER MITE (Tetranychus pacificus) - CALIFORNIA - Heavy on safflower in Huron, Fresno County. (Cal. Coop. Rpt.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - WYOMING - Very small numbers present in Goshen County potato fields; 0-8 adults per 100 sweeps. (Marks). UTAH - Damage to potatoes at Smithfield, Cache County, more severe than ever observed. Species spreading to new areas. (Knowlton).

FLEA BEETLES (Epitrix spp.) - NORTH DAKOTA - Over 2,000 E. cucumeris per 100 sweeps found in several untreated potato fields in Pembina and Walsh Counties. Averaged 10-14 per 100 sweeps in treated fields. (Brandvik). WASHINGTON - Two E. tuberosa adults collected in potato field at Wapato, Yakima County. Species very rare in recent years. (Powell).

A BLISTER BEETLE (Epicauta sp.) - MARYLAND - Adults heavy on tomatoes near Centreville, Queen Annes County. (U. Md., Ent. Dept.).

BLACK CUTWORM (Agrotis ipsilon) - WISCONSIN - Feeding on potato vines and tubers in Waushara County. (Wis. Ins. Sur.). MICHIGAN - Larvae of this species and Amathes c-nigrum damaged potato tubers in Monroe County field. (Newman et al.).

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Considerable damage noted in Northampton County; some fields abandoned without harvesting. These infested tubers nucleus for potential infestation of fall crop and for harvested potatoes held for seed. (Hofmaster).

Potato Aphids in Maine - Populations generally small. Rate of increase normal at Presque Isle, but below normal in Lee and Houlton districts. Relative abundance of parasitized and of dead, diseased aphids increased substantially at Presque Isle. Fungus-killed aphids more abundant at Lee and Houlton than at Presque Isle. Macrosiphum euphorbiae continues dominant at Presque Isle and Houlton, but Aphis nasturtii more numerous than other species at Lee. Myzus persicae and Acyrtosiphon solani present in low numbers in all 3 areas. (Shands).

TARNISHED PLANT BUG (Lygus lineolaris) - NORTH DAKOTA - Nymphs 200 per 100 sweeps in potatoes near Hensel, Pembina County. (Brandvik).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEW MEXICO - Serious in commercial and home bean plantings in Estancia Valley, Torrance County. (Heninger). COLORADO - Populations continue low in bean fields in Pueblo and Otero Counties. (Schweissing). KANSAS - Heavy and damaging beans at Wathena, Doniphan County. (Eshbaugh). MICHIGAN - Active on beans in Ogemaw County. (Ferris). GEORGIA - Light on southern peas in Decatur County and beans in Turner County. (Barber et al.).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Light traps indicate relatively heavy adult flight over most of State. (Newman). DELAWARE - Larvae increasing on lima beans in Kent and Sussex Counties. (Burbutis, Davis).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WISCONSIN - Nymphs prevalent on lima beans in Rock County; 8 per plant. (Wis. Ins. Sur.).

COLE CROPS

A FLEA BEETLE (Phyllotreta cruciferae) - OREGON - Severely damaging seed turnips in Roseburg area of Douglas County. (Vertrees). Attacking young cole crop plants in Willamette Valley eating many to the ground. (Crowell).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - This species and Brevicornye brassicae caused serious damage to cabbage and other cole crops in Albuquerque area, Bernalillo County. (Heninger). MARYLAND - Larvae light on collards in Caroline County. Moths increasing in blacklight trap at Snow Hill, Worcester County. (U. Md., Ent. Dept.).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW MEXICO - Adults and larvae abundant in cabbage fields in southern Bernalillo County. Damage very evident except where proper controls used. (Heninger).

CABBAGE MAGGOT (Hylemya brassicae) - WISCONSIN - Considerable damage to broccoli, cabbage and radish observed in Kenosha County. (Wis. Ins. Sur.).

CUCURBITS

SQUASH BUG (Anasa tristis) - MARYLAND - Eggs and young nymphs heavy on squash near Centreville, Queen Annes County. (U. Md., Ent. Dept.).

SQUASH VINE BORER (Melittia cucurbitae) - MISSOURI - Adults flying and laying eggs in southeast section. (WKly. Rpt. Fr. Grs., Aug. 3).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - MARYLAND - Populations heaviest in recent years on watermelons in Wicomico County. (U. Md., Ent. Dept.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - VIRGINIA - Moth catches in light traps unusually high for time of year on Eastern Shore; heavy larval populations developed in tomatoes and broccoli plant beds. (Hofmaster). MICHIGAN - Ten adults collected at blacklight traps in Berrien, Branch, Monroe and Gratiot Counties. This very early collection. (Newman).

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Winged and young forms noted in Cape May County on eggplant. (Ins.-Dis. Newsltr.).

A LEAF BEETLE (Gastrophysa sp.) - CALIFORNIA - Heavy adult populations damaging rhubarb in Eureka, Humboldt County. (Cal. Coop. Rpt.).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) - OREGON - Adults general and severely damaging seedling brussels sprouts, cabbage and beans at Roseburg, Douglas County. Many fields replanted. (Vertrees). Damage to pole beans and other vegetable crops continues in Willamette Valley. (Larson).

ONION THRIPS (Thrips tabaci) - COLORADO - Populations on onions vary greatly throughout Arkansas Valley; 0-30 per plant. Infestation decreased past 2 weeks. (Schweissing).

Weather continued from page 770.

Behind the fronts flowed Canadian air. As this cool, dry air moved southward, temperatures plunged and several localities experienced record low temperatures. It was the coolest week since mid-June in most areas east of the Rockies. Average thermometer readings were more than 6° below normal in the southern Great Lakes region and in the Middle Atlantic States. The weather was more typical of autumn than of summer. The western part of the Country, however, was hot. Temperatures climbed to at least 100° for 7 consecutive days in the interior valleys of California, and the hot, dry conditions continued in Nevada. Positive departures from normal of 7° were recorded in Arizona and over 5° in Oregon.

The weekly precipitation pattern reflects the spotty shower activity in the East and the continued dryness in the West. The Southeast received generally wide-spread showers as a result of the stationary front, but the drought in the Northeast was not relieved. Southern New England reported its driest week in more than a month. The area from Evansville, Indiana, to Cincinnati, Ohio, remained arid while some areas to the west of this region received over 4 inches. (Summary supplied by Environmental Data Service, ESSA).

DECIDUOUS FRUITS AND NUTS

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Defoliating pecan trees in Wewoka area, Seminole County. Continues to damage ripening fruit, especially peaches, in many areas. (Okla. Coop. Sur.). ARKANSAS - Feeding on ripe apples July 29 in Carroll County. (Roberts).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Light on peaches in Peach County. (Snapp).

LESSER PEACH TREE BORER (Synanthedon pictipes) - INDIANA - Male captures in virgin female traps continue to oscillate in moderate numbers, from 117 to 143 to 115, during past 3 weeks at Vincennes. (Dolphin, Aug. 1).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Light on pecans in Dougherty County (Teddars, Harris), and Peach County (Snapp). ALABAMA - Considerable increase in larval broods noted on pecans in Mobile County. (Vickery).

PEACH TWIG BORER (Anarsia lineatella) - INDIANA - Adult recoveries from peach bait traps increasing at Vincennes. (Dolphin, Aug. 1).

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - Flights increasing in Columbia County. (N. Y. Wkly. Rpt., Aug. 1). INDIANA - Total of 20 moths collected in bait pans, compared with 11 and 13 during past 2 reporting periods at Vincennes. (Dolphin, Aug. 1). MISSOURI - No activity noted in sprayed orchards. (Wkly. Rpt. Fr. Grs., Aug 3). NEW MEXICO - Light to heavy damage noted in Bernalillo and Sandoval County apple orchards. Very few infested apples found in orchards where good control programs followed. (Heninger).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Significant increase in adult emergence reflected in bait traps in apple trees at Vincennes; 76 adults captured in 5 traps, compared with 19 previous week. (Dolphin, Aug. 1).

BUFFALO TREEHOPPER (Stictocephala bupalus) - VERMONT - Adults moving into trees for egg laying. All young plantings should be protected. (MacCollom, Aug. 1).

PEAR-SLUG (Caliroa cerasi) - OREGON - Larvae medium on leaves of pear and cherry in Roseburg area, Douglas County. (Passon).

APPLE MAGGOT (Rhagoletis pomonella) - NEW YORK - Emergence in cages down in Columbia County and moderate in Niagara County. Apparently hit peak in Monroe and Orleans Counties July 30-31. (N. Y. Wkly. Rpt., Aug. 1). INDIANA - Several adults observed in unsprayed orchard in Knox County. This new county record. (Dolphin, Aug. 1). WISCONSIN - Eight sticky board traps collected 73 flies in Door County during period ending August 1. (Wis. Ins. Sur.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Becoming more widespread in apple orchards throughout Tallapoosa County. Severe damage to several one-year-old trees noticeable in Clay County; trees dying. (Webb et al.).

MEALY PLUM APHID (Hyalopterus pruni) - CALIFORNIA - Locally heavy on plums in Eureka, Humboldt County. (Cal. Coop. Rpt.).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Medium on prune trees in Davis, Yolo County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - VERMONT - Increase rapid in several orchards. Severe bronzing on Delicious apples. Adults 15+ and eggs 40+ per leaf on heavily infested blocks. (MacCollom, Aug. 1). NEW JERSEY - Increasing in several orchards in southern counties. (Ins.-Dis. Newsltr.). MICHIGAN - High adult and nymphal populations reported hard to control in some Berrien County apple orchards. (Musgrove).

SPIDER MITES - UTAH - Damage to orchards in Weber County increased greatly past 2 weeks. (Knowlton). MISSOURI - Main concern of apple and peach growers. Will continue for remainder of season. Most growers have fairly good control. (Wkly. Rpt. Fr. Grs.). GEORGIA - Light on apple trees in Cobb County; problem on unsprayed trees in Fannin County. (Jordan, Wester). NEW YORK - Building up on fruit in Livingston County. Panonychus spp. heavy on apples and pears and Tetranychus spp. appearing in Oswego County. In Monroe and Orleans Counties, Panonychus ulmi still major problem, very few Tetranychus spp. present. Tetranychus spp. Found on pears in Niagara County. (N. Y. Wkly. Rpt., Aug. 1).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Adults emerging in Payne County after recent rains. Activity should begin in areas where rain occurred past 2 weeks. (Okla. Coop. Sur.). ALABAMA - Few first-generation larvae observed in fallen nuts in Lee County. (White, Bagby).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Nuts dropping from pecan trees believed caused by this pest. A considerable drop in nuts reported in Baldwin, Choctaw, Greene, Lee, Houston and Bibb Counties. (Bagby et al.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Second-generation larvae continue active in most areas. Heavy in Marshall and Mayes Counties. (Okla. Coop. Sur.).

BLACK-MARGINED APHID (Monellia costalis) - TEXAS - Heavy on pecans throughout Newgulf area, Wharton County. (Parker).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Adult emergence heavy in most walnut areas. Treatment started earlier this season than usual. (Cal. Coop. Rpt.).

CITRUS

Citrus Insect Situation in Florida - End of July - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 62 percent of groves (norm 65 percent); 41 percent economic (norm 48 percent). Population near high range but slightly below average for season. Some increase expected until summer peak about mid-August. Highest districts west, south, north and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 57 percent of groves (norm 67 percent); 36 percent economic (norm 41 percent). Population dropped to moderate level and is below average. Scattered heavy infestations will occur through August. Decrease expected. Highest districts east and central. CITRUS RED MITE (Panonychus citri) infested 53 percent of groves (norm 71 percent); 30 percent economic (norm 40 percent). Population lowest for July in 15 years of record. Few infestations heavy, further decrease expected. Highest district east. BLACK SCALE (Saissetia oleae) population still at highest level on record for July but dropped slightly from 15-year high level of mid-July. Decrease expected. All districts high. GLOVER SCALE (Lepidosaphes gloverii) infested 76 percent of groves; 22 percent economic. Above average but dropped to moderate level and will decrease through August. Highest districts east, south and central. PURPLE SCALE (L. beckii) infested 61 percent of groves; 3 percent economic. Population at normal low level. Decrease expected. Highest district south. CHAFF SCALE (Parlatoria pergandii) infested 46 percent of groves; 6 percent economic. Population below normal and at low level. Decrease expected. Highest district east. YELLOW SCALE (Aonidiella citrina) infested 66 percent of groves; 11 percent economic. Above average and in moderate range. Decrease expected through August. Highest districts east, central and west. MEALYBUGS infested 85 percent of groves; 39 percent economic. Population dropped slightly from very high level of mid-July peak. Gradual decrease expected through August with abnormally high numbers persisting into September. All districts high. WHITEFLIES infested 48 percent of groves; 15 percent economic. Population below normal and in moderate range with decrease expected. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Adults severe on 1,000 orange trees in nursery at Sydney, Hillsborough County. (Custead, July 29).

SMALL FRUITS

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - WISCONSIN - Heavy in small commercial strawberry planting in Kenosha County. (Wis. Ins. Sur.).

GRAPE BERRY MOTH (Paralobesia viteana) - OHIO - First-generation larvae forming cocoons, and some pupae present on grape leaves in Lake County. (Still).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Moth activity past peak; some egg laying continues on late cranberries in southeast area. (Tomlinson, July 29).

BLACK-HEADED FIREWORM (Rhopobota naevana) - NEW JERSEY - Larvae active on some cranberry bogs. (Ins.-Dis. Newsltr.).

FRUIT FLIES (Rhagoletis spp.) - NEW JERSEY - Active on blueberries. (Ins.-Dis. Newsltr.). MASSACHUSETTS - Rhagoletis mendax flies continue very abundant, at or near peak, in southeast area. (Tomlinson, July 29).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeriformis) - ALABAMA - Heavy larval population killed several ornamental cedars and arborvitae in Geneva County. Populations heavy in Tallapoosa County. (Reynolds, Webb). GEORGIA - Heavy on arborvitae and juniper in Screven County. (Hodges). NEW JERSEY - Common in many areas of State. (Ins.-Dis. Newsltr.). INDIANA - Injury conspicuous to evergreens throughout southern two-thirds of State; heaviest in southern third. (Huber, Schuder). KANSAS - Heavy populations killing Virginia pine trees at Mound Valley, Montgomery County. (Thompson).

HOLLYHOCK WEEVIL (Apion longirostre) - ALABAMA - Damaging buds, leaves and seeds of ornamental hollyhocks in Scottsboro, Jackson County. Det. by R. E. Warner. Collected June 24, 1966, by M. C. Carter. This new State record. (Carter).

ARMORED SCALES - OHIO - Abgrallaspis ithacae severe on some hemlock in Montgomery County. Large populations of adult scales caused needle drop. (Campbell).

OKLAHOMA - Unaspis eunymii males appearing in infestations in Payne County; new crawlers expected soon. (Okla. Coop. Sur.). FLORIDA - Aonidiella taxus adults present on leaves of 20 percent of 10,000 podocarpus in nursery at Dunedin, Pinellas County. This scale on increase in area. (Miller).

EUROPEAN EARWIG (Forficula auricularia) - WASHINGTON - More abundant than for several years in Yakima, Yakima County. (Landis).

FOREST AND SHADE TREES

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Light flight of moths noted in Adams County August 5 where light defoliation occurred. Aerial survey in western Polk to western Bayfield County area indicates defoliation variable and widespread. (Wis. Ins. Sur.).

ZIMMERMAN PINE MOTH (Diorcytria zimmermani) - OHIO - Infesting 50-70 percent of 200 Austrian and Scotch pines in Lucas County nursery. (Jones).

PINE NEEDLE MINER (Exoteleia pinifoliella) - PENNSYLVANIA - Infestations evident on 500 acres in Union County. On Jones Mountain about 50 percent of pitch pine needles affected. (Pa. For. Pest Rpt., July 27).

SPRUCE NEEDLE MINER (Taniva albolineana) - INDIANA - Heavier than normal in northern areas. (Clark).

LARCH SAWFLY (Pristiphora erichsonii) - PENNSYLVANIA - Defoliation abundant in most areas. (Pa. For. Pest Rpt., July 27). WISCONSIN - Defoliation negligible to moderate on native larch in Douglas and Bayfield Counties. (Wis. Ins. Sur.).

CONIFER SAWFLIES (Neodiprion spp.) - PENNSYLVANIA - N. sertifer defoliation heavy in mid-June over 2,000 acres of red pine, Scotch pine and Austrian pine plantings in Bradford, Sullivan and Wyoming Counties. Defoliation of old needles 100 percent. Severe but spotty outbreaks in Butler, Monroe, Bradford and southeastern counties. (Pa. For. Pest Rpt., July 27). FLORIDA - N. merkelii caused heavy defoliation to 25 percent of 300 acres of six-year-old slash pine, in Glades County during June and early July. Adults emerged from cocoons spun in early July; peak emergence July 23. Peak larval emergence expected during first week of August. Heavy defoliation predicted during last half of August if no controls used. (Wilkinson).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WISCONSIN - Second-generation crawlers emerging; more than 50 percent emerged in Rock County location. (Wis. Ins. Sur.).

A MEALYBUG (Oracella acuta) - PENNSYLVANIA - Found on shortleaf pine seed orchard scion material collected in Fulton County. Det. by G. Lobdell. This new State record. (Pa. For. Pest Rpt., July 27).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Building up on walnut, hickory and persimmon in northeast area. (White). KANSAS - Second-generation larvae extensive but not heavy on pecan and walnut trees. (Thompson). INDIANA - Moderate to heavy on walnut, hickory, cherry and sycamore in St. Joseph, Elkhart, Lagrange and Steuben Counties; lighter in other northern area. (Huber).

SPRING CANKERWORM (Paleacrita vernata) - PENNSYLVANIA - Defoliation moderate to heavy, primarily to red oaks, in east central mountain area northward to Pocono Mountains. (Pa. For. Pest Rpt., July 27).

FALL CANKERWORM (Alsophila pometaria) - PENNSYLVANIA - Defoliation decreased in Potter and eastern McKean Counties; increased in western Tioga, Lycoming and several eastern counties; continued heavy in parts of Crawford, Erie and Warren Counties; infestations erratic in central counties. (Pa. For. Pest Rpt., July 27).

MIMOSA WEBWORM (Homadula albizziae) - ALABAMA - Larval damage to mimosa and honeylocust much heavier and more noticeable throughout State. (McQueen).

ILLINOIS - Caused severe browning of honeylocust in southern La Salle County. Found in Spring Valley, Bureau County, for new county record. (White).

FOREST TENT CATERPILLAR (Malacosoma disstria) - PENNSYLVANIA - Defoliation moderate to heavy, primarily to red oaks, in east central mountain area northward to Pocono Mountains. (Pa. For. Pest Rpt., July 27).

GREEN FRUITWORM (Lithophane antennata) - PENNSYLVANIA - Defoliation moderate to heavy, primarily to red oaks, in east central mountain area northward to Pocono Mountains. (Pa. For. Pest Rpt., July 27).

AN OAK LEAF TIER (Croesia semipurpurana) - PENNSYLVANIA - Damage located by aerial survey in June. As in recent years, several hundred thousand acres of red oaks in parts of Cameron, Clinton, Lycoming, Union, Snyder, Columbia, Northumberland, Luzerne, Lackawanna, Lebanon, Dauphin, Schuylkill, Bucks and other counties severely damaged. Additional mortality of red oak expected in northeastern Susquehanna and Lehigh River drainages. Loss of high quality red oak on State forest lands in Cameron County appeared in 1965 and expected to increase. (Pa. For. Pest Rpt., July 27).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW MEXICO - Larvae defoliating weeping willow trees in southern Albuquerque, Bernalillo County. Especially destructive to young trees. (Heninger).

ELM LEAF BEETLE (Pyrrhalta luteola) - ALABAMA - New-generation adults increasing on elm in central to northern areas. (McQueen). NEW MEXICO - Serious on Chinese elm in Albuquerque area. Second generation pupated last week of July. Pupae very abundant beneath infested trees. (Durkin, Wallace). OKLAHOMA - Continues heavy. Considerable overlapping of generations in Payne County. Full-grown larvae, pupae and adults of second generation present; third-generation egg laying on new foliage underway. (Okla. Coop. Sur.). COLORADO - Defoliating elm trees in Mesa, Garfield, Delta and Montrose Counties. (Bulla). UTAH - Damaging elm foliage in Huntington, Emery County, and Kanab, Kane County. (Knowlton). INDIANA - Second-generation larval infestations heavier and more numerous than first generation on Chinese elm. This reversal of 1965 situation. (Huber).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OKLAHOMA - Peak emergence of second-generation adults over in Payne County. (Okla. Coop. Sur.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - TENNESSEE - Severely damaged foliage of black locust in Knox, Claiborne and Union Counties July 18-22. (Williams). VIRGINIA - Heavy infestations noted on locust trees throughout Botetourt County. (Miller).

A FALSE POWDER-POST BEETLE (Xylobiops basilaris) - TENNESSEE - Adults infesting redbud trees in Chattanooga, Hamilton County, July 19. (Williams).

A CERAMBYCID (Goes sp.) - ALABAMA - Larvae, probably G. tigrinus, causing severe damage to all oak trees in southern Mobile County nursery. Det. by D. M. Anderson. (Seibels).

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - VIRGINIA - Adults found on oak in Fairfax County. First report of year. (Isakson, Boitnott).

ELM SAWFLY (Cimbex americana) - NORTH DAKOTA - Larvae caused severe defoliation of willow in mile-long shelterbelt planting near Fargo, Cass County. Complete defoliation evident on 38 percent of trees; partial defoliation evident on remainder of trees. Damage reported in other areas of State. (McBride).

A PAMPHILIID SAWFLY (Pamphilius phyllisae) - PENNSYLVANIA - Feeding on northern red oak completed by late July in Linn Run State Park, Westmoreland County. Defoliation reached 50 percent on some trees but not as heavy as 2 years ago. (Pa. For. Pest Rpt., July 27).

AN OAK KERMES SCALE (Kermes pubescens) - KANSAS - High populations on oak in Shawnee, Riley and Douglas Counties; much rosetting of terminal shoots and distortion of leaves. (Thompson). TEXAS - Heavy on several red oak near McKinney of Collin County. (Risenger).

MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish July 29 - August 5 contained Aedes sollicitans, Aedes sticticus, Anopheles crucians, Culex pipiens quinquefasciatus, C. salinarius and Psorophora confinnis. Floodwater species increased in light trap collections same period. (Stokes). NORTH CAROLINA - Aedes sollicitans generally light in Carteret, Onslow and Pamlico Counties. (Ashton). MARYLAND - Aedes sollicitans below normal on Eastern Shore. (U. Md., Ent. Dept.). MINNESOTA - Aedes vexans dominant in light trap collections, larval samples and 15-minute evening bite collections. High numbers of Mansonia perturbans collected in light traps; however, peak past. Mosquito populations expected to taper off rapidly during next 2 weeks. (Minn. Ins. Rpt.). IOWA - Light trap collections dropped off in wooded and open sites. (Iowa Ins. Inf., Aug. 1).

KANSAS - Aedes vexans most numerous species taken in light traps July 22 - August 4. (Simpson). UTAH - Moderately annoying in Delta-Deseret area of Millard County. Troublesome at Logan, Cache County. Very numerous in Bridgeland-Myton area of Duchesne County. (Knowlton). NEVADA - Heavy adult populations of Aedes nigromaculis in Fallon, Churchill County, and Aedes dorsalis in Las Vegas, Clark County. (Milner).

FACE FLY (Musca autumnalis) - UTAH - Annoyance increasing on cattle and horses in Cache and Weber Counties. (Knowlton). SOUTH DAKOTA - Counts low, 1-5 per face; averaged less than 1 in Deuel, Hamlin, Codrington, Day, Roberts, Charles Mix and Grant Counties. One herd of Angus cattle near Wauby, eastern Day County, had up to 10 per head. (Balsbaugh, Jones, Kantack). NORTH DAKOTA - Counts on pastured Hereford cows in Cass County ranged up to 8 and averaged 4 flies per animal. (Brandvik). IOWA - Populations continue low. Counts in central and western areas ranged 0-5 per head on cows and calves on pasture. (Iowa Ins. Inf., Aug. 1). ILLINOIS - Averaged 15-20 per head on untreated herd at Whetstone. (Adkins). INDIANA - Scarce throughout State, with exception of Jasper County, where counts 8-18 (average 12) per face. (Huber). MICHIGAN - Adults increasing; 20+ flies per face in some central area beef herds. (Dowdy). MARYLAND - Ranged 2-25 per animal in six herds checked in Frederick County. (U. Md., Ent. Dept.). VERMONT - Severe on pastured cattle; 50 or more per animal in some areas. (MacCollom).

HOUSE FLY (Musca domestica) - OKLAHOMA - Increased to 60-80 per Scudder grid in untreated barns in Payne County. (Okla. Coop. Sur.). FLORIDA - Heavy in caged poultry operation at Apopla, Orange County. (Strayer).

HORN FLY (Haematobia irritans) - MARYLAND - Averaged 25 per head in herd of Hereford cattle in Frederick County. (U. Md., Ent. Dept.). MISSISSIPPI - Decreasing in Oktibbeha County; 300 per animal noted on 20 head of cattle. (Dinkins, July 29). ARKANSAS - Up to 300 per head of cattle July 28 in Sharp Co. (Roberts). OKLAHOMA - Numbers increased in some areas following recent rains. Counts per head in Muskogee, Cherokee and Payne Counties, 750 on cows, 1,000 on steers, 2,000 on bulls. (Okla. Coop. Sur.). IOWA - Economic in uncontrolled herds. (Iowa Ins. Inf., Aug. 1). SOUTH DAKOTA - In Deuel, Hamlin, Codrington, Day, Roberts and Grant Counties, counts 50-150 per side; up to 300 on cows and calves, higher on bulls. (Balsbaugh, Jones). WYOMING - Ranged 50-250 per animal on cattle in Laramie, Goshen and Platte Counties. (Marks). UTAH - Generally numerous on Weber and Uintah County beef herds. (Knowlton).

HORSE FLIES (Tabanus spp.) - UTAH - Annoying horses in Weber, Morgan, Duchesne and Uintah Counties. (Knowlton). OKLAHOMA - T. sulcifrons, T. lineola complex, T. mularis and T. atrata noted on cows in Cherokee County. Tabanus spp. moderate to heavy on cattle and horses in Okmulgee and Mayes Counties. (Okla. Coop. Sur.). VERMONT - Black and green headed species annoying livestock. (MacCollom, Aug. 1).

STABLE FLY (Stomoxys calcitrans) - NORTH DAKOTA - Counts on pastured Hereford cows in Cass County ranged up to 20 and averaged 12 flies per animal. (Brandvik). SOUTH DAKOTA - Ranged 10-15 per side on cows near buildings and wet areas of Lake Andes, Charles Mix County. (Kantack). WYOMING - Adults 5-7 per animal in feedlots and corrals in Goshen and Platte Counties. (Marks).

A SOLDIER FLY (Hermetia illucens) - FLORIDA - Heavy in caged poultry operations at Waverly and nearby areas of Polk County. Controls being applied. Light in Orange County. (Strayer).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Averaged 1 replete female, 10 nymphs and 550 larvae per head on calves in Cherokee County. Numbers on vegetation along trails decreased; 15-20 per square yard. (Okla. Coop. Sur.).

STORED PRODUCTS

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) - UTAH - Infestations heavy in several Weber County granaries and feed at dairy barns. (Boyer, Knowlton).

CORN SAP BEETLE (*Carpophilus dimidiatus*) - TEXAS - Populations heavy in waste grain in Muleshoe, Bailey County. (Stephens).

BENEFICIAL INSECTS

LADY BEETLES - INDIANA - Adults 1-8 per plant on field corn infested with corn leaf aphid in northern half of State. (Huber). COLORADO - *Hippodamia convergens* building up on corn, sorghum and ornamentals in western areas. (Colo. Ins. Sur., Aug. 4). WYOMING - Several species numerous in alfalfa, corn, sorghum, beans, potatoes and sugar beets in Laramie, Goshen and Platte Counties. (Marks).

A MELYRID BEETLE (*Collops quadrimaculatus*) - VIRGINIA - Adults numerous on alfalfa at Charlotte Court House. (Woodside).

DAMSEL BUGS (*Nabis* spp.) - WYOMING - Numerous in alfalfa, corn, sorghum, beans, potatoes and sugar beets in Laramie, Goshen and Platte Counties. *Chrysopa* spp. and *Orius* spp. also numerous on same crops and in same counties. (Marks).

A CONOPID FLY (*Zodion obliquefasciatum*) - OREGON - This parasite of *Nomia melanderi* reached peak emergence in alkali beds of Malheur County last week of July. Parasitism of *N. melanderi* high last 2 years. (Stephens).

SYRPHIDS - INDIANA - Several small larvae observed feeding on cluster of apple aphids. This first observation since early spring period. (Dolphin, Aug. 1).

AN ACARID MITE (*Tyrophagus* sp.) - VIRGINIA - Feeding on alfalfa weevil eggs in greenhouse at Blacksburg, Montgomery County. Determined by R. L. Smiley. (Pienkowski).

Beneficial Insects in Utah - *Collops* sp. numerous, *Nabis* spp., *Geocoris* spp. and lady beetles moderate in most Millard County alfalfa. (Knowlton).

Beneficial Insects in Cotton - LOUISIANA - Populations in untreated fields down, but normal for time of year. (Tynes, Aug. 1). CALIFORNIA - Abundant in most Imperial and Kern County fields which have not received recent treatment. (Campbell, Black).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OREGON - High nymphal counts in Baker and Malheur Counties decreased greatly, probably due to heavy populations of parasites and predators in area. (Parkinson). *Melanoplus sanguinipes* in rangeland of Cave Junction area, Josephine County, averaged 5-15 per square yard. (Larson). NEVADA - Mostly *Melanoplus sanguinipes* with some *Aulocara ellioti* and *Trimerotropis* spp. causing medium damage to alfalfa in Buena Vista Valley, Pershing County. (Cooney). UTAH - Damaging alfalfa, melons and corn at Hanksville, Wayne County. (Knowlton). COLORADO - Populations low in past "hot spots" checked in Huerfano and Pueblo Counties; 0-2 per square yard in barrow pits, 0-1 in fields. (Jenkins, Aug. 4). NEW MEXICO - Grasshoppers 25-30 per square yard on 40 sections of rangeland in Lincoln County. *Dissosteira carolina* dominant. Grasshoppers light to heavy on approximately 200,000 acres southeast of Raton, Colfax County; over 15 adults and nymphs per square yard. Many reaching full growth. (Jennings). Light to moderately heavy in Bernalillo County alfalfa; 7-20 per 25 sweeps. Damage very evident where populations heavy. (Heninger). OKLAHOMA - Several species 6-15

per square yard in crop margins in Canadian, Cleveland and McClain Counties; 3-8 in grassland areas. Melanoplus differentialis, M. bivittatus, M. sanguinipes and Hesperotettix sp. dominant in crop margins; M. bivittatus, Boopedon nubilum, Mermiria maculipennis and Melanoplus packardii in grassland. (Okla. Coop. Sur.). KANSAS - Melanoplus differentialis abundant north of Manhattan; 10-15 per square yard. Mostly fourth and fifth instars, some adults feeding primarily on reed canary grass and to some extent on smooth bromegrass. Nearby corn and soybeans not damaged. (Knutson, Lambley). MISSOURI - Most areas of State report slight increase in numbers over last season. Numbers insufficient to cause concern but damaging certain garden flowers and ornamentals. (Wkly. Rpt. Fr. Grs.). SOUTH DAKOTA - Severe in unsprayed roadsides and corn fields in Hutchinson, Davison and Hanson Counties. Average 40 per square yard in roadsides and 15-25 per square yard in corn fields. Melanoplus femurrubrum dominant in roadsides, second instar to adult. In corn fields adults included M. differentialis 50 percent, M. femurrubrum 25 percent, and remainder M. bivittatus and M. sanguinipes. Up to 40 per square yard in roadsides and 10-15 per square yard in soybean and corn fields in Yankton County; mostly adults of M. differentialis, M. femurrubrum, M. bivittatus and M. sanguinipes. (Kantack, Jones).

NORTH DAKOTA - Marginal infestations in Cass and Richland Counties ranged up to 30 and averaged 13 per square yard. Field counts ranged up to 6 and averaged 2 per square yard. Highest field counts in late oats. Dominant species included Melanoplus femurrubrum, M. bivittatus, M. differentialis and Chorthippus curtipennis. Development ranged third instar to adult; most in fourth and fifth instar. Light marginal damage to late oats and soybeans evident in both counties. (Brandvik). MINNESOTA - Melanoplus femurrubrum, latest hatching species, in fourth instar to adult stage, M. bivittatus and M. differentialis mostly adults. Expect rapid movement into adjacent crops. Damage light in most fields and confined to margins of corn and soybeans. Highest counts reported from east Otter-tail County, ranged 15-20 per square yard. (Minn. Ins. Rpt.). MICHIGAN - Large numbers of adults and nymphs observed feeding on oats and garden vegetables in Moorestown area of Missaukee County. Relatively heavy infestations also reported from other areas in northern Lower Peninsula. (Bosserman, Janes). VIRGINIA - Nymphs observed feeding on edge of cornfield in Giles County. (Isakson et al.). Damaging corn in Rappahannock County. (Lyne).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Populations remain light in High Plains control zone; infestations increased only slightly. Very few infested fields found above the Cap Rock as of August 2. (Parker, Hanna).

JAPANESE BEETLE (Popillia japonica) - OHIO - Collected for first time in Adams County. This new county record. (Barth). INDIANA - Found for first time in Switzerland County. (Favinger). MICHIGAN - Adult populations apparently peaked in southern area week ending July 30. Five additional finds recently made in Detroit area; 2 taken near Carleton, Monroe County; 1 collected at Jackson, Jackson County, and another at Galien, Berrien County. (Moore). VIRGINIA - Adults heavy in red clover in Giles County. (Isakson et al.). MARYLAND - Adults light to medium, feeding on soybeans in Queen Annes County. (U. Md., Ent. Dept.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ARKANSAS - Newly infested area found at Shell Lake, St. Francis County. (Frazier).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Large numbers of female moths observed in Duck Lake infestation area of Calhoun County July 27. On July 29 infestation reduced to moderate-to-light level. By July 31, practically all females disappeared. Egg masses now very common in area. (Moore).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Infested cotton blooms averaged up to 4 percent in Eddy County. Where early season control applied, results good. Occasional rosetted blooms found in southern Dona Ana County. (Garcia).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adult taken in McPhail trap at Arcadia, De Soto County, July 22. This is new county record. (Lamb). Two adults collected on sticky board trap in lime tree at Labelle and one adult on sticky board trap in common guava at Big Cypress Indian Reservation in Hendry County. (Nelson, July 25, 26).

SCREW-WORM (Cochliomyia hominivorax) - Total of 10 cases reported in U. S. July 31-August 6 as follows: Texas - Jim Hogg 1. ARIZONA - Yavapai 5, Gila 1, Graham 1. NEW MEXICO - Grant 1. CALIFORNIA - Riverside 1. Total of 134 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 5, Baja California 1, Sonora 58, Chihuahua 53, Nuevo Leon 4, Tamaulipas 13. Total of 304 cases reported from Mexico south of Barrier Zone. Barrier Zone is area in which screw-worm eradication operations underway to prevent establishment of self-sustaining screw-worm populations in U. S. Sterile screw-worm flies released: Texas 9,676,250, New Mexico 4,976,000, Arizona 22,004,000, California 1,080,000, Mexico 88,492,000. (Anim. Health Div.).

INSECT DETECTION

WHITE GARDEN SNAIL (Theba pisana) - CALIFORNIA - An apparent local infestation of 5-6 city blocks occurred in Manhattan Beach, Los Angeles County. Delimiting survey continuing. Species eradicated from State in 1930-1940. Last known infestation eradicated in 1940's. (Cal. Coop. Rpt.). Pest not known to occur in U.S. (PPC).

New State Records

HOLLYHOCK WEEVIL (Apion longirostre) - ALABAMA - Damaged buds, leaves and seeds of hollyhock in Scottsboro, Jackson County. Collected by M. C. Carter June 24, 1966. Det. by R. E. Warner. (p. 785).

A MEALYBUG (Oracella acuta) - PENNSYLVANIA - Found on shortleaf pine seed orchard scion material collected in Fulton County. Det. by G. Lobdell. (p. 786).

New County Records

WESTERN CORN ROOTWORM (Diabrotica vergifera) - MISSOURI - Adults collected from corn in Boone County. (p. 773). ILLINOIS - Adults found on corn in Whiteside County. (p. 774).

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Found in Spring Valley, Bureau County. (p. 786).

APPLE MAGGOT (Rhagoletis pomonella) - INDIANA - Adults observed in unsprayed orchard in Knox County. (p. 783).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adult taken in Arcadia, De Soto County, July 22. (p. 791).

CORRECTIONS

CEIR 16(29):693 - EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH CAROLINA - Last sentence: Washington County should read Spartanburg County.

CEIR 16(29):712 - CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Henry County should read Hendry County.

CEIR 16(31):764 - LIGHT TRAP COLLECTIONS - NEBRASKA - Figures for Lincoln incorrect; for corrected figures see page 794 of this issue.

HAWAII INSECT REPORT

Insects of Regional Significance - MELON FLY (Dacus cucurbitae) eggs and larvae medium in ripe tomatoes and cucumbers in Waialua, Oahu. Adults ovipositing. (Suzukawa). SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) remains light throughout the major islands. Light sporadic infestations occasionally found on various crop or weed hosts. Eggs and adults often parasitized by introduced beneficial insects. (Haw. Ins. Rpt.).

Pastures - ARMYWORM (Pseudaletia unipuncta) larvae light on Pennisetum clandestinum (Kikuyu grass) at Kahua Ranch, Kohala, Hawaii Island. (Yamayoshi).

Forage Legumes - COTTONY-CUSHION SCALE (Icerya purchasi) nymphs and adults very heavy in 0.25 acre of clover at Waimanalo Experimental Farm, Oahu. (Higa).

General Vegetables - All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and a LEAF MINER FLY (Liriomyza sp.) heavy on 2 acres of cucumbers in Waialua, Oahu. (Haw. Ins. Rpt.). Liriomyza sp. larvae and adults medium in 0.5 acre of green onions in Koko Head area. (Sato). TOBACCO FLEA BEETLE (Epitrix hirtipennis) adults caused medium foliar damage to eggplants in Ewa, Oahu. "Shot-hole" injury conspicuous on all plants. (Hironaka). CABBAGE LOOPER (Trichoplusia ni) and DIAMONDBACK MOTH (Plutella maculipennis) larvae medium to heavy in 1.5 acres of broccoli in Waialua, Oahu; 1-7 larvae per leaf. (Haw. Ins. Rpt.).

Taro - CHINESE ROSE BEETLE (Adoretus sinicus) caused heavy foliar damage to dryland taro in Puunene, Maui. (Miyahira).

Fruits - CHINESE ROSE BEETLE adults caused light foliar damage in 1 acre of strawberries in Waialua, Oahu, and medium to heavy damage to persimmons in Wailuku, Maui. (Suzukawa, Takishita).

Ornamentals - Larvae of a CECIDOMYIID MIDGE (Contarinia maculipennis) medium on hibiscus in Kailua, Oahu; infesting 80 percent of flower buds, causing them to drop. (Haw. Ins. Rpt.). Nymphs and adults of a THRIPS (Thrips hawaiiensis) heavy on blossoms of Canavalia cathartica (mauna-loa) in Hookena, South Kona, Hawaii Island. (Yoshioka).

Beneficial Insects - Adults of a SCARAB (Copris incertus) heavy in Makawao, Maui; attracted to lights. (Miyahira).

Miscellaneous Pests - A specimen of GIANT AFRICAN SNAIL (Achatina fulica) found in vehicle arriving at Kaunakakai, Molokai, via barge from Honolulu, Oahu. (Blalock).

BOLL SLICING: A SCOUTING METHOD FOR BOLL WEEVIL
(as used in Arkansas)

Charles Lincoln and W. P. Boyer

For some time workers in Arkansas have sliced bolls, in varied numbers and by different methods of selection, to evaluate damage by boll weevil (*Anthonomus grandis*). Experience showed that weevil feeding on bolls is manifested by two types of effect within the boll. This led to classification of bolls as A, B, and C:

- A. Damaged by boll weevil as shown by watery, yellowish, or darkened areas in the lint and seed.
- B. Punctured by boll weevil as shown by a blister or puncture on the inner wall of the carpel, but not damaged.
- C. Clean - no boll weevil feeding.

In 1963, several cotton insect scouts sliced bolls according to the following instructions: Begin sampling three weeks after blooming starts and sample weekly. After completing the first and third point samples of 50 squares (Arkansas Agriculture Experiment Station Bulletin 666), make the boll slicing count as follows: Measure 6.5 feet of row. Pick all bolls half grown or larger but tender enough to slice readily (9-21 days of age). Slice all candidate bolls and class them A, B, or C. This gives a one thousandth-acre sample. Quantitative data on punctured squares were obtained by the point-sample method of scouting (Arkansas Agriculture Experiment Station Bulletin 666).

Results of the last four weeks that squares were available in 1963 are shown in the following table:

Last Four Weeks Squares Were Available, 1963

Punctured squares per acre, thousands	10	10	15	7
A and B bolls per acre, thousands	4	6	12	14
Total damaged squares and bolls, per acre, thousands	14	16	27	21

This shows transference of attention from squares to bolls. The apparent decline in weevil population observed in point-sample counting reflects this transference.

Most fields received insecticide treatment. Scanning results do not indicate any shift to or away from boll feeding associated with level of insecticide usage.

Comment: The publication of this method in CEIR would, no doubt, result in other workers checking it to determine its validity. This might lead to the development of an acceptable method.

The criteria used by Dr. Lincoln and Mr. Boyer could probably be used satisfactorily in areas where only the boll weevil occurs. In an area also infested by the pink bollworm the same type boll damage symptoms described for the boll weevil in item B could be caused by the pink bollworm. Also, lygus bug and stink bug damage to bolls could be similar to that described for the weevil in categories A and B. Therefore, when the general infested areas of the boll weevil are considered, it may be difficult to separate boll weevil damage to bolls from that caused by pink bollworms, stink bugs, lygus bugs and possibly other insects.
(S. E. Jones).

Survey of Forage Crop Insects in Massachusetts in 1966

F. R. Shaw, R. A. Callahan and M. C. Miller

As one phase of the investigations of forage crop insects in Massachusetts, extensive collections were made in Berkshire, Hampden and Hampshire Counties with supplementary collections in Franklin, Worcester, Plymouth and Bristol Counties.

In 1966, the most abundant single species was alfalfa weevil (*Hypera postica*). A maximum of 2,573 per 100 sweeps was obtained, this being markedly lower than the 4,100 per 100 sweeps collected the previous year. Untreated fields had moderate to severe damage, with many exhibiting a characteristic frosted appearance. Many of the fields were cut late which added to the damage done by the weevil larvae. The first adult weevil was taken in Amherst on April 22, the first larvae were taken on May 4.

Pea aphid (*Acyrtosiphon pisum*) was more numerous than it had been last year, comprising 8.8 percent of the total; although slightly increasing it still has not attained a population of 45 to 60 percent of all insects as it had in earlier surveys. Beneficial insects, including lady beetles, damsel bugs, lacewings and syrphids, were less abundant than in 1965, comprising 0.48 percent of the total versus 0.58 percent last year. Plant bugs remained approximately equal to last year's count, comprising 3.7 percent of insects collected. Leafhoppers at 0.8 percent of the total showed a sharp decrease from 3.81 percent the previous year.

A summary of the results of the survey is presented in the following table. This report is based on collections of 22,182 insects taken from April 22 through June 24. Sampling was done by taking 100 sweeps with a 15-inch net in each field at approximately weekly intervals.

Abundance of Forage Crop Insects in Massachusetts, Spring 1966

<u>Insect Name or Group</u>	<u>Percent of Total</u>
Aphids:	
<u><i>Acyrtosiphon pisum</i></u>	8.88
Plant bugs	3.72
Leafhoppers	0.80
Beetles:	
<u><i>Hypera postica</i></u>	82.98
<u><i>Sitona hispidula</i></u>	0.14
Elaterids	0.37
Others	0.64
Meadow Spittlebug (<u><i>Philaenus spumarius</i></u>)	0.87
Lepidoptera	0.23
Miscellaneous Insects:	
Lygaeids	0.004
Pentatomids	0.01
Others	0.46
Beneficial Insects:	
Nabis ferus	0.12
Coccinellids (lady beetles)	0.35
Chrysopids	0.004
Syrphids	0.01
Related Beneficial Arthropods:	
Spiders	0.41

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM heavy on sorghum in Texas and Bermuda grass in Georgia and South Carolina; few second-generation larvae feeding on corn in central Minnesota. CORN LEAF APHID increasing on corn in Rhode Island, Illinois and Indiana; abundant in Wisconsin, New Mexico and Arizona. (p. 799). POTATO LEAFHOPPER yellowing alfalfa in Vermont, abundant on alfalfa and beans in Delaware; increasing on potatoes, beans and alfalfa in Michigan. (p. 800). CORN ROOTWORMS increased in Minnesota, reversing downward trend of 1965; populations higher in central and southeast Nebraska than last year. (p. 801). Additional notes on grass bugs in Utah, 1966. (p. 803).

THREE-CORNERED ALFALFA HOPPER counts high in alfalfa in Oklahoma and Arizona. LESSER CORNSTALK BORER damaging several hundred acres of soybeans in Alabama. (p. 804).

BOLL WEEVIL damage to cotton increasing in some areas; conditions ideal for further increase in western Tennessee. BOLLWORM infestations increasing in South Carolina, Georgia, Alabama and Arizona; damage reported in other areas. CABBAGE LOOPER increasing in some cotton areas, COTTON LEAFWORM in southern Louisiana; PLANT BUGS continue to cause some damage; SPIDER MITES abundant on cotton in Shafter area, California, continue to cause concern in western Tennessee with some severe damage in uncontrolled fields. (pp. 805-807). ASIATIC OAK WEEVIL heavily damaged tobacco in Indiana. SUGAR-BEET ROOT MAGGOT lightest in several years on sugar beets in Idaho. (p. 808).

GRASSHOPPERS economic on 120,000 acres of rangeland in Oklahoma. Additional JAPANESE BEETLE finds reported in Michigan. Additional GYPSY MOTH males collected in Michigan; one approximately 3 miles southeast of infestation site. RANGE CATERPILLAR spray program in progress on approximately 175,000 acres of rangeland in New Mexico. (pp. 817, 818).

Status of PEAR SAWFLY. (p. 819).

MEDITERRANEAN FRUIT FLY situation in Brownsville, Texas. (p. 820).

Detection

NEOTROPICAL CORN BORER reported from Texas, first confirmed record for United States. Species may be occurring with southwestern corn borer and sugarcane borer in other southern areas. (p. 801). Background report. (p. 823).

New State records include WOOLLY ALDER APHID in Texas (p. 815), a BROWN SPIDER in Arizona (p. 816) and a CRYPTOCHAETID FLY in Hawaii (p. 810).

For new county and island records see page 820.

Reports in this issue are for week ending August 12 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....799

Insects Affecting

Corn, Sorghum, Sugarcane.....800	Cole Crops.....809
Small Grains.....802	Cucurbits.....810
Turf, Pastures, Rangeland.....802	General Vegetables.....811
Forage Legumes.....803	Deciduous Fruits and Nuts.....811
Soybeans.....804	Citrus.....812
Peanuts.....805	Small Fruits.....812
Cotton.....805	Ornamentals.....813
Tobacco.....808	Forest and Shade Trees.....813
Sugar Beets.....808	Man and Animals.....815
Miscellaneous Field Crops.....808	Households and Structures.....817
Potatoes, Tomatoes, Peppers.....808	Stored Products.....817
Beans and Peas.....809	

Beneficial Insects.....817

Federal and State Plant Protection Programs.....817

Insect Detection.....820

Light Trap Collections.....821

Neotropical Corn Borer (Zeadiatraea lineolata (Walker)).....823

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-AUGUST TO MID-SEPTEMBER

The Weather Bureau's 30-day outlook for mid-August to mid-September calls for temperatures to average below seasonal normals over the Great Plains and the Midwest. Above normal averages are indicated for areas west of the Continental Divide and also for the Northeast. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal over the eastern half of the Nation except for near normal amounts over the Upper Mississippi Valley and along the Gulf Coast. Over the western half, above normal precipitation is called for over most of the Central and Southern Plains while subnormal totals are indicated for the Northern Plains, the Northwest and the Pacific Coast. In unspecified areas near normal rainfall is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 807.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - TEXAS - Causing heavy damage to many fields of grain sorghum in panhandle area. Heaviest in Hale, Floyd, Bailey, Lamb and Lubbock Counties. (Texas Coop. Rpt.). SOUTH CAROLINA - Heavy population feeding on Bermuda pastures in Allendale County. (Nettles, Aug. 9). GEORGIA - Heavy infestation damaging Bermuda grass in Gilmer and Rabun Counties. (Maney, Coleman, Smith). MASSACHUSETTS - Ten moths in light trap at East Wareham. (Tomlinson, Aug. 5). MINNESOTA - A few second-generation larvae found feeding on corn in occasional field in central district. No larvae found in northwest district. (Minn. Ins. Rpt.).

BEEF LEAFHOPPER (*Circulifer tenellus*) - COLORADO - Ranged 0-10 per 100 sweeps on sugar beets in Arkansas Valley. (Schweissing).

CORN EARWORM (*Heliothis zea*) - GEORGIA - Light on peas in Burke County. (Miller). Heavy infestation on peanuts in Tift County. (McGill, French). MARYLAND - Light to moderate in sweet corn in Queen Annes County. Eggs and larvae on silks. (U. Md., Ent. Dept.). DELAWARE - Adults in blacklight trap collections in eastern Sussex County averaged 17 per night. (Burbutis, Davis). NEW YORK - First to third-instar larvae found in 19 of 120 mid-silk ears inspected in Rockland County. In Ulster County, larval level below 1 percent. (N. Y. Wkly. Rpt., Aug. 8). INDIANA - In south central and southwestern districts, larval infestations ranged 0-16 percent. Mostly late instars present in southwestern area, while early and middle instars predominant in south central areas. Adults common in blacklight trap collections. (Huber). MINNESOTA - Larvae present in most corn fields in southwest district; however, populations light. (Minn. Ins. Rpt.). MISSOURI - Occasional larva observed on corn in northeastern quadrant of State. (Houser). OKLAHOMA - Ranged 3-16 per 10 sweeps in alfalfa in McClain, Grady, and Garvin Counties. Ranged 5-20 per head in 100 percent of grain sorghum heads in Grady County and 1-3 per head in 80 percent of heads in Garvin County. Averaged 4 per 100 terminals in peanuts in Carter and Marshall Counties; moderate in Caddo County peanuts and light in Bryan County. (Okla. Coop. Sur.). OREGON - Abundant in Hermiston area, Umatilla County, 95 percent of sweet corn infested, with more than one larva in many ears.. (Crowell). NEW MEXICO - Medium to heavy on corn in Curry and Chaves Counties. (Campbell). ARIZONA - Increasing on sorghum throughout Graham, Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - VIRGINIA - Light on corn in Montgomery, Floyd, Pulaski and Wythe Counties. Many lady beetles present. (Isakson). MARYLAND - Spotted in field corn on Eastern Shore. Field of grain sorghum in Calvert County, with appreciable infestation. (U. Md., Ent. Dept.). RHODE ISLAND - Building up on field corn in West Kingston. Lady beetles abundant in fields. (Mathewson, Colodney). OHIO - Noted on corn in Licking, Knox, Noble and Muskingum Counties. Ranged 10-80 percent. High predator numbers and stages of corn indicate aphids have been only incidentally detrimental to pollination. (Rose). INDIANA - Infesting 80-100 percent late corn throughout State. Range 20-100 whorl on tasseled corn, 2-56 percent of corn infested in south central district. (Huber, White). ILLINOIS - Causing discoloration and dying of upper leaves and tassels of corn throughout northern half of State. Declining south of Interstate 80, but still increasing north. Some fields 20-25 percent infested. At least 10,000 acres treated to control this pest. (White). WISCONSIN - Continues abundant in many fields. Winged forms present and dispersing to many crops. Lady beetles, increasing. Control treatments being carried out in some areas. (Wis. Ins. Sur.). NORTH DAKOTA - Light to heavy in most corn and sorghum fields in Golden Valley, Billings, Slope and Bowman Counties. Heaviest populations in late planted corn. (Brandvik). IDAHO - High populations in volunteer oats and barnyard grass in field margins July 28. One field treated in Power County July 21. (Schow et al.). COLORADO - Continues to appear in all areas of Arkansas Valley; not yet economic in corn fields. Observed in all sorghum fields checked. (Schweissing). NEW MEXICO - Very abundant in some grain sorghum fields in Curry County. (Campbell). ARIZONA - Moderate on late planted sorghum in Graham and Greenlee Counties; damage light. (Ariz. Coop. Sur.).

PICKLEWORM (Diaphania nitidalis) - ALABAMA - Damage continues in vines and fruit of cucumbers, squash, and ornamental gourds in Lee County. Some pupation occurring. (McQueen).

POTATO LEAFHOPPER (Empoasca fabae) - VERMONT - Averaging 3-5 per sweep on alfalfa; yellowing noticeable, particularly on margin of some fields. (MacCollom, Aug. 8). DELAWARE - Abundant on alfalfa and lima beans in Kent County, and other areas. (Burbutis, Davis). MARYLAND - Population decreasing; in Frederick County, 50-150 per sweep in 3 fields; none found in 15 others recently cut or sprayed; 5-75 per sweep in Queen Annes County. (U. Md., Ent. Dept.). MICHIGAN - Increasing on potatoes, beans, and alfalfa. (Dowdy). WISCONSIN - Up to 2 nymphs per leaf on snap beans in Sheboygan County, lower in central counties; 1-200 per sweep in alfalfa. (Wis. Ins. Sur.) NEBRASKA - Populations in alfalfa generally light in Red Willow, Dundy, and Howard Counties. (Manglitz).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MICHIGAN - Appearing in low numbers in more fields in Washtenaw County. (Dowdy). INDIANA - Averaged 5 per sweep in alfalfa in southwestern and south central regions. (Huber). WISCONSIN - Averaged 1 per sweep near Wautoma. Continues to increase near Mazomanie; up to 2 per sweep. (Wis. Ins. Sur.). NEBRASKA - Moderate populations in Howard County ranged 10-123 per 10 sweeps, averaged 55. Average number per 10 sweeps in other counties: Dundy 3, Red Willow 2. (Manglitz). COLORADO - Decreased, but high numbers remain in many fields and continue threat to newly seeded alfalfa in Arkansas Valley. Populations range 0-3,000 per 100 sweeps. (Schweissing). OKLAHOMA - Counts ranged 35-140 per 10 sweeps in alfalfa in Garvin and McClain Counties. Moderate in Blaine County. (Okla. Coop. Sur.). NEW MEXICO - Light to moderate on alfalfa in Berna-lillo, Chaves, Eddy, Lea, Dona Ana and Curry Counties. (Heninger, Campbell, Garcia).

TOMATO HORNWORM (Manduca quinquemaculata) - RHODE ISLAND - Numerous in gardens in Cranston and Peace Dale. Heavier than normal. (Mathewson et al.). NEW YORK - Defoliating tomato plants in Clinton area. (N. Y. Wkly. Rpt., Aug. 8). MICHIGAN - Larvae widespread in home gardens. (Dowdy). WISCONSIN - Entered soil to pupate in Dane County tobacco fields. (Wis. Ins. Sur.).

HORNWORMS (Manduca spp.) - VIRGINIA - Eggs and larvae light to medium on tobacco in Pittsylvania County. (Dominick). MARYLAND - Half to full-grown larvae on home garden tomatoes in Queen Annes County. Hymenopterous parasites active. (U. Md., Ent. Dept.). UTAH - Defoliating some potato plants at Oak City, Millard County. Common on tomatoes in Salt Lake County area gardens. (Knowlton).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW HAMPSHIRE - Pupae common at Litchfield. (Sutherland, Aug. 5). VERMONT - Damage light to date, but expected to increase as moth population builds up. (MacCollom, Aug. 8). NEW YORK - Continues a problem in Nassau and Suffolk Counties. Emergence of first-brood moths from stalks in cages in Hudson Valley, about one-third complete August 5. (N. Y. Wkly. Rpt., Aug. 8). DELAWARE - Averaged 38 adults per night in blacklight trap in western Sussex County. (Burbutis, Davis). MARYLAND - Light to moderate in sweet corn, Queen Annes County. (U. Md., Ent. Dept.). INDIANA - Second-generation infestations very light in south central and southwest areas where first-generation infestations were heavier than normal. (Huber). WISCONSIN - Generally light throughout southern half of State; mostly 4th and 5th stages. (Wis. Ins. Sur.). NORTH DAKOTA - Larvae light in millet in Dickey and LaMoore Counties. (Stoltenow). Larvae evident in some sorghum fields in Golden Valley, Billings, Slope and Bowman Counties. Larvae mostly fifth instar. (Brandvik). MISSOURI - Egg masses in north-eastern area. Adults plentiful, oviposition continuing. (Houser). ALABAMA - Heavy in 65-acre field in Colbert County, 30-40 percent of stalks affected and beginning to fall. Maturing larvae and pupae in stalks. (Somerville, Ledbetter).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - TEXAS - Noted in several late-planted corn fields in Lee and Austin Counties. Many stalks infested by 2-3 larvae. (Parker). MISSISSIPPI - Second-generation adults emerging in Marshall County; nearly completed in Oktibbeha County. (Dinkins).

NEOTROPICAL CORN BORER (Zeadiatraea lineolata) - TEXAS - Collections made by P. T. Riherd include those from a blacklight trap in south Texas on September 23, 1954; adults from a blacklight trap at Progreso, Hidalgo County, August 8, 1964; and larvae reared from corn at Progreso during August of 1964. Det. by P. T. Riherd, confirmed by R. W. Hodges. This is first confirmed record for the United States. (Riherd). According to Dr. Hodges, earlier records in the U. S. were based upon color pattern and are open to doubt. (PPC). For background information on this insect see page

FALL ARMYWORM (Spodoptera frugiperda) - MARYLAND - Few infestations in late corn, Frederick County. (U. Md., Ent. Dept.). MISSOURI - Occasional larva observed on corn in northeastern quadrant of State. (Houser). NEBRASKA - Light populations feeding on silks and ears in central area. (Rhine). COLORADO - Continues light in most corn fields in Arkansas Valley. Highest infestations average less than 10 percent, but range 0-30 percent. (Schweissing).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - OHIO - Adults infesting silks of corn in Franklin, Pickaway and Fayette Counties. (Rose et al.). INDIANA - Adults very light on 10-40 percent of corn in southern one-third of State. (Huber). ILLINOIS - Adults abundant in northern area. Varied 0-34 per ear tip; most corn pollinated. (White et al.). WISCONSIN - Generally light throughout central part of State; more numerous in south. (Wis. Ins. Sur.).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - ILLINOIS - Adults observed in small numbers in 4 of 5 fields checked in Knox County. (Randell, Moore). Collected near El Paso, Woodford County, August 1, and Lee County, August 12 for new county records. (Sechriest et al.). This eastern most record in U. S. (PPC). MISSOURI - Adults very light on corn in Howard, Chariton, Macon, Knox, Lewis, Shelby, Marion, Ralls and Monroe Counties. All new county records. (Houser).

CORN ROOTWORMS (Diabrotica spp.) - MINNESOTA - D. longicornis predominant in most counties. D. virgifera increased somewhat in Hennepin, Wright and Carver Counties. Lodging rare, but few fields in Washington, Carver and McLeod Counties generally severe, up to 95 percent. In southwest district, D. virgifera increased in nearly all counties reversing downward trend set last year. (Minn. Ins. Rpt.). NEBRASKA - Higher populations in central and southeast areas than last year. (Munson, Rhine).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Conspicuous injury to late corn, Frederick County. (U. Md., Ent. Dept.).

A WEEVIL (Anacetrinus deplanatus) - TEXAS - Heavy infestations on grain sorghum near Meridian, Bosque County. Larvae tunneling in stalks and root system. (Henson).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Heavy on sorghum in Cotton County, but decreasing in many areas. Averaged 2 per plant on grain sorghum and broomcorn checked in Garvin County. (Okla. Coop. Sur.).

A FALSE CHINCH BUG (Nysius sp.) - NEW MEXICO - Some grain sorghum fields requiring control in Curry County. (Campbell).

STINK BUGS - MISSOURI - Euschistus spp. adults and nymphs 1 per 5 plants in corn and 1 per 3 feet of row in soybeans in northeastern quadrant of State. (Houser). NEW MEXICO - Chlorochroa spp. heavy and warranting control in grain sorghum field in Curry County. (Campbell).

SPIDER MITES - NEVADA - Increasing on corn in Lovelock, Pershing County. Controls applied to some fields. (Ferraro, Martinelli). UTAH - Damaging corn in various

parts of State during severe hot weather. (Knowlton, Aug. 8). NEBRASKA - Populations increasing statewide. Controls being applied. (Rhine). COLORADO - Tetranychus urticae continues in many corn fields throughout Arkansas Valley. Heavy in untreated fields in Otero, Crowley and Pueblo Counties. Populations light to heavy on lower and middle leaves in Bent and Prowers Counties. Very light to moderate in most sorghum fields in Arkansas Valley. In few fields heavy infestations causing severe damage to foliage. (Schweissing).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - IDAHO - Infesting small grains throughout Boundary County; up to 50 aphids per head of wheat. (Studer, July 20).

WHEAT STEM MAGGOT (Meromyza americana) - NORTH DAKOTA - Light to heavy damage evident to wheat in Golden Valley, Billings, Slope, and Bowman Counties; ranged 3-26 percent cut stems. (Brandvik). IDAHO - Infesting 1-3 percent wheat in eastern area. (Paulsen, Aug. 5).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Damage evident in McIntosh, Golden Valley, Billings, Slope and Bowman Counties. Fifteen percent of stems broken, in an infested wheat field in Slope County. (Stoltenow, Brandvik).

TURF, PASTURES, RANGELAND

WHITE GRUBS - WISCONSIN - Problem in lawns and home gardens in several locations. (Wis. Ins. Sur.).

SOD WEBWORMS (Crambus spp.) - OKLAHOMA - Causing extensive damage to golf courses and lawns in several areas of State; up to 5 per 4-inch square in heaviest areas. (Okla. Coop. Sur.). MICHIGAN - All larval instars and adults heavy in a number of Wayne County localities. Also reported from Calhoun County. (Dowdy). RHODE ISLAND - Adults heavy statewide. (Mathewson, Veilleux).

BLACK CUTWORM (Agrotis ipsilon) - OHIO - Larvae numerous and causing damage to lawns in Columbus. (Walker et al.).

SPITTLEBUGS - GEORGIA - Damaging pastures in Screven County. (Hodges). SOUTH CAROLINA - Damage appearing on many Bermuda grass fields in Coastal Plains counties. (Funchess, Thomas).

CHINCH BUG (Blissus leucopterus) - TEXAS - Increasing on lawns in Austin and Bryan areas. Infestations and damage heavier than past year. (Texas Coop. Rpt.). RHODE ISLAND - Infesting lawns in Wakefield. (Mathewson, Kerr).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Extremely numerous on some range plants in Beaver County, elevation 7,900 feet; at Oak Park, Uintah County, 9,100 feet; and Uinta Canyon, Duchesne County, 7,500 feet; very numerous to common throughout many range and farm areas of State. (Knowlton).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Decreasing; however migrating to newly planted Sudan grass in Yuma and Gila Valleys in Yuma County. (Ariz. Coop. Sur.).

LEAFHOPPERS - GEORGIA - Severely damaging Bermuda grass in Screven County; 1,000 per 100 sweeps in Tift County. (Hodges).

RED HARVESTER ANT (Pogonomyrmex barbatus) - TEXAS - Swarming in many areas of State with new infestations in several areas. (Texas Coop. Rpt.).

Additional Notes on Grass Bugs in Utah - 1966 - Labops hesperius was dominant species throughout Blubber Creek, upper Kanab Creek, all about Bryce Canyon in Garfield County and east fork of the Sevier River near Daves Hollow Ranger Station, all in southern Utah. This species was also present, but with Irbisia brachycera dominant, in the Kanab and South Kanab ranches of Kane County. L. hesperius collected in a backyard at Salt Lake City, Salt Lake County. Labops utahensis, Irbisia brachycerus and I. shulli damaged giant ryegrass and other grasses less severely south of Monte Cristo in Weber County to 15 miles north of Huntsville. Irbisia shulli severely damaged 300 acres of planted intermediate wheatgrass in a mountain area east of Peterson, Morgan County. Stenodema vicinum at Kanab Creek and Alton in Garfield and Kane Counties, and S. pilosipes on 80 acres of wheat north of Fountain Green in Sanpete County and south of Alton in Kane County where numerous and less damaging than black grass bugs. Det. by R. C. Froeschner. (Knowlton).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - UTAH - Small numbers of larvae still found in alfalfa fields in Uintah, Duchesne, Wasatch, Summit, Millard and Juab Counties. (Knowlton). NEW MEXICO - Light on alfalfa in Bernalillo County. (Heninger).

GREEN CLOVERWORM (Plathypena scabra) - INDIANA - Larvae 1-3 per 5 sweeps in alfalfa and clover in south central and southwestern areas. (Huber).

GARDEN WEBWORM (Loxostege similalis) - MISSOURI - Heavy moth flights in alfalfa observed throughout northeastern quadrant of State. (Houser). ARIZONA - Light to moderate on alfalfa in Yuma County. Larvae feeding on 15 percent of terminals in more heavily infested fields. (Ariz. Coop. Sur.). OKLAHOMA - Loxostege spp. ranged 3-32 per 10 sweeps in alfalfa in McClain and Garvin Counties. Reported heavy in Blaine, Mayes, Okmulgee and Seminole Counties and moderate in Lincoln, Hughes and Bryan Counties. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - WISCONSIN - Late-instar larvae and adults 1-2 per sweep, common in alfalfa. (Wis. Ins. Sur.). COLORADO - Increasing on alfalfa in some areas, particularly Prowers County, 0-600 per 100 sweeps. In some cases, cutting for control suggested. (Schweissing). UTAH - Common in alfalfa in Uintah and Duchesne Counties and at Heber, Wasatch County. No serious damage noted. (Knowlton).

CLOVER HAYWORM (Hypopygia costalis) - MICHIGAN - Recent collections of adults in blacklight traps indicate heavy flight underway over entire Lower Peninsula. (Newman).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Increasing in alfalfa fields in Graham and Pima Counties. Average 20 per 100 sweeps. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - RHODE ISLAND - Extremely heavy populations in fields in Washington County. (Mathewson, Colodney). DELAWARE - Adults and nymphs rather abundant in alfalfa in Kent and Sussex Counties. (Burbutis, Davis). MARYLAND - Larvae in small numbers on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Adults average 3 per 5 sweeps and nymphs 4 per 5 sweeps on alfalfa in southern areas. In northern one-third, adults and nymphs average 2 per sweep on alfalfa. (Huber, White).

PLANT BUGS - INDIANA - Adelphocoris lineolatus adults and nymphs range 2-7 per sweep in the northern area, while in south central and southwestern regions, populations range 1-3 per 5 sweeps. (Huber, White). MICHIGAN - Lygus lineolaris and Adelphocoris lineolatus nymphs present in high numbers in Washtenaw County. (Dowdy). WISCONSIN - Nymphs numerous in alfalfa fields. Adelphocoris lineolatus predominates with 2-3 per sweep common. (Wis. Ins. Sur.). NEVADA - Lygus spp. averaged 18 per sweep on alfalfa in Smokey Valley, Nye County. (Cooney).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Averaged 60 per 10 sweeps in alfalfa in McClain County, ranged 9-18 per 10 sweeps in Garvin and Grady Counties. (Okla. Coop. Sur.). ARIZONA - Heavy in Graham County and areas of Pinal and Maricopa Counties. Averaged 600 per 100 sweeps. (Ariz. Coop. Sur.).

BUFFALO TREEHOPPER (Stictocephala bupalus) - VERMONT - Adults more abundant on legume forage than in past years, averaging 1 per sweep in Addison County. (MacCollom, Aug. 8).

THRIPS - UTAH - Extremely numerous in blossoming alfalfa seed fields in western Millard County. (Knowlton). CALIFORNIA - Thrips tabaci heavy in alfalfa plantings in Glenn County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - NORTH DAKOTA - Light in most second-crop alfalfa in Slope, Bowman, Billings, and Golden Valley Counties. Up to 5,000 per 100 sweeps found in single field in Billings County. (Brandvik). NEBRASKA - Averages in alfalfa per 10 sweeps: Dundy County - 20, Red Willow County - 2, and Howard County - less than 1. (Manglitz). COLORADO - Increased considerably on alfalfa in Arkansas Valley past 2 weeks, due partly to rains. Ranged 100-10,000 per 100 sweeps in Prowers, Bent, Otero, Crowley and Pueblo Counties. (Schweissing). NEW MEXICO - Light on alfalfa in Bernalillo, Valencia, Chaves, Eddy, Lea, Dona Ana and Curry Counties. (Heninger, Campbell). UTAH - Moderate damage to alfalfa in Sevier County. (Knowlton). NEVADA - Varied 7-10 per sweep in Smokey Valley, Nye County, alfalfa. (Cooney).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - IDAHO - Light but general on red clover at Mountain Home, Elmore County. (Edwards, July 19).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light in 2 of 19 fields checked in Bleckley County. (Lawson).

BLISTER BEETLES (Epicauta spp.) - MISSISSIPPI - Heavy damage to soybean foliage in localized areas of Yazoo County. (Dinkins).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Heavy infestation of larvae seriously damaging several hundred acres of young soybeans in Monroe County. Control efforts underway. (Culpepper et al.).

CABBAGE LOOPER (Trichoplusia ni) - MISSISSIPPI - Larvae moderate and causing some damage to soybeans in Yazoo County. Larvae 1-2 per three feet of row. (Dinkins). ALABAMA - Light on soybeans in Marengo and Sumter Counties. (Bond).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - GEORGIA - Increasing in Bleckley County, heavy in 1 field, light to medium in others. (Lawson).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Larvae light and widespread in soybeans in Marengo County; should pupate soon. (Yates).

GREEN STINK BUG (Acrosternum hilare) - ARKANSAS - Low, but in most fields surveyed in southwest area. (Boyer, Tugwell). ALABAMA - Light, but widespread on soybeans in Marengo County. (Yates, Bond et al.).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Few fields, particularly lower Eastern Shore, badly damaged; infested fields increasing. (U. Md., Ent. Dept.). ILLINOIS - Causing light to severe russetting in 67 percent of soybean fields in southwest Mason County. (Ill. Ins. Rpt.). MISSOURI - Light in few fields of soybeans in "delta" area of southeastern district. (Jones).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - DELAWARE - Severe injury noted in many fields of soybeans throughout State. (Burbutis, Davis).

PEANUTS

CUTWORMS - GEORGIA - Light infestation in 10 of 11 fields checked in Bleckley County. (Lawson). ALABAMA - High populations of *Feltia subterranea* and *Spodoptera frugiperda* continue damaging many peanut fields in Geneva, Houston, Coffee and Henry Counties where controls carried out; 45 larvae per 2 feet of row occurring in some fields in Geneva County. (Smith et al.).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Ranged 20-28 per 100 terminals in peanuts checked in Carter and Marshall Counties. (Okla. Coop. Sur.).

SPIDER MITES - GEORGIA - Heavy on peanuts in Terrell and Pulaski Counties. (Alli-good, Locke).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Adults numerous in Florence area. Adults 0-3 per 100 squares in treated plots, 3-18 in untreated plots. Percent larval infestation 1.7-7.2 in treated plots, 29-37 in untreated plots. (Taft et al., Aug. 10). GEORGIA - Moderate to heavy in southern area. Increasing, up to 50 percent punctured squares, in untreated cotton in Spalding County. Average 15-17 percent in Screven County. (Womack et al.). ALABAMA - Infestation in southern counties continues lower and more spotted than in other areas of State. Northern infestations continue generally high, much higher than southern part of State. Considerable damage to young bolls in central and southern counties where infestations high and squares scarce. (McQueen). TENNESSEE - Square counts ranged 8-9 percent punctured squares in western area. Conditions ideal for further increase. (Locke). MISSISSIPPI - Punctured squares found in 23 of 36 fields in delta counties; infestation averaged 3.5 percent (maximum 44). Most growers obtaining good control. (Pfirmer et al., Aug. 11). Infestation high in northern delta area. Third-generation weevils began emerging in north and central delta region. Infestations ranged 0-50 percent. (Dinkins). LOUISIANA - Number of punctured squares increasing and spread from "hot spots" over fields continues. (Tynes, Aug. 8). Percent punctured squares ranged 1-37 (average 5) in 173 infested fields in Madison Parish. (Cleveland et al., Aug. 11). ARKANSAS - Infesting 81 percent of fields surveyed, but only 25 percent of fields above recommended treatment level. This compares with 71 percent and 20 percent, respectively, last period. (Barnes, Boyer). OKLAHOMA - Punctured square counts ranged 56-80 percent in cotton checked in Garvin, Marshall, Love, Jefferson, and Carter Counties. Moderate in Bryan County. Averaged up to 75 percent in irrigated cotton and up to 25 percent in dryland cotton in Grady County. Averaged 8 percent in McClain County. Ranged 0-5 percent in Beckham County. Reported light to heavy in Caddo County and moderate in Cotton County. (Okla. Coop. Sur.). TEXAS - Punctured squares averaged 16.2 percent in 25 fields in Waco area with maximum of 39.5 percent. Squares scarce in all fields. (Cowan et al.).

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Populations still increasing generally in Florence area with large numbers of hard-to-kill populations reported. Large larvae causing severe damage in many fields with infestation of 45 percent seen. Larval infestations 3.8-13.4 percent in treated plots, 5-6 in untreated plots. (Taft et al., Aug. 10). Damaged squares ranged 1-15 percent (averaged 3.1) in 164 of 191 fields in Madison Parish. Larvae found in 35 fields; infestation ranged 1-6 percent (average 0.3). Eggs 1-4 per 100 terminals in 50 of 181 fields; larvae 1-4 per 100 terminals in 18 infested fields. (Cleveland et al., Aug. 11). GEORGIA - Heavy in several fields in Burke County, egg laying continues heavy in south; infestation in squares increasing, light trap collections increasing in Spalding County. Up to 28 larvae per 100 terminals, Screven County. (Womack et al.). ALABAMA - Increased in cotton in several areas of State. Maturing larvae extremely heavy in some fields in Monroe County, feeding on foliage, bolls and squares. Moth flights general, but rains washed eggs off plants. Flights and egg laying expected to increase. (McQueen). MISSISSIPPI - Injured squares found in 27 of 36 fields in delta counties. Injury averaged 1.8 percent (maximum 7.2).

Eggs averaged 1.7 per 100 terminals in 22 fields. (Pfrimmer et al., Aug. 11). *H. zea* and *H. virescens* egg counts increased throughout "delta" area due to recent rains. Increase in larvae expected. Damage to squares by larvae averaged 3-7 percent throughout northern delta and 5-32 percent in southern and central delta. (Dinkins). LOUISIANA - Increased egg laying activity. Eggs laid all over plants. (Tynes, Aug. 8). MISSOURI - Larvae 1-11 and eggs 1-13 per 100 terminals in 30 percent of 623 fields in "delta" area of southeast. (Jones). NEW MEXICO - Larvae heavy in some cotton fields in Eddy and Dona Ana Counties. High beneficial insect activity in all areas keeping damaged bolls and squares to minimum. (Campbell, Garcia). ARIZONA - Beginning to increase rapidly in most areas of Pima, Pinal and Maricopa Counties and in Yuma Valley of Yuma County. Up to 8 larvae per 25 plants common in many areas. (Ariz. Coop. Sur.).

BOLLWORM (*Heliothis zea*) - TENNESSEE - Some increase in number of fields infested. Considerable damage in many fields. Egg and larval counts ranged 1-12 per 100 terminals. (Locke). ARKANSAS - Infesting 55 percent of fields; 7 percent above treatment level. (Barnes, Boyer). OKLAHOMA - Causing severe damage in isolated fields in Garvin County, up to 48 percent of squares damaged. Egg counts ranged to 20 percent and larvae to 8 percent in other fields in south central counties and McClain County. Light, 3 percent, in Washita County and moderate in Caddo County. Heavy flights continue in Grady County. (Okla. Coop. Sur.). TEXAS - Infestation remains very light in Waco area, only occasional irrigated field treated. Averaged 0.1 egg and 0.7 larva per 100 terminals in 33 fields. Square injury averaged 1.0 percent with maximum of 5 percent in 25 fields. Boll injury averaged 1.7 percent in 33 fields with maximum of 4.8 percent. (Cowan et al.). CALIFORNIA - New hatch occurring throughout Kern County. Young larvae up to 15 per 100 plants in Arving, Shafter, and Kingsburg areas. (Black, Leigh, Aug. 5).

CABBAGE LOOPER (*Trichoplusia ni*) - ALABAMA - Light to heavy in Pike, Greene, Talladega, Dallas, Pickens and Montgomery Counties. Ragging foliage but no damage to squares or bolls reported. County wide infestation in Greene County, some controls applied. Natural viruses which usually eliminate pest not reported. (McQueen). OKLAHOMA - Small larvae increasing in Grady County, range 3-4 per plant. (Okla. Coop. Sur.). ARIZONA - Increasing rapidly in cotton areas of Pima, Pinal and Maricopa Counties. Heaviest in Pima County with counts as high as 60 per 100 plants. (Ariz. Coop. Sur.). CALIFORNIA - Abundant throughout valley in Shafter area, severe larval infestations observed. (Leigh, Aug. 5).

LOOPERS - GEORGIA - Very heavy in some fields, however, virus disease now giving control, Screven County. (Hodges, Scott).

FALL ARMYWORM (*Spodoptera frugiperda*) - GEORGIA - Light in some fields in Screven County. (Scott, Hodges).

COTTON LEAFWORM (*Alabama argillacea*) - LOUISIANA - Infestations increasing in untreated fields in southern part of State. (Tynes, Aug. 18).

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) - ARIZONA - Light in Pima County; 14 per 100 sweeps. Heavier in Casa Grande area of Pinal County. Increasing rapidly in Yuma and Gila Valleys of Yuma County. (Ariz. Coop. Sur.).

PLANT BUGS - MISSOURI - Adults and nymphs ranged 0-34 per 100 terminals in 80 percent of fields scouted in "delta" area of southeast. (Jones). TENNESSEE - *Lygus lineolaris* and *Adelphocoris rapidus* continue to cause light damage over western section. (Locke). LOUISIANA - Infestations decreased in Madison Parish; *Psallus seriatus* found in 6 and *Lygus lineolaris* in 4 of 74 fields. (Cleveland et al., Aug. 11). NEW MEXICO - *Lygus* spp. moderate to heavy on cotton in Eddy County. Some control in progress. (Garcia). CALIFORNIA - *Lygus* bugs continue as problem throughout San Joaquin Valley. Up to 20 nymphs and 5 adults per 50 sweeps. Most serious in untreated fields; damage to small bolls evident. (Leigh, Aug. 5).

STINK BUGS (*Chlorochroa* spp.) - NEW MEXICO - Moderate in cotton in Eddy County. (Garcia).

SPIDER MITES - GEORGIA - Heavy in spots in Screven County. (Scott, Hodges). TENNESSEE - Continue to cause considerable damage over area with severe damage occurring in uncontrolled fields. Further increase expected. (Locke). MISSISSIPPI - *Tetranychus* spp. reported in 11 fields in delta counties; heavy in 2, medium in 1, and light in remainder of fields. (Pfirmer et al., Aug. 11). Spotted light infestations of *T. atlanticus* in Yazoo County. *T. urticae* light in Tallahatchie County; spotted light infestations in Yazoo County. (Dinkins). MISSOURI - *Tetranychus* spp. light in 7 percent of fields scouted in "delta" area of southeast. (Jones). TEXAS - Very light in 7 fields in Waco area. (Cowan et al.). CALIFORNIA - Abundant in many Shafter area fields. (Leigh, Aug. 5)

APHIDS - GEORGIA - Heavy in spots in Screven County. (Scott, Hodges). LOUISIANA - Spotted infestations appearing. (Tynes, Aug. 8). MISSOURI - Light in 4 percent of fields scouted in "delta" area of southeast. Counts slightly higher than last period. (Jones). CALIFORNIA - Found in most Kern County fields. (Leigh, Aug. 5).

THRIPS - NEW MEXICO - Heavy in southern Eddy County. (Garcia).

BEAN THRIPS (*Caliothrips fasciatus*) - CALIFORNIA - Infesting cotton in Kings and Fresno Counties. (Leigh, Aug. 5).

Weather continued from page 798.

WEATHER OF THE WEEK ENDING AUGUST 15, 1966

HIGHLIGHTS: (1) Torrential rains Nebraska, Texas, Arkansas. (2) Cool Midwest.

The town of Fullerton, Nebraska was submerged under as much as 17 feet of water Saturday after 14 inches of rain fell in 24 hours. People were stranded in tree tops, dams and levees crumbled, the water main broke, and civil devense work was carried out in boats. The flood waters of the Loup River and its tributaries necessitated the evacuation of the residents of Fullerton as well as Columbus. Although the results were not so disastrous as in Fullerton, other areas of Nebraska also received heavy rain. By 4 p.m. Friday, Albion recorded 11 inches; Wolback, 9; Ord and Scotia, 6. A foot of rain also fell in southwest Texas on Friday and Saturday. Smaller rivers and streams were at their highest water levels in history, and flooding was severe along the Nueces and Frio Rivers. On Thursday extreme southeast Texas was unundated as 10 inches fell from Houston to the Louisiana border causing serious flooding. Almost 7 inches fell on Saturday morning in east central and southwest Arkansas. With only half the month finished, Little Rock has already broken its August precipitation record. So far 11.7 inches have fallen, eclipsing the 1888 monthly total of 11.1 inches. Elsewhere in the South, precipitation was heavy in the central Carolinas and along the Gulf Coast. Welcomed widespread rain fell in the parched Northeast and Ohio Valley, but the serious drought conditions persisted in the West. It was the wettest week in over 1 month in West Virginia, 2.5 months in Kentucky and 3.5 months in Pennsylvania.

On Thursday winds reached a devastating speed of 156 m.p.h. during a severe thundershower at Linden, New Jersey, and winds blew out windows of homes on Long Island. Gusts up to 70 m.p.h. accompanied several of the storms that swept across the Nation during the week.

A series of continental polar air masses caused temperatures to be below normal from the Rockies to the Appalachians. For the second straight week the cool weather in the Midwest was more typical of autumn than of summer. The Southwest, however, remained hot. Near normal temperatures prevailed in the rest of the Country. (Summary supplied by Environmental Data Service, ESSA).

TOBACCO

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - INDIANA - Heavily damaging tobacco in one Harrison County field. This first report of species feeding on tobacco in State. (Matthew).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Light to medium on tobacco in Pittsylvania County. (Dominick). MARYLAND - Infesting 10.7 percent of plants in St. Marys County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Spotted infestations building up in some Pittsylvania County tobacco fields. (Dominick). MARYLAND - Averaged 13 percent infested in St. Marys County. One field, 42 percent infested, will be treated. (U. Md., Ent. Dept.).

SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Populations lightest in several years. Over 400 acres of Twin Falls area sugar beets have been fumigated for control. (Peay, July 25).

SAY STINK BUG (Chlorochroa sayi) - COLORADO - Remains low on sugar beets in Prowers County, averaging less than 1 per plant, ranging up to 4 per plant. (Schweissing).

WESTERN POTATO LEAFHOPPER (Empoasca abrupta) - CALIFORNIA - Medium in 40-acre planting of sugar beets in College City, Colusa County. (Cal. Coop. Rpt.).

MISCELLANEOUS FIELD CROPS

AN OLETHREUTID (Suleima helianthana) - CALIFORNIA - Medium populations damaging sunflowers at Selma, Fresno County. (Cal. Coop. Rpt.).

SUNFLOWER MOTH (Homoeosoma electellum) - NORTH DAKOTA - These and banded sunflower moth light in sunflower heads in Cass County. (Frye).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - COLORADO - Adults and larvae problem on late potatoes in Weld County. (Uran). ARIZONA - Damaging potatoes in Apache County. (Ariz. Coop. Sur.).

POTATO FLEA BEETLE (Epitrix cucumeris) - MAINE - Summer-generation adults scarce; light in central and southern Aroostook County. (Shands et al.).

SUGAR-BEET WIREWORM (Limonijs californicus) - IDAHO - Found throughout five-acre potato field at Greenleaf, Canyon County. (Thornton, Aug. 5).

POTATO APHID (Macrosiphum euphorbiae) - NEW JERSEY - Light on tomatoes in Burlington and Cumberland Counties. (Ins.-Dis. Newsltr.). COLORADO - Increasing on lower leaves of potato plants in Rio Grande County, 10-30 per lower leaf and 0-5 on upper leaves. (Jenkins).

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Light to moderate on peppers and tomatoes in central and southern counties. (Ins.-Dis. Newsltr.).

Aphids on Potatoes in Maine - Numbers on untreated potatoes at Presque Isle increased slightly, but still low. Aphid nasturtii and Myzus persicae increased substantially, but Macrosiphum euphorbiae decreased due to action of entomogenous fungi. Dead, diseased aphids increased sharply in central and southern Aroostook County. (Shands et al.).

BLACK CUTWORM (*Agrotis ipsilon*) - WISCONSIN - Not as numerous as in 1964. Up to 4 larvae per hill in few potato fields. Most prevalent in irrigated, loam-sand fields. Pupation underway. (Wis. Ins. Sur.).

VARIEGATED CUTWORM (*Peridroma saucia*) - COLORADO - Second and third-instar larvae on potatoes in Rio Grande County average 2 per 100 sweeps, higher counts on lower foliage, 1 per 10 plants. (Jenkins).

CABBAGE LOOPER (*Trichoplusia ni*) - COLORADO - Range 0-5 per 100 sweeps on tomatoes in Arkansas Valley. (Schweissing).

TOMATO RUSSET MITE (*Aculus lycopersici*) - CALIFORNIA - Medium in tomato plantings in Wilton, Sacramento County. (Cal. Coop. Rpt.).

SPIDER MITES - GEORGIA - Heavy on tomatoes in Clarke County. (Jordan).

BEANS AND PEAS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - NEW HAMPSHIRE - All stages causing light to moderate damage to snap beans at Durham and Litchfield. (Conklin, Sutherland, Aug. 5). RHODE ISLAND - Heavy on beans in large planting in Portsmouth, Newport County. (Mathewson, Colodney, Aug. 5). GEORGIA - Heavy on untreated lima beans in Spalding County. (Dupree). OHIO - Adults recently emerged and mating in Delaware County. Numbers below economic levels. (Galford). MICHIGAN - Larvae and pupae common in field margins in Arenac and nearby counties. (Janes). ARIZONA - Heavy populations damaging garden beans in Snowflake area of Navajo County. (Ariz. Coop. Sur.).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - DELAWARE - Adults present in lima beans in most areas of State; light feeding injury in most fields. (Burbutis, Davis).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - GEORGIA - Causing moderate damage to peas in Spalding County. (Dupree).

COWPEA CURCULIO (*Chalcodermus aeneus*) - ALABAMA - Considerable damage occurred to southern peas in Lee County where controls underway. (Shotts).

BEAN APHID (*Aphis fabae*) - VIRGINIA - Severe infestations on beans in King and Queen County. (Isakson, Sedivy).

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - IDAHO - Light trap collections to date have exceeded those for 1962 in Cassia, Minidoka and Twin Falls Counties. (Peay, Aug. 5).

SPIDER MITES - IDAHO - Populations serious in Twin Falls County commercial beans. (Peay, July 22).

LEAF-FOOTED BUG (*Leptoglossus phyllopus*) - TEXAS - Heavy on black-eyed and purple hull peas in Wilbarger County. (Texas Coop. Rpt.).

COLE CROPS

IMPORTED CABBAGEWORM (*Pieris rapae*) - RHODE ISLAND - Injuring Brussels sprouts in North Smithfield. (Mathewson, King, Aug. 5).

CABBAGE LOOPER (*Trichoplusia ni*) - NEW HAMPSHIRE - First to third stages present on cabbage at Litchfield. All stages of this and diamondback moth continue at Litchfield. (Sutherland, Aug. 5). OREGON - Probably this species in economic numbers in broccoli and other cole crops near Woodburn, Marion County, and Gresham, Multnomah County. Control difficult. (Crowell).

A SPRINGTAIL (Hypogastrura armata) - CALIFORNIA - Heavy population infesting cauliflower roots in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - MICHIGAN - Adults heavier than normal in Macomb County vegetable areas this season. High incidence of bacterial wilt on cucumbers and muskmelons also. (Caldwell).

SQUASH BUG (Anasa tristis) - TEXAS - Moderate on squash and cantaloup in Wilbarger County. (Boring).

SPIDER MITES - UTAH - Damaging cantaloups near Ogden, Weber County. (Knowlton).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Medium on 5 acres of watermelons in Fresno, Fresno County. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

New State of Hawaii Insect Record - A CRYPTOCHAETID FLY (Cryptochaetum iceryae) caught in light trap at University of Hawaii, Honolulu, Oahu, July 10, 1966. No record of this parasite of cottony-cushion scale being purposely introduced into State. Det. by D. E. Hardy. (Beardsley).

Insects of Regional Significance - SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) nymphs and adults light to medium on soybeans and snap beans in Hilo, Hawaii Island, with light damage to snap beans; medium and moderately damaging snap beans in Waiakoa, Maui; and light on yard-long beans in Waimanalo, Oahu, about 15 per 50-foot row. (Yoshioka, Miyahira, Higa).

General Vegetables - CORN EARWORM (Heliothis zea) and CHINESE ROSE BEETLE (Adoretus sinicus) heavy in corn field in Hilo, Hawaii Island. Foliage severely damaged by adults. (Fukumura). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) continues heavy on tomatoes and snap beans in Omaopio and Waiakoa, Maui, and in Waianae and Waimanalo, Oahu. (Haw. Ins. Rpt.). All stages of CARMINE SPIDER MITE (Tetranychus telarius) light in 2 acres of watermelon in Hauula, Oahu. (Sato). SEED-CORN MAGGOT (Hylemya platura) larvae heavy and severely damaging cauliflower seedlings in Volcano area of Hawaii Island; up to 15 per seedling 3 days after transplanting. Adults det. by D. E. Hardy. (Matsumoto, Yoshioka). DIAMONDBACK MOTH (Plutella maculipennis) larvae heavy on mustard, cabbage and broccoli in Waialua, Oahu. (Kitagawa). ONION THRIPS (Thrips tabaci) adults medium to heavy on Manoa lettuce in Waianae, Oahu. (Yamamoto).

Fruits - All stages of a BARK BEETLE (Xylosandrus compactus) light to medium in avocado trees at Kipukai Ranch, Kauai. Damaging twigs and branches averaging 0.5 inch in diameter. (Au).

Beneficial Insects - Several larvae and numerous adults of a LADY BEETLE (Hyperaspis limbalis) collected on native bunchgrass in Pohakuloa, Hawaii Island, June 21-22; feeding on Trionymus insularis (a mealybug) infesting grass. This new island record and first definite host record. Previously recorded from Maui and Oahu; apparently purposely introduced in 1906, but not found established until 1954. (Beardsley). Adults of TACHINA FLIES (Trichopoda pennipes (Florida strain) and T. pennipes var. pilipes (Trinidad strain)) much in evidence on Lippia sp. flowers in Makawao, Maui. (Miyahira). Larvae and adults of a PUNCTURE-VINE STEM WEEVIL (Microларinus lypriformis) increasing activity on puncture-vine along highway from Puunene to Kihei, Maui. On Kauai, larvae and adults again damaging Tribulus cistoides (nohu) in Kekaha; activity not noticed in area for past 6 months. (Miyahira, Au). On Maui larvae of a TORTRICID MOTH (Aptorma sp.) and a HELIODI-NID MOTH (Schreckensteiniella festaliella) continue active on blackberry in Olinda and Waiakamoi. Infested leaves in another blackberry area in Kahikinui. (Miyahira).

GENERAL VEGETABLES

FLEA BEETLES - NEW YORK - Numerous on most vegetables in Nassau and Suffolk Counties. (N. Y. Wkly. Rpt., Aug. 8).

STALK BORER (Papaipema nebris) - VIRGINIA - Medium larval infestations attacking vegetable crops in Wise County area. (Isakson, McCormick).

CABBAGE LOOPER (Trichoplusia ni) - WISCONSIN - Probably this species, causing from one-fourth to near total defoliation of vegetable crops in sandy central counties. Also a problem in Outagamie, Trempealeau, and some southern counties. (Wis. Ins. Sur.).

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Winged adults light on eggplant in Burlington and Cumberland County fields. (Ins.-Dis. Newsltr.).

FALSE CHINCH BUG (Nysius ericae) - IDAHO - Spotted damage occurring on radishes in Minidoka and Lincoln Counties. (Smith, Hopkins, Peay, Aug. 5).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - MASSACHUSETTS - Four moths taken at East Wareham. (Tomlinson, Aug. 5). NEW YORK - Summer-brood moths now appearing in large numbers in eastern area. Active in Columbia County; larvae entering hail damaged pears not treated recently. (N. Y. Wkly. Rpt., Aug. 8). OHIO - Damaging 10 percent of apples in unsprayed orchard in Fairfield County. (Holdsworth). INDIANA - Adults in bait traps declined slightly, from 20 to 14, in past week. Small larvae present in most apples of unsprayed trees in Vincennes area. (Dolphin, Aug. 8). NEW MEXICO - Heavy in poorly treated or untreated apple trees in Albuquerque, Bernalillo County. (Heninger).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Adult emergence indicated by capture of 15, compared to 1 previous week at Vincennes. (Dolphin, Aug. 8).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Adult collections in 5 bait traps were 14 at Vincennes; 19 collected previous week. (Dolphin, Aug. 8). OKLAHOMA - Mature larvae common in ripening peaches checked in Perkins area, Payne County. (Okla. Coop. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - VERMONT - Rapid buildup in many orchards, with severe bronzing. (MacCollom, Aug. 8). NEW YORK - Buildup noticeable in several orchards in Clinton and Essex Counties where little or no controls applied since oil spray. Continues most important fruit pest in Monroe County. Large populations on sour cherries and peaches. (N. Y. Wkly. Rpt., Aug. 8). NEW JERSEY - Building up rapidly and bronzing leaves in some orchards throughout State. (Ins.-Dis. Newsltr.). OHIO - Up to 80 per leaf and bronzing noted on some apple foliage in Licking County orchard. (Rose).

SPIDER MITES - NEVADA - Heavy on apples in Caliente, Lincoln County. (Christner). UTAH - Damage to apple and pear conspicuous in orchards in Salt Lake, Utah, Weber, Box Elder and Juab Counties. (Knowlton, Burningham). Damaging apple foliage at Holden and Fillmore, Millard County, and pears in parts of Cache County. Damage increasing in Weber County apple and pear orchards. (Knowlton). NEW YORK - Tetranychus spp. moderate in few orchards in Clinton and Essex Counties. (N. Y. Wkly. Rpt., Aug. 8).

PEACH SILVER MITE (Aculus cornutus) - NEW JERSEY - Abundant and silvering leaves in several central area peach orchards. (Ins.-Dis. Newsltr.).

MCDANIEL MITE (Tetranychus mcdanieli) - NEW MEXICO - Few apple trees seriously damaged in Albuquerque, Bernalillo County. (Heninger).

APPLE MAGGOT (Rhagoletis pomonella) - VERMONT - Flies easily observed in abandoned and unsprayed trees. (MacCollom, Aug. 8). RHODE ISLAND - Adults observed in Gloucester, Providence County, and probably statewide. (Mathewson, King, Aug. 5). NEW YORK - Sharp decline in fly emergence in eastern area, started July 30 and continues. Daily emergence dwindled to less than 20 from peak of over 900. Decrease greater than usual, probably result of extremely dry soil. Emergence tapered off in Monroe County. (N. Y. Wkly. Rpt., Aug. 8). WISCONSIN - Adult trapping indicates general increase throughout State. (Wis. Ins. Sur.).

PLUM CURCULIO (Conotrachelus nenuphar) - SOUTH CAROLINA - Light infestations statewide. (Nettles). OKLAHOMA - Larvae light to moderate in ripening peaches in Perkins area, Payne County. (Okla. Coop. Sur.).

PEAR-SLUG (Caliroa cerasi) - UTAH - Damage to cherry and pear orchards normal to severe in Salt Lake County. (Burningham, Knowlton). NEVADA - Medium to heavy on cherries and pears in Caliente, Lincoln County. (Christner). NEW MEXICO - Light damage to pear and cherry trees in Bernalillo County; feeding on cherry trees in Santa Fe County. (Durkin, Heninger).

BUFFALO TREEHOPPER (Stictocephala bupalus) - NEW HAMPSHIRE - Adults present in apple orchards at Gilmanton. (Sutherland, Aug. 5).

FORK-TAILED BUSH KATYDID (Scudderia furcata) - INDIANA - Nymphs and adults common in unsprayed apple and peach trees at Vincennes. Some oviposition taking place. (Dolphin, Aug. 8).

FILBERT MOTH (Melissopus latiferreanus) - OREGON - Peak of adult emergence reached this week in Lane County. (Tinker).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Present and causing nut drop from trees in some areas of Payne County. (Okla. Coop. Sur.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Adult emergence and active feeding continue on pecans in Payne County. (Okla. Coop. Sur.).

MAY BEETLES - GEORGIA - Defoliating small pecan trees, Spalding County. (Dupree).

CITRUS

BEE TARMY WORM (Spodoptera exigua) - ARIZONA - Small infestations feeding on citrus in Pinal County. (Wiseman).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Damaging infestations continue in citrus groves of Yuma County. (Ariz. Coop. Sur.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - CALIFORNIA - Locally heavy on citrus in San Diego, San Diego County. (Cal. Coop. Rpt.).

SMALL FRUITS

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - UTAH - Above normal damage to strawberry plantings and some raspberry patches in Salt Lake County. (Burningham, Knowlton).

A SAP BEETLE (Glischrochilus quadrisignatus) - IDAHO - Feeding on ripe strawberries and raspberries in Preston, Franklin County. (Roberts, Aug. 2).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Medium population damaging foliage and fruit of grapes in 10-acre vineyard in Fowler, Fresno County. Berry rot occurred as result of feeding. (Cal. Coop. Rpt.).

GRAPE LEAF FOLDER (Desmia funeralis) - MICHIGAN - Blacklight collections indicate widespread flight over Lower Peninsula. (Newman).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Moth activity declined markedly; early larvae beginning to leave berries. (Tomlinson, Aug. 5).

BLUEBERRY MAGGOT (Rhagoletis mendax) - MASSACHUSETTS - Fly activity declined but enough present to damage late-maturing berries. (Tomlinson, Aug. 5).

ORNAMENTALS

FLETCHER SCALE (Lecanium fletcheri) - NEW HAMPSHIRE - Moderate on taxus at Manchester. (Sutherland, Aug. 5).

MEXICAN MEALYBUG (Phenacoccus gossypii) - FLORIDA - Moderate to severe damage to leaves of 23 confederate-jasmine in nursery at Cocoa, Brevard County; all stages present. (Levan, Aug. 2).

FULLER ROSE BEETLE (Pantomorus godmani) - CALIFORNIA - Adults heavy on leaves of Prunus sp. locally in San Diego, San Diego County. (Cal. Coop. Rpt.).

A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) - DISTRICT OF COLUMBIA - Damaging young rhododendrons. (U. Md., Ent. Dept.).

BAGWORM (Thyridopteryx ephemeriformis) - MARYLAND - Severe damage to 100 red cedars in Prince Georges County. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Heavy on geranium plants in San Luis Obispo. (Cal. Coop. Rpt.).

AILANTHUS WEBWORM (Atteva aurea) - OHIO - Severe leaf feeding and webbing on planting of Ailanthus sp. in Miami County nursery. (Kennedy). ILLINOIS - Webbing leaves of ailanthus trees in central area; causing some browning. Populations appear heavier than past 6 or 7 years. (White).

A LACE BUG (Stephanitis takeyai) - RHODE ISLAND - Heavy infestation seriously injuring Pieris japonica in Wakefield, Washington County. (Mathewson).

ROSE LEAFHOPPER (Edwardsiana rosae) - UTAH - Discoloring rose foliage in areas of Millard and Juab Counties. (Knowlton).

FOREST AND SHADE TREES

BARK BEETLES - CALIFORNIA - Ips spp. and Dendroctonus brevicomis infesting private lands in 40-50 acre plots in Sugar Creek-South Fork areas, Klamath National Forest. Groups of 10-15 trees affected. (Barrington, USFS). Dendroctonus ponderosae medium in sugar pine trees in 2 sections of Trinity National Forest. (Dresser, CDF).

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Emerged July 27 from pine leaders collected in Columbia County July 7. (Wis. Ins. Sur.).

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) - NEW HAMPSHIRE - Larvae damaging trees in white spruce plantation at Stewartstown. (Conklin, Aug. 5).

COOLEY SPRUCE GALL APHRID (Adelges cooleyi) - OHIO - Winged adults emerged in Mahoning County July 15. (Kelly).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - VERMONT - Crawlers settling down. (MacCollom, Aug. 8). WISCONSIN - Emergence of crawlers retarded due to recent cool weather. (Wis. Ins. Sur.).

A GEOMETRID MOTH (Nepytia sp.) - CALIFORNIA - Damaging Douglas-fir trees in Bear-trap Creek and Trough Creek areas of Shasta-Trinity National Forest. Lack of caterpillars indicates virus and egg parasite active. Heavy populations in Big Bend and Hawkins Creek area, Shasta County. (Jensen, Roettgering, USFS).

ELM LEAF BEETLE (Pyrrhalta luteola) - VIRGINIA - Larvae and adults on leaves of elm trees in Appomattox County. (Isakson, Smith). ALABAMA - Adults heavy on elms in Cherokee County. (Moody et al.). OHIO - Second-generation larvae actively defoliating Chinese elm in Madison County; larvae numerous and damage heavy; 50-70 percent of leaves skeletonized. (Gibson). TEXAS - Continues to infest many elms in Rolling and High Plains areas of State with extensive damage. (Texas Coop. Rpt.). NEW MEXICO - Heavy on elm trees in Bernalillo and eastern Valencia Counties. (Heninger). Feeding on elm in Chaves, Grant and Socorro Counties. (Durkin). ARIZONA - New-generation larvae continue to pose threat to elm trees in Phoenix area, Maricopa County. (Ariz. Coop. Sur.). UTAH - More extensive and severe than normal in Salt Lake County. (Burningham, Knowlton).

HICKORY BARK BEETLE (Scolytus quadrispinosus) - MARYLAND - Infested hickories dying in southern Washington County. (U. Md., Ent. Dept.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - OHIO - Pupation nearly complete and most adult beetles emerged in Holmes County. (Cannon). RHODE ISLAND - More evident on black locust throughout State than in several years. (Mathewson, Aug. 5).

POPLAR-AND-WILLOW BORER (Sternochetus lapathi) - NEW HAMPSHIRE - Larval damage to willows widespread. Most new pupae or adults. (Sutherland, Aug. 5).

FALL WEBWORM (Hyphantria cunea) - RHODE ISLAND - Webs evident in all parts of State. Apparently more generalized than in last 2 years. (Mathewson, Aug. 5). OHIO - Larvae active in east central area; damage light. (Rose). INDIANA - Heavier than normal in south central and southwestern regions as well as extreme northern areas of State. (Huber). ILLINOIS - Nests present in most areas of State; very abundant in some spots. (White). NEW MEXICO - Light to moderately heavy on poplar and fruit trees in Bernalillo County. Some damage on poplar and pecan trees in Las Cruces area, Dona Ana County. (Campbell).

WALNUT CATERPILLAR (Datana integerrima) - ILLINOIS - Light to complete defoliation of walnut trees throughout northern two-thirds of State. (White). OHIO - Defoliated walnuts in Delaware County. Heavy infestation of late-instar larvae damaging several walnut trees in Licking County. (Walker, Galford). VIRGINIA - Active in Rockbridge County. (Isakson, Strecker).

POPLAR TENT MAKER (Ichthyura inclusa) - SOUTH CAROLINA - Defoliating poplars at Sumter. Det. by R. C. Fox. (Nettles, Aug. 9).

AN OLETHREUTID MOTH (Episimus tyrius) - FLORIDA - Larvae moderate to severe on stems and leaves of 88 of 110 maples in nursery at Melbourne, Brevard County. (Levan, July 20).

BOXELDER LEAF ROLLER (Gracillaria negundella) - CALIFORNIA - Heavy on boxelder trees locally in Fresno, Fresno County. (Cal. Coop. Rpt.).

MORNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW MEXICO - Light to heavy damage on elm and willow in Bernalillo County. (Heninger).

EUROPEAN ELM SCALE (Gossyparia spuria) - TEXAS - Causing heavy damage to many elms; several dead or dying. (Texas Coop. Rpt.). IDAHO - Heavy infestation on elm at Carey, Blaine County. (Eakins).

COREID BUGS (Mozena spp.) - CALIFORNIA - M. lineolata heavy on Paloverde trees in Borrego Springs, San Diego County. (Cal. Coop. Rpt.). TEXAS - Probably M. obtusa heavy on mesquite in several panhandle counties. Populations spread, economic infestations on mimosa trees. (Hartley, Gray, Rummel).

SYCAMORE LACE BUG (Corythucha ciliata) - OKLAHOMA - Heavy infestations on sycamores checked in Payne County. Corythucha sp. reported heavy on white oak in Payne County. (Okla. Coop. Sur.)

A FLATID PLANTHOPPER (Anormenis septentrionalis) - DELAWARE - Abundant on black walnut trees in New Castle County. (Burbutis, Davis).

A CECIDOMYIID MIDGE (Cecidomyia ocellaris) - WISCONSIN - Numerous on 1-2 year old maples in Door County nursery. (Wis. Ins. Sur.).

WOOLLY ALDER APHID (Prociphilus tessellatus)- TEXAS - Heavy on white maple in Morris County. New State record. Det. H. van Cleave, confirmed L. M. Russel. (Dean).

SPIDER MITES - MINNESOTA - Severely infesting evergreens in some locations in south central area. (Minn. Ins. Rpt.). IDAHO - Severe on juniper in Nez Perce County. (Thomas, Aug. 5). NEVADA - Heavy on young ash, poplar and willow trees at State tree nursery in Sparks, Washoe County. (Christner).

MAN AND ANIMALS

MOSQUITOES - MINNESOTA - Aedes vexans continues dominant in light trap and larval collections; also dominant in evening and daytime bite collections. One Anopheles quadrimaculatus taken; this first of year. (Minn. Ins. Rpt.). WISCONSIN - Recent rains caused new hatches in northern counties. (Wis. Ins. Sur.). UTAH - Troublesome about homes and fields in areas of Box Elder and Cache Counties. Annoyance still severe in parts of Rich County. (Knowlton). OKLAHOMA - Psorophora spp. moderate to heavy populations annoying people in northern and eastern areas of State. (Okla. Coop. Sur.). LOUISIANA - Larval collections included Aedes triseriatus, Culex pipiens quinquefasciatus, C. salinarius, Psorophora ciliata, P. confinnis and Uranotaenia lowii. Light trap collections consisted of C. salinarius, Mansonia perturbans and P. confinnis. (Stokes).

HORN FLY (Haematobia irritans) - MARYLAND - Average 6 flies per cow in Frederick County. (U. Md., Ent. Dept.). GEORGIA - Moderately heavy on untreated beef cattle in Hancock County. (Nolan, Snoddy). MISSISSIPPI - Increase noted in Oktibbeha County. Number of pupae in droppings increasing, average 50-60 per dropping. (Dinkins). ARKANSAS - Up to 400 per head of cattle in Craighead County. (Roberts). OKLAHOMA - Averaged 200 per head, ranged 50-400 on mature cattle in Garvin County. Heavy in eastern areas of State and in Cotton County. (Okla. Coop. Sur.). WYOMING - Large numbers of adults observed on cattle in northeastern area; ranged from 75-1,000 (average 200) flies per side. Hereford bulls yielded highest counts, 500-1,000 per side. (Robb, Marks). UTAH - Troublesome and numerous in Delta-Deseret area, Millard County. (Knowlton). IDAHO - Adults average 25-75 per animal in Caribou and Franklin Counties; as high as 500-1,000 on bulls. (Duren, Brown, O'Keefe, Aug. 5).

FACE FLY (Musca autumnalis) - VERMONT - Average 35-40 per animal. (MacCollom, Aug. 8). UTAH - Annoyance to horses and cattle increasing in Box Elder, Cache and Weber Counties. (Knowlton).

HORSE FLIES (Tabanus spp.) - VERMONT - T. atratus continues abundant on pastured cattle in Shoreham, averaging 2-3 per animal. (MacCollom, Aug. 8). OKLAHOMA - Tabanus spp. counts per head in Atoka and Cherokee Counties averaged as follows: T. sulcifrons 1-2, T. lineola complex 1-2, T. atratus 1, T. molestus 1. Tabanus spp. reported heavy on cattle in Mayes and Cotton Counties and on horses in Payne County. (Okla. Coop. Sur.). TEXAS - T. lineola infesting faces of cattle in Van Zandt and Wharton Counties. (Texas Coop. Rpt.).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Average 0.8 per cow in Frederick County. (U. Md., Ent. Dept.). WISCONSIN - Numerous in many areas; bothersome to cattle at present. (Wis. Ins. Sur.). WYOMING - Adults range 8-25 (average 15) per animal in pastures in northeastern area. (Robb, Marks).

HOUSE FLY (Musca domestica) - OKLAHOMA - Counts ranged 20-30 per Scudder grid in untreated barns in Payne County. (Okla. Coop. Sur.). ARIZONA - Large populations moving into homes throughout State to escape summer storms. (Ariz. Coop. Sur.).

SHEEP BOT FLY (Oestrus ovis) - WYOMING - Adult activity annoying sheep in north-eastern areas. (Robb, Marks).

A BROWN SPIDER (Loxosceles reclusa) - ARIZONA - Specimen taken from body of patient at hospital in Tucson after the man bitten. Det. by W. J. Gertsch. This new State record. (Roth, Lindsey).

LONE STAR TICK (Amblyomma americanum) - GEORGIA - Population down in Hancock County; 16-20 adults and 1-4 "seed" ticks per square inch on untreated beef cattle; 0-4 adults and no "seed" ticks on treated beef cattle. (Nolan, Snoddy). OKLAHOMA - Larvae continue increase on cattle in Atoka and Cherokee Counties. Adults essentially gone. (Okla. Coop. Sur.).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - INDIANA - Adults and nymphs collected in Jackson County cabin. Adults bit occupant May 21 and again July 10, causing painful swelling. (Misselhorn et al., Aug. 5).

BED BUG (Cimex lectularius) - CALIFORNIA - Occurrence in residences increased in San Fernando Valley past few months. Previously only occasional incident reported. (Holmer, Aug. 5).

AN EARTHWORM MITE (Fuscuropoda agitans) - CALIFORNIA - Heavy in worm farm in Tulare, Tulare County. (Cal. Coop. Rpt.).

HOUSEHOLDS AND STRUCTURES

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - RHODE ISLAND - Household infestations reported from all sections of State. Appear especially abundant this season. (Mathewson, Veilleux, Aug. 5).

CARPENTER ANTS (Camponotus spp.) - RHODE ISLAND - Alates evident statewide. (Mathewson, Veilleux).

OLD-HOUSE BORER (Hylotrupes bajulus) - SOUTH CAROLINA - Causing serious damage to furniture at Spartanburg. (Kissam). GEORGIA - Infesting home in Pulaski County. (Alligood).

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - Adults invading homes in Latah County. (Manis, July 20).

STORED PRODUCTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - UTAH - Infesting granary and nearby home at Emery, Emery County. (Knowlton). IDAHO - Infesting barley and oat storage in Coeur d'Alene, Kootenai County. (Stranahan, July 27).

BENEFICIAL INSECTS

CHINESE MANTID (Tenodera aridifolia sinensis) - INDIANA - Nymphs and adults observed in apple and peach trees at Vincennes. (Dolphin, Aug. 8).

A EULOPHID WASP (Aphelinus mali) - INDIANA - Large numbers present with an infestation of woolly apple aphid on caged apple trees at Vincennes. (Dolphin, Aug. 8).

DAMSEL BUGS - MICHIGAN - Most efficient predators in reducing pea aphid numbers in Washtenaw County. (Dowdy). ARKANSAS - Nabis spp. and big-eyed bugs most important predators in soybeans in southwest and east central areas. Lacewing larvae more common in soybeans in southwest area than in east central area. (Boyer).

LADY BEETLES - COLORADO - These larvae and lacewing larvae increasing on potatoes in Rio Grande County, 6-10 per 100 sweeps. (Jenkins).

A PUNCTURE-VINE STEM WEEVIL (Microlarinus lareynii) - NEW MEXICO - Recent releases of this weevil have established very well on puncture-vines in Las Cruces area. (Campbell).

Beneficial Insects in Cotton - CALIFORNIA - Populations continue high in Kern County. Big-eyed bugs and lacewings abundant. Collops spp. very effective in heavy spider mite infestations. (Black, Leigh, Aug. 5).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OREGON - Melanoplus sanguinipes and Camnula pellucida infesting 14,000 acres of Bureau of Land Management seedings west of Jordan Valley near Antelope Reservoir, Grant County, in economic numbers. Area in John Day Valley between John Day and Prairie City, south of highway also infested with counts over 7 per square yard. (Parkinson). IDAHO - Decreasing in southern desert area. (Evans, Aug. 5). UTAH - Abundant about some farms at Holden and McCormick, Millard County. (Knowlton, Aug. 8). Common but less extensive than past five years in Salt Lake County. (Knowlton, Burningham). NEW MEXICO - Melanoplus spp. heavy near roads, ditches and fence rows around alfalfa fields in Bernalillo County. (Heninger). NORTH DAKOTA - Noneconomic to light infestations in Burleigh, Emmons, Logan, McIntosh, Dickey and La Moure Counties. Marginal counts up to 20

and averaged 6 grasshoppers per square yard. Field counts up to 7 and averaged over 1 per square yard. Heaviest in flax and alfalfa fields; damage evident. Dominant species included Melanoplus femurrubrum, M. bivittatus, M. differentialis and M. sanguinipes. Development third instar to adult. (Stoltenow). NEBRASKA - Melanoplus spp. building up in portions of central, northeast and east. (Hill, Rhine). OKLAHOMA - Survey results show approximately 120,000 acres of rangeland in Comanche, Cotton, Tillman and Jefferson Counties with economic numbers of 8-14 adults per square yard. Melanoplus bivittatus, Phlibostroma quadrimaculatum, Mermiria maculipennis and Melanoplus packardii dominant. Counts in Atoka and Pittsburg Counties generally below threatening level. (Okla. Coop. Sur.). ARKANSAS - Average 20 per square yard along railroad in Lonoke County. (Loftin). WISCONSIN - Lighter than in previous years. Damage minimal. (Wis. Ins. Sur.). INDIANA - Melanoplus spp. adults and nymphs 11 per sweep on red clover grown for seed in south central district. Roadside populations up to 23 per square yard in same area. In one Carroll County alfalfa field, up to 40 per sweep. (Huber, White). OHIO - Melanoplus spp. nymphs 1-6 per sweep in alfalfa in Licking, Knox, Holmes and Harrison Counties. (Rose). MARYLAND - Melanoplus spp. nymphs light on alfalfa in Frederick and Queen Annes County. (U. Md., Ent. Dept.).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - General infestation continues low. (Mathewson, Veilleux, King, Aug. 5). VIRGINIA - Large numbers on corn silk in 1 Montgomery County field; feeding on about 80 percent of plants, up to 15 per ear. (Isakson). SOUTH CAROLINA - Marked reduction in numbers of adult beetles at Greenville. (Butler). OHIO - Infesting soybeans in Licking County. (Scheetz, Jones). INDIANA - Adults averaged 6 per linear foot in 1 soybean field in La Porte County. (Matthew). MICHIGAN - Additional 25 beetles taken in 12 traps in Detroit area; 1 more beetle trapped in rural Monroe County; 5 new finds made near Battle Creek. (Moore).

MEXICAN BEAN BEETLE (Epilachna varivestis) - IDAHO - Infesting 18 properties within city limits of Boise, Ada County. Surveys continue; all infestations sprayed with intent of eradication. (State Dept. of Agr.). Commercial bean field infested in Minidoka County. This first report of insect in county. (Peay, Aug. 5).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Heavy locally on foliage of soybeans in Geneva County. (Smith).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Six more males taken in detection traps in Calhoun County infestation area; 4 in one trap and single catches in 2 others. One specimen taken approximately 3 miles southeast of infestation site. All other catches this year (14 specimens in 7 traps) within 1 mile of known infestation. (Moore). NEW YORK - Egg clusters in some areas of Suffolk County. (N. Y. Wkly. Rpt., Aug. 8).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Eleven males taken in sex lure traps at Bard, Imperial County. (Hawthorne, Aug. 5). ARIZONA - Two light infestations found in West Chandler area and medium infestations found in Lehi Valley area of Maricopa County. Beginning to increase; new infestations detected in areas of Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Boll inspections in southern Eddy County reveal medium to heavy infestations; up to 30 percent infested bolls. (Garcia).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Spray program in progress on approximately 175,000 acres of rangeland in Colfax and Union Counties. (N. M. Coop. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Four larvae taken from cattley guava, one from calamondin at Sebring, Highlands County, (Morris, Aug. 3); 16 larvae collected from yellow cattley guava in dooryard at Fort Myers, Lee County, (Williams, Aug. 6); 2 larvae taken from fruit of governors plum in dooryard at Miami, Dade County, (Sherron, July 20); 4 larvae taken from fruit of waterapple, Syzygium samarangense, at Homestead, Dade County, (Dowling, Swanson, Aug. 1). Two adult females taken on sticky board trap in common guava tree at Bradenton, Manatee County, August 10. This new county record. (Chaney).

STATUS OF PEAR SAWFLY IN THE UNITED STATES

The presence of pear sawfly (Hoplocampa brevis) in Ontario, Canada, was confirmed in 1965. This was the first report of the European species in North America. Taxonomic study of Canadian material led to a review of specimens of this group of sawflies in the United States National Museum collection. The study revealed that H. brevis had been collected from Orange County, New York, in 1953. A definite determination at the time had not been possible due to taxonomic difficulties in the group and the poor state of the specimens.

Plant Pest Control Division and cooperators in the Northeastern States conducted a detection survey for the pest during the spring of 1966 in order to determine if it was still established in Orange County, New York, and if it occurred in additional areas. The map below shows where the insect was found in this survey. Presence of H. brevis was confirmed in 5 counties in New York, 3 in Pennsylvania, 5 in Connecticut and one in Rhode Island.

As far as can be determined, the sawfly has not developed to economic significance in any area where it has been found in the U. S. This fact, together with its widespread distribution in the Northeast, would indicate that further organized Federal and State action against the pest is not indicated at this time. The pest should be kept under surveillance, however, as it has been known to develop into sporadic outbreaks in Europe. Alertness for its presence in the major pear-producing areas, particularly in the West, should be maintained. Cooperators are encouraged to report the presence of H. brevis and its activity to Survey and Detection Operations, Plant Pest Control Division, in order that a current file may be maintained on this introduced species. (PPC).

Distribution of H. brevis in the United States

NEW YORK
Columbia
Ontario
Orange
Oswego
Wayne

PENNSYLVANIA
Lebanon
Lehigh
York

CONNECTICUT
Fairfield
Hartford
Litchfield
New Haven
Tolland

RHODE ISLAND
Providence



MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - TEXAS - No specimens taken since July 27 in Brownsville. Ninth cover spray completed August 13. Three male flies collected July 27 across Rio Grande in Matamoros, Mexico; additional fly (female) collected in Matamoros July 27. Finds in Mexico included in spray area. (PPC).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 11 cases reported in U. S. August 7-13 as follows: TEXAS - Cameron 1, Presidio 1, Willacy 1. NEW MEXICO - Grant 2, Eddy 1, Socorro 1. ARIZONA - Mohave 1, Pima 1, Yavapai 1. CALIFORNIA - Riverside 1. Total of 216 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 7, Baja California 1, Sonora 89, Chihuahua 74, Coahuila 2, Nuevo Leon 13, Tamaulipas 30. Total of 907 cases reported from Mexico south of Barrier Zone. Barrier Zone is area in which eradication operations underway to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released: Texas 8,534,250, New Mexico 3,856,000, Arizona 13,960,000, California 400,000, Mexico 96,488,000. (Anim. Health Div.).

CHAFF SCALE (*Parlatoria pergandii*) - CALIFORNIA - Occurring on citrus trees in new location in Nicolaus, Sutter County. This scale under eradication in this area. (Cal. Coop. Rpt.).

INSECT DETECTION

NEOTROPICAL CORN BORER (*Zea diatraea lineolata*) - TEXAS - Specimens collected and determined by P. T. Rihard in southern part of State in 1954 and 1964 and confirmed by R. W. Hodges constitute first confirmed record for United States. (p. 801).

New State Records

A CRYPTOCHAETID FLY (*Cryptochaetum iceryae*) - HAWAII - Taken in light trap on island of Oahu. Det. by D. E. Hardy. (p. 810).

WOOLLY ALDER APHID (*Prociphilus tessellatus*) - TEXAS - Heavy on white maple in Morris County. Det. by H. van Cleave, confirmed L. M. Russell. (p. 815).

A BROWN SPIDER (*Loxosceles reclusa*) - ARIZONA - Specimen taken from patient in hospital in Tucson; patient bitten. Det. by W. J. Gertsch. (p. 816).

New County and Island Records

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - ILLINOIS - Collected in Woodford and Lee Counties. MISSOURI - Found in several counties. (p. 801).

A LADY BEETLE (*Hyperaspis limbalis*) - HAWAII - Collected on Hawaii Island. (p. 810).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - COLORADO - Taken on elm in Mesa County. (p. 813).

MIMOSA WEBWORM (*Homadaula albizziae*) - ILLINOIS - Caused severe browning of honey-locust in Cass County. (p. 813).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - IDAHO - Infested commercial bean fields in Minidoka County. (p. 818).

CARRIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Two adult females taken on sticky board trap in common guava trees in Manatee County. (p. 818).

NEOTROPICAL CORN BORER (Zeadiatraea lineolata (Walker))

Economic Importance - Small larvae skeletonize patches of leaves of young corn, whereas older ones tunnel the stalks and sometimes the ears. Damaged stalks may be broken by the wind or cultivation. Lodging and loss of ears often result in reduction in yield. The species occasionally is a pest of corn in Venezuela. There is little in available literature on the economic importance of this pest.

Distribution - Bahamas, British Guiana, Colombia, Costa Rica, Cuba, Guatemala, Mexico, Nassau, Nicaragua, Panama, Salvador, Trinidad, Venezuela. United States: Texas. Collections of this species were made by P. T. Riherd as early as September 23, 1954. Additional collections included larvae reared from corn in August 1964. Determinations were made by P. T. Riherd and confirmed by R. W. Hodges. According to Dr. Hodges, earlier records of the species in the United States were based on color pattern and are open to doubt.

Hosts - Corn, Guatemala grass (Tripsacum laxum) and teosinte. Although attacks on sugarcane have been recorded in literature, H. E. Box states that these are rare and accidental.

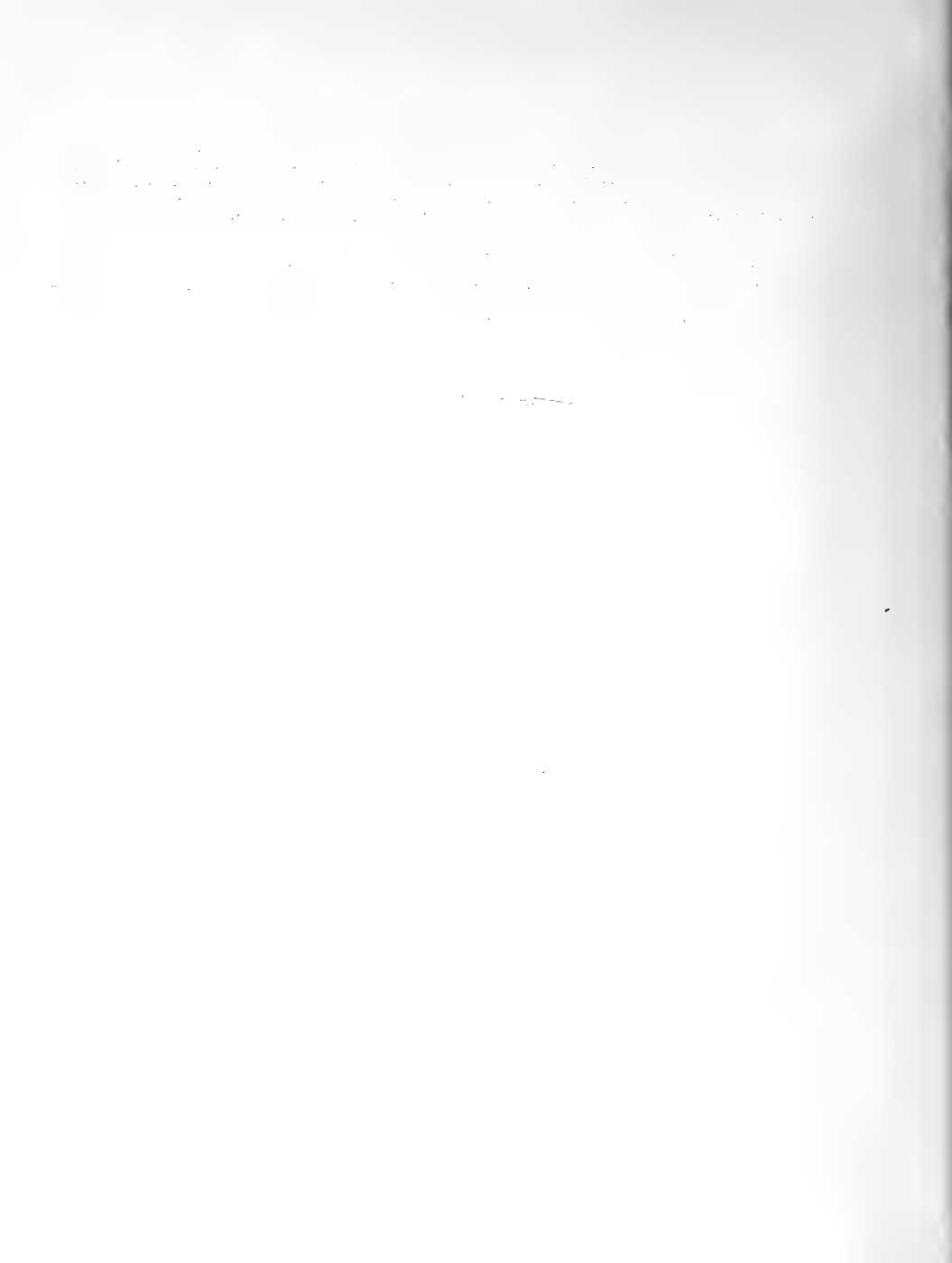
Biology and Habits - Eggs are deposited on the upper leaves of corn or later on young ears in irregular clusters. When in clusters, the eggs overlap like scales. A female may deposit up to 448 eggs. Two days following oviposition, eggs have 2-3 broad, irregular, transverse bands which are bright red. Hatching occurs in about 5 days. In young corn small larvae skeletonize patches of the leaf but soon burrow into the terminal buds often reaching the tassel and may destroy a few of the male flowers. When the leaves of the terminal bud unfold, characteristic, transverse rows of tiny holes appear. Older larvae sometimes tunnel the ears but usually follow the main stem and avoid the ear. The holes made by the larvae are conspicuous by the masses of frass which they push through. The larval stage lasts about 22-48 days in growing corn. Pupation occurs in a chamber at the end of the burrow. This stage lasts 9-13 days.

The resting stage, in which some of the larvae survive the dry season when the living host plant is absent, is one way to distinguish this species from sugarcane borer (Diatraea saccharalis). As the latter has many alternate hosts, it does not enter a resting stage. Larvae, over half grown, enter dry stalks where they remain throughout the dry season. During this time, they lose their spots, become butter yellow and may molt once or twice. Pupation occurs after rains soak the stalks. Adult females live only 3-5 days and males about 3 days. Although these are seldom seen in the field, they may be taken at lights and in light traps. Females apparently deposit a single batch of eggs. The entire cycle may take place in 7-9 weeks.

Description - Adult - Forewing ground color light straw yellow; veins lined with brown, the interlines absent or faint and not well defined; discal dot variable in size and distinctness; both this and terminal dots brown, of a uniform color with the vein linings. Hind wing soiled white in the male, white in the female. Front with a pointed tubercle. Hind tibia of male without hair tuft but abdomen on male with hair tufts on second segment. Wing expanse of male 20-31 mm.; female 26-40 mm. Larva - Structural, diagnostic characters are not available to separate this species from southwestern corn borer (Zeadiatraea grandiosella). Larvae and associated adults are needed to identify this stage.

Major References:

- Box, H. E. 1931. Bul. Ent. Res. 22(1):1-50
Dyar, H. G. and Heinrich, C. 1927. U. S. Nat. Mus. Proc. 71(19):24.
Hodges, R. W. 1966. Personal communication.
Hynes, H. B. N. 1942. Tropical Agr. 19(10):194-202.
Kevan, D. K. M. 1943. Tropical Agr. 20(7):167-174.
Kevan, D. K. M. 1944. Bul. Ent. Res. 35(1):23-30.
Riherd, P. T. 1966. USDA Coop. Econ. Ins. Rpt. 16(33): 801.



UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

VOL. 16 No. 34

August 26, 1966 *RWH*

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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN EARWORM activity less than expected in Hudson Valley, New York, but increased pressure expected on sweet corn; moth catches increased in sweet corn in New Jersey, heavy infestations in corn expected; infestations range up to extremely heavy in Georgia peanut belt. Moths appearing in northern States. Corn earworm, FALL ARMYWORM, and GRANULATE CUTWORM continue to damage peanuts in Alabama, first heavy fall armyworm outbreak in Bermuda grass of season reported. (827, 830). POTATO LEAFHOPPER causing yellowing of alfalfa in Illinois and Wisconsin; "hopper-burn" evident on potatoes and some beans in Wisconsin. (p. 828). LESSER CORNSTALK BORER heavy in sorghum in Yuma Valley, Arizona. (p. 829).

ALFALFA CATERPILLAR adults heavy in alfalfa in several States; larval damage evident in New Mexico. PEA APHID building up on alfalfa in Ohio; cool weather favorable for increase in Wisconsin. (p. 841).

BOLL WEEVIL poses threat to much of cotton crop in northern Alabama; infestation heaviest in 16 years in western Tennessee; increasing in most untreated fields in High Plains area of Texas below the Cap Rock. (pp. 833, 834, 846). BOLLWORMS most troublesome pests of cotton in South Carolina, increasing over western Tennessee. Bollworms extremely heavy in some cotton in Alabama, pose major threat to crop in southern part of State where good control of boll weevil accomplished. SPIDER MITES second most important pests of cotton in South Carolina, increasing in more northern counties of Alabama, remain problem in Mississippi. (pp. 833-836).

TWO-SPOTTED SPIDER MITE problem on beans in Idaho and Oregon. (p. 837). APPLE MAGGOT adult populations remain high in Michigan and Wisconsin. (pp. 838, 839). SOUTHERN PINE BEETLE and ENGRAVER BEETLES serious in Piedmont area of North Carolina. MOUNTAIN PINE BEETLE outbreaks increasing on forests east of Cascade Mountains and larvae of at least two species of GELECHIID MOTHS damaging 100,000 acres of pines in Winema National Forest, both in Oregon. (p. 841).

MOSQUITO hatch very heavy following rains in Minnesota, may increase rapidly in Wisconsin. FACE FLY increasing in northern Indiana, annoyance increased in Utah, especially to horses. (pp. 843, 844). GRASSHOPPERS economic on 200,000 acres of rangeland in northwestern and western Oklahoma; continue heavy in South Dakota, range up to heavy in southwest and west central Missouri. (pp. 845, 846).

Detection

New State records include JAPANESE BEETLE in Alabama (p. 846) and a MEALYBUG in Florida (p. 842).

For new county records see page 849.

Special Reports

Preparation of Notes for the Cooperative Economic Insect Report. (p. 852).

Reports in this issue are for week ending August 19 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....827

Insect Affecting

Corn, Sorghum, Sugarcane.....828	Cole Crops.....838
Small Grains.....830	Cucurbits.....838
Turf, Pastures, Rangeland.....830	General Vegetables.....838
Forage Legumes.....830	Deciduous Fruits and Nuts.....838
Soybeans.....832	Citrus.....839
Peanuts.....833	Small Fruits.....840
Cotton.....833	Ornamentals.....841
Tobacco.....836	Forest and Shade Trees.....841
Potatoes, Tomatoes, Peppers.....837	Man and Animals.....843
Beans and Peas.....837	Households and Structures.....844

Hawaii Insect Report.....836

Beneficial Insects.....844

Federal and State Plant Protection Programs.....845

Insect Detection.....849

Corrections.....849

Light Trap Collections.....850

Preparation of Notes for Cooperative Economic Insect Report.....852

WEATHER OF THE WEEK ENDING AUGUST 22

HIGHLIGHT: Typical summer weather.

TEMPERATURE: A slight southerly shift of the jet stream brought cold, Canadian air into the northern Great Plains. As a result, the weekly temperature averages in this part of the Country were much below normal. Negative anomalies of more than 9° were common in South Dakota. The shift of the jet stream also caused pronounced ridging along both coasts. The southerly flow that accompanied these high pressure systems resulted in unusually warm temperatures in the West and most of the East. The low humidities, the aridity, and the heat in Oregon and Utah greatly increased the danger of widespread forest fires, and the old record number of 48 summer days of 90°+ temperatures in Harrisburg, Pennsylvania, was equalled on Friday.

Weather continued on page 848.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - NEBRASKA - Heavy in scattered areas of Dawson and Saunders Counties; caused some damage to corn. (Rhine). KANSAS - Caused spotted damage to grain sorghums in southwest. Leaves completely defoliated except for midvein. (DePew).

CORN EARWORM (*Heliothis zea*) - NEW YORK - Activity less than expected in Hudson Valley; however, field corn silk decreasing and increased pressure on sweet corn expected. First moths caught in blacklight trap in Erie County August 7, and 2 on August 8. (N. Y. Wkly. Rpt., Aug. 15). NEW JERSEY - Moth catches increased on sweet corn; heavy infestations on corn expected. (Ins.-Dis. Newsltr.). DELAWARE - Adults increased in blacklight trap collections in Sussex County. Few young larvae noted on lima beans in Kent and Sussex Counties; some larvae found on tomatoes in Kent County. (Burbutis, Davis). MARYLAND - On Eastern Shore, 13 percent of corn ears infested. Eggs on silks of late corn. (U. Md., Ent. Dept.). VIRGINIA - Larvae present in 60-80 percent of ears of field corn in Culpeper, Orange and Spotsylvania Counties. (Isakson). GEORGIA - Light in soybeans in Dooly County (Fulford, French); moderate in 2 of 50 fields in Bleckley County (Lawson). Light to extremely heavy across peanut belt. (French). This pest, velvetbean caterpillar, *Mocis* grassworms and cutworms damaging alfalfa in Houston County. (Tippins). ALABAMA - This pest and fall armyworm continue to damage peanuts in Houston and Geneva Counties. (Bond et al.). MISSISSIPPI - Survey of 15 soybean fields in Leflore and Sunflower Counties, plus additional acreage in Yazoo County, indicated no movement into soybeans. (Dinkins).

ARKANSAS - No infestations found in soybeans in Jefferson, Monroe, Lee and Phillips Counties. Infestations may occur in next 2-3 weeks. (Boyer). OKLAHOMA - Ranged 1-3 per 10 sweeps in alfalfa in Wagoner, Adair, Muskogee, Sequoyah, Tulsa, Le Flore and Comanche Counties. Moderate to heavy in sorghum in Cleveland County; moderate in peanuts in Caddo County, light in Payne and Bryan Counties. (Okla. Coop. Sur.). MISSOURI - Early to late-stage larvae 1 per row foot in soybeans in various stages of pod development in New Madrid and Pemiscot Counties. Treatments applied. Loss estimated at third of crop in 5 fields totaling 100 acres. Intensity of infestation not determined. (Jones). KANSAS - Very light in sweet and field corn in Finney County. Lower than in previous years. (DePew). Populations appear lower than usual in most areas of eastern section. (Simpson). ILLINOIS - First moths of season taken in light trap at Urbana August 10. (Broersma). WISCONSIN - Moths taken in several locations. (Wis. Ins. Sur.). OREGON - Adults collected in light traps at Roseburg, Douglas County August 10; at Canby, Clackamas County August 15. Second-stage larvae found in sweet corn plantings at Roseburg, August 16. (Larson, Vertrees). ARIZONA - Light to moderate in alfalfa in Cochise, Pinal, Pima, Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - IDAHO - Very abundant on barley in Rockford and desert area west of Blackfoot, Bingham County. Yellowing evident. (Renberg, Aug. 12). COLORADO - Populations in Weld County corn reduced by lady beetle adults and larvae. Colonies 2-4 per 10 plants on one corn variety, 6-10 per 10 plants on another variety. Pollination appears affected on plants where colony numbers higher. (Jenkins). NORTH DAKOTA - Light to moderate in corn throughout Oliver, Mercer, Dunn and McKenzie Counties. Trace numbers evident in Barnes, Stutsman, Kidder, Wells, Foster, Eddy and Griggs Counties. (Brandvik). WISCONSIN - General population collapse occurred throughout most of State. Probably due to combination of heavy rain, lady beetle larvae and lacewing larvae. Some spraying done in few areas. (Wis. Ins. Sur.). INDIANA - Populations declined; no longer problem. (Huber). OHIO - Continues present on corn over State. Generally only tassels of late corn damaged; most field corn sufficiently advanced to escape damage during pollination. Infested sorghum in Allen County. (Leimbach). Largest populations and most damage to corn noted in field in Geauga County where tassels not emerged. Infestation 10-90 percent in corn through Trumbull, Portage, Huron and Morrow Counties. Little interference with pollination occurred due to advanced growth. (Rose). MICHIGAN - Adults and nymphs about nonexistent in most corn,

especially early and midseason fields; colonies still present in some late fields and aphid numbers high on few plants delayed by drought. (Janes). DELAWARE - Abundant on corn in New Castle and Kent Counties. (Burbutis, Davis).

HORNWORMS (*Manduca* spp.) - DELAWARE - Adults increased in blacklight trap collections in Sussex County; 10 per night. (Burbutis, Davis). MARYLAND - One percent of tobacco plants infested; newly emerged larva found on one plant. (U. Md., Ent. Dept.). OKLAHOMA - Moderate numbers of *M. sexta* damaging commercial tomatoes in Tulsa County. Larvae half to full grown. (Okla. Coop. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Causing yellowing of some alfalfa; up to 2 per sweep in some Dane and Columbia County fields. Less numerous in northwestern counties. Numerous on potatoes in central counties; leaf "burning" reported from few central and northwestern localities, particularly in home gardens. Some beans show "burning". (Wis. Ins. Sur.). ILLINOIS - Adults 0-360 and nymphs 0-800 per 100 sweeps in clover and alfalfa in northern area. Considerable yellowing in some alfalfa. (White). OHIO - Ranged 6-17 per sweep in alfalfa in Trumbull, Morrow and Portage Counties. (Rose). DELAWARE - Abundant on lima beans in many areas of State. (Burbutis, Davis). MARYLAND - Very low in alfalfa in Frederick and Queen Annes Counties; 2 per sweep. Light on lima beans. (U. Md., Ent. Dept.). VIRGINIA - Light on soybeans in Hanover, Louisa and Spotsylvania Counties. (Isakson).

POTATO PSYLLID (*Paratrioza cockerelli*) - WYOMING - Averaged 0.8 adult per 100 sweeps in southern Goshen County potato fields. (Marks).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - IDAHO - Nymphs and late adults found in 3 third-cutting alfalfa hay fields at Indian Cove, Owyhee County. About month early for sparse fall populations observed past several years in area. (Edwards, Portman). ARIZONA - Increasing in Cochise and San Simon areas, Cochise County. Averaged 400 per 100 sweeps in alfalfa. (Ariz. Coop. Sur.). COLORADO - None found in Weld County alfalfa. (Jenkins). OKLAHOMA - Averaged 100 per 10 sweeps in alfalfa in Comanche County. Ranged 5-85 per 10 sweeps in east central area and in Tulsa and Le Flore Counties. (Okla. Coop. Sur.). KANSAS - Counts per 10 sweeps 75-200 in Rawlins and Decatur Counties, 150-300 in Rice and Reno Counties, 400-550 in Stafford County (Martinez); 75-300 in Finney and Kearny Counties (DePew); 75-150 in Riley, Marshall, Washington and Nemaha Counties; light in southeast area (Simpson). WISCONSIN - Counts 10-100 per sweep in Brodhead and Mazomanie areas. (Wis. Ins. Sur.). ILLINOIS - Found throughout State this year. Varied 0-280 per 100 sweeps this period. (White). MICHIGAN - Very few noted August 7 in Ingham County alfalfa. (Dowdy).

TOBACCO BUDWORM (*Heliothis virescens*) - MARYLAND - Four percent of tobacco plants infested in St. Marys County. (U. Md., Ent. Dept.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - Moth emergence in cages in Hudson Valley at least 90 percent complete. Small number of parasitic tachina flies also emerged. Second-brood larvae, first to third instar, found in 1-6 percent of silks examined. (N. Y. Wkly. Rpt., Aug. 15). NEW JERSEY - Moth catches reduced but still present. (Ins.-Dis. Newsltr.). DELAWARE - Adults decreased in blacklight trap collections in western Sussex County. (Burbutis, Davis). MARYLAND - Numbers variable, 0-100 percent of plants infested, in Frederick and Queen Annes County; damage light. (U. Md., Ent. Dept.). MISSOURI - Second-generation moths emerging in "delta" area of southeast. (Keaster). ILLINOIS - Larvae collected during first-generation survey checked for microsporidiosis. Incidence high in west and northeast districts with high of 52.3 percent in Mercer County. (White). WISCONSIN - Moth flight underway. Larvae relatively low in numbers, but populations high in northwestern counties. (Wis. Ins. Sur.). SOUTH DAKOTA - Damaged some corn in Lawrence and Meade Counties; second-brood larvae in second

and third instar. (Jones, Aug. 12). NORTH DAKOTA - Up to 44 percent of corn plants infested in fields in Oliver, Mercer, Dunn and McKenzie Counties. Borers per 100 plants up to 165 (averaged 64) in these counties. No pupation observed. Corn fields in Barnes, Stutsman, Kidder, Wells, Foster, Eddy and Griggs Counties with 10-54 percent plants infested. Borers averaged 96 per 100 plants; 4 percent of larvae pupated, few adults emerged. (Brandvik).

FALL ARMYWORM (*Spodoptera frugiperda*) - NEW JERSEY - Moth catches have increased markedly on sweet corn, heavy infestations expected. (Ins.-Dis. Newsltr.). MARYLAND - Unusually light in corn for time of year. Few full-grown larvae in Queen Annes and Somerset Counties. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - MARYLAND - Larva found in sprouting corn seed at Fairland. (U. Md., Ent. Dept.). ARIZONA - Very heavy in sorghum in Yuma Valley. Many fields showing considerable lodging of plants. (Ariz. Coop. Sur.).

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - NEBRASKA - Light in corn in Colfax County. This new county record. (Rhine).

SORGHUM WEBWORM (*Celama sorghiella*) - KANSAS - Occasional larva found in sorghum heads in northeastern and east central areas. (Simpson).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - MISSOURI - Second-generation moths emerging in "delta" area of southeast. (Keaster).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - MARYLAND - Survey for adults in Frederick and Carroll Counties where species found in 1965; 2 farms positive, 7 negative. Numbers very light. (U. Md., Ent. Dept.). ARKANSAS - Collected in corn in Clay County by J. White. Det. by E. P. Rouse. This new county record. (Ark. Ins. Sur.). NEBRASKA - Survey indicates increasing populations as far south as Saunders and Butler Counties. (Rhine). SOUTH DAKOTA - Heavy in field of corn north-east of Fort Thompson, Buffalo County; ranged 5-50 adults per silk. (Balsbaugh, Berndt, Aug. 12). WISCONSIN - Adults generally light in southern counties, but heavy in few corn fields. Field near Sun Prairie with up to 12 in silks of each ear. (Wis. Ins. Sur.). MICHIGAN - Few adults feeding on corn silks in Wayne County August 15. Larval feeding injury and adult infestation levels appear lower than usual in several areas where damage occurred in other years. (Newman, Janes, Townsend).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - MISSOURI - Adults very light in Cooper, Johnson, Benton, St. Clair and Bates Counties. These new county records. (Houser). WISCONSIN - Found for first time in Grant, Dunn, and Polk Counties. Populations generally low, but in one field 50 percent of rootworms present this species. (Wis. Ins. Sur.). NEBRASKA - Adult females laying eggs in eastern area. (Munson, Rhine).

WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) - OREGON - Adults severely damaging some fields of sweet corn in Roseburg area, Douglas County; feeding on silks. (Passon).

SAP BEETLES - NEW YORK - Heavy in some locations in Nassau and Suffolk Counties where tip cover on sweet corn poor. (N. Y. Wkly. Rpt., Aug. 15). MARYLAND - Common in sweet corn, Queen Annes County. (U. Md., Ent. Dept.). VIRGINIA - *Carpophilus* spp. numerous in silks and ears of field corn in Culpeper, Orange and Spotsylvania Counties. (Isakson).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Damage to silking corn in Frederick County. (U. Md., Ent. Dept.).

A MAY BEETLE (*Phyllophaga rugosa*) - MINNESOTA - White grubs reported in CEIR 16 (26):601 as damaging corn in Redwood and Watonwan Counties determined by D. M. Anderson from specimens collected in Redwood County July 21 by R. G. Flaskerd. (PPC).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Adults and nymphs numerous in hay and on field corn, especially near tassel, in central counties. (Dowdy).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Moderate in grain sorghum in Comanche County, light in Kay County. (Okla. Coop. Sur.).

A FALSE CHINCH BUG (Nysius sp.) - NEW MEXICO - Medium to heavy in grain sorghum fields in Curry, Luna and Hidalgo Counties. Some controls in progress. (Garcia, Elson, Campbell).

STINK BUGS (Chlorochroa spp.) - NEW MEXICO - Some controls underway in grain sorghum in Curry County. (Campbell).

SPIDER MITES (Tetranychus spp.) - COLORADO - Active on corn in Weld County; controls recommended where leaves "firing up" from bottom. (Boyes). UTAH - Tetranychus spp. and another species severely infesting field and sweet corn throughout Piute and Wayne Counties. (Knowlton, Chapman).

SMALL GRAINS

WHEAT CURL MITE (Aceria tulipae) - WYOMING - Large numbers present on volunteer wheat plants in wheat fields harvested in July in Laramie County. (Marks).

SPIDER MITES (Tetranychus spp.) - IDAHO - Numerous on wheat at Swan Valley, Bonneville County. (McPherson).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - Larvae of this species and Mocis spp. moderate on Coastal Bermuda grass in Tift County. (Byers). ALABAMA - First heavy outbreak in Coastal Bermuda grass of season reported in Lowndes County. (Mathews).

SOD WEBWORMS - RHODE ISLAND - Adults continue heavy in Kingston and Providence Counties. (Mathewson, Veilleux). NEW JERSEY - Activity increasing in central counties. (Ins.-Dis. Newsltr.). MICHIGAN - Adult Crambus spp. populations high recently in blacklight traps in Kalamazoo, Branch and Lenawee Counties. (Newman).

GREEN JUNE BEETLE (Cotinis nitida) - SOUTH CAROLINA - Heaviest flights ever noted occurred near Pendleton and Anderson and in Pickens County July 31. (Nettles).

WHITE GRUBS - WISCONSIN - Reports and observations in many areas indicate these major problem in lawns and home gardens. Numerous in lawns, potato fields and home gardens throughout State. Damage severe to roots of lawn turf and vegetables. (Wis. Ins. Sur.).

BROAD-NECKED ROOT BORER (Prionus laticollis) - CONNECTICUT - Adults emerged from lawns or other turf in Jewett City, New Haven and West Haven; also reported from East Haven and Woodbridge. Lawn trees or woodlands nearby in all instances. (Johnson, July 22).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW MEXICO - Counts 1-4 per 25 sweeps in Bernalillo County alfalfa. (Heninger). COLORADO - No larvae taken in Weld County alfalfa. (Jenkins). OHIO - Larvae 1 per sweep in alfalfa field in Trumbull County. (Rose). SOUTH DAKOTA - Extremely low in alfalfa fields in northern Black Hills in Lawrence and Meade Counties. During intensive survey, 1 adult taken. (Jones, Aug. 12).

CLOVER LEAF WEEVIL (Hypera punctata) - TEXAS - Abundant on alfalfa in Donley County. (Texas Coop. Rpt., Aug. 12).

CLOVER ROOT CURCULIO (Sitona hispidula) - INDIANA - Adults common on alfalfa throughout northern third of State. (Huber). VIRGINIA - Adults collected on birds-foot trefoil at Huddleston, Bedford County. Det. by R. E. Warner. (Saucier).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - SOUTH DAKOTA - Adults 1-4 per 100 sweeps in irrigated alfalfa near Spearfish, Lawrence County. (Jones, Aug. 12).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - NORTH DAKOTA - Adults 150 per 100 sweeps in second-crop alfalfa near Golden Valley, Mercer County. (Brandvik). ILLINOIS - Adults 0-10 per 100 sweeps in alfalfa in northern area. (White). MICHIGAN - Adult numbers low in Ingham County August 17. (Dowdy).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larval damage noticeable in Bernalillo County alfalfa. (Heninger). Adult flights heavy over alfalfa in Chaves County; very few larvae present. (Campbell). COLORADO - Adults active in Weld County alfalfa; larvae 10 per 100 sweeps. (Jenkins). WYOMING - Large numbers of adults noted in alfalfa in southern Goshen County. (Marks). ILLINOIS - Larvae 0-60 per 100 sweeps in clover and alfalfa in northern area. (White). MICHIGAN - Adults common in many Lower Peninsula counties; larvae 5-17 per 10 sweeps in 6 Wayne and Washtenaw County alfalfa fields August 15. (Newman).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - INDIANA - Young larvae 2 per 5 sweeps on alfalfa in southern St. Joseph County. (Huber).

WEBWORMS (Loxostege spp.) - KANSAS - Counts per 10 sweeps in alfalfa 2 in Rawlins and Decatur Counties, 15 in Stafford County. (Martinez). No high larval populations found in alfalfa recently in southeastern or east central areas; highest counts 2-3 per 10 sweeps. Adult populations remain high, however. (Simpson). OKLAHOMA - Heavy in alfalfa in Coal County. Generally light in east central area. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Varied 5-15 per sweep in Fallon, Churchill County, alfalfa; averaged 12 per sweep in Schurz, Mineral County. (Cooney). UTAH - Numerous on second-crop alfalfa in many Duchesne and Uintah County fields and at Garrison, Millard County. (Knowlton). COLORADO - Ranged 200-300 per 100 sweeps in Weld County alfalfa. (Jenkins). NEW MEXICO - Light in alfalfa throughout State. (N. M. Coop. Rpt.). WISCONSIN - Relatively cool weather favorable for increase; populations increased ten fold in many alfalfa fields. Parasitic wasps not in evidence. (Wis. Ins. Sur.). ILLINOIS - Very low in clover and alfalfa in northern area; 0-800 per 100 sweeps. (White). OHIO - Building up on alfalfa after 2-month period of scarcity. Populations in 3 alfalfa fields averaged 4, 8 and 11 per sweep, respectively. (Rose). MICHIGAN - Remains exceptionally low in Ingham County alfalfa. (Dowdy).

CLOVER APHID (Nearctaphis bakeri) - IDAHO - General in red clover seed fields in Bingham County; 7-30 per blossom. Controls applied apparently ineffective. Some fields show 50 percent of blossom heads without seed; part of injury could be due to late frost. (Bryan, Aug. 12).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Populations in northern area clover 10-900 per 100 sweeps. (White).

PLANT BUGS - OHIO - Lygus lineolaris most common plant bug on forage legumes; up 3 adults per sweep. Adelphocoris lineolatus less common than tarnished plant bug; 2 per sweep. (Rose). WISCONSIN - Plant bugs common in all alfalfa. Adelphocoris lineolatus most numerous, up to 2-3 per sweep. L. lineolaris less numerous in southern counties, but predominant species in few areas. Both species numerous in silks of corn in northwestern counties. (Wis. Ins. Sur.). UTAH - Lygus spp. numerous on alfalfa and sunflower in Vernal area of Uintah and Duchesne Counties;

L. elisus comprised 75 percent of population, L. hesperus 10 percent. (Knowlton).
NEVADA - Lygus spp. averaged 20 per sweep in alfalfa at Fallon, Churchill County; 15 per sweep in Schurz, Mineral County. (Cooney).

SAY STINK BUG (Chlorochroa sayi) - UTAH - Small numbers noted in alfalfa in Uintah, Duchesne and Millard Counties. Few nymphs noted on range plants in these counties. (Knowlton).

LEAFHOPPERS (Empoasca spp.) - INDIANA - Common on alfalfa, up to 6 per sweep, in northern half of State. (Huber).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing in alfalfa in Cochise County but still light; heaviest in Cochise area. (Ariz. Coop. Sur.).

THRIPS - UTAH - Very numerous in alfalfa at Beaver, Beaver County. (Esplin, Knownton). CALIFORNIA - Frankliniella occidentalis and Aeolothrips fasciatus infesting alfalfa plantings in Susanville, Lassen County. (Cal. Coop. Rpt.).

SOYBEANS

GREEN CLOVERWORM (Plathypena scabra) - SOUTH CAROLINA - This and Mexican bean beetle main problem on soybeans; generally, these insects more numerous in lower part of Savannah Valley District. (Nettles et al., Aug. 16). VIRGINIA - Larvae light in soybeans in Hanover, Louisa and Spotsylvania Counties; 9-20 per 100 sweeps. (Isakson). MISSOURI - Full-grown larvae clipping soybean pods in north central area. Extent of damage not determined. (Thomas).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Infesting soybeans in New Castle County. (Burbutis, Davis). MISSISSIPPI - Present in most soybeans; causing light damage to foliage. (Dinkins). ALABAMA - Very light in few soybeans in Lowndes County. (Gerald).

LOOPERS - GEORGIA - Light on soybeans in Dooly County, virus disease common (Fulford, French); light to heavy in 29 of 50 fields, Bleckley County (Lawson).

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - Very light on soybeans in Dooly County (Fulford, French); moderate in 2 of 50 fields in Bleckley County (Lawson).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae light to medium in soybeans throughout Monroe County. (Lemons).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - GEORGIA - Very light on soybeans in Dooly County (Fulford, French); light to moderate in 35 of 50 fields in Bleckley County (Lawson).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light to heavy on soybeans in 6 of 50 fields in Bleckley County. (Lawson). NORTH CAROLINA - Damage quite noticeable on some soybeans in Wayne County; not problem in other fields in county. Counts in one infested field showed 10.8 adults and larvae per foot of row by shaking method. (Mount).

GREEN STINK BUG (Acrosternum hilare) - VIRGINIA - Light in most soybeans in Hanover, Louisa and Spotsylvania Counties. (Isakson). MISSOURI - A. hilare adults present in 5 percent of soybean fields checked in southwestern and west central districts. Euschistus spp. 1-3 per 20 row feet, heavy in few fields. (Houser). A. hilare first observed in Boone County soybeans July 10, ranged 7-12 per 100 sweeps during week ending August 20. Highest counts averaged 1 per 3 row feet. (Daugherty). KANSAS - Light in soybeans in Cherokee, Crawford and Labette Counties; less than 1 per 3 row feet. Pods well developed in most instances. (Simpson).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ALABAMA - Adult girdling on soybean stalks 4-10 inches above ground line earlier in two fields in Monroe County resulting in light to heavy lodging of maturing 3-foot plants. Considerable loss occurring in several areas of one field. (Sellars, Davis).

LEAFHOPPERS (*Empoasca* spp.) - INDIANA - Common on soybeans, up to 4 per sweep, in northern half of State. (Huber).

A SPIDER MITE (*Tetranychus* sp.) - MARYLAND - Defoliation noted in about 20 percent of fields from Dorchester County southward; light in Queen Annes County. Considerable acreage treated. (U. Md., Ent. Dept.).

PEANUTS

GRANULATE CUTWORM (*Feltia subterranea*) - ALABAMA - Continues to cause heavy damage in some peanut fields in Houston County where control appears impossible; 15-20 full-grown larvae per square yard in some fields. Production of estimated 1,500 pounds per acre decreased to 200 pounds in some fields. Infestation continues in some Geneva County fields. (Bond et al.).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - ALABAMA - Light in peanuts in Houston County along with larvae of other more serious pests. (Ledbetter).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - OKLAHOMA - Light on peanuts in Bryan County. (Okla. Coop. Sur.).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - NORTH CAROLINA - Moved into peanut fields to lay eggs in northeastern area. (Campbell, Aug. 12).

SPIDER MITES - GEORIGIA - Light to moderate on peanuts in southern area. (French).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Infestation 0-12 (average 3.5) percent in 4 fields treated 7-8 times in Robeson County. In two fields treated 4 times, 24-30 percent punctured squares. Two untreated fields 86-100 percent infested. (Mount, Aug. 12). SOUTH CAROLINA - Migration not yet general, confined mainly to several upper Coastal Plain and lower Piedmont counties. Percent damaged squares and weevil numbers in blooms continue increase in fields not properly treated; in Marion County, averaged 12 percent in treated fields, 99 in untreated fields. (Cott. Ltr., Aug. 15). Numbers still below normal in Florence area but considerable increase noted. Adults per 100 squares 0-4 in treated plots, 2-5 in untreated plots. Percent larval infestation, 0.4-14 in treated plots, 34-70 in untreated plots. (Taft et al., Aug. 17). TENNESSEE - Migration to previously noninfested western counties underway. Square counts 11-98 percent in infested area. Up to 8 weevils in one bloom found in Hardeman County. Where squares scarce, heavy damage to bolls occurring. Hatch continues heavy; conditions remain ideal for further increase. Weevil infestation heaviest in 16 years; expected to become more serious. Many fields appear abandoned; only few bolls in bottom part of plant found. (Locke). GEORGIA - Light to extremely heavy in southern area cotton (French); up to 31 percent punctured squares in plots with ineffective treatments, 4 percent where treatments effective in Putnam County (Beckham); up to 25 percent punctured squares in 59 fields totaling 1,000 acres in Bleckley County (Lawson). ALABAMA - Cotton opening in central and southern areas. Second growth resulting from recent general rains; new squares becoming plentiful. Weevils more plentiful in area but controls generally good. Increase in damage to immature bolls expected as control efforts end and "hatch outs" continue with favorable second growth, food supply and suitable reproductive environments. Weevils continue to increase throughout northern area; pose serious threat to much of cotton crop in area. This high population, with continuous "hatch outs",

reflects magnitude of economic threat to cotton crop. (McQueen). MISSISSIPPI - Punctured squares found in 9 of 10 fields checked in delta counties. Infestation averaged 8.2 percent (maximum 20). Infestation appears well under control in most fields. (Pfirmer et al., Aug. 18). Percent punctured squares 20-80 in Pontotoc County. High count in untreated experimental field; low counts in treated fields. Percent punctured squares by county as follows: Marshall 10-35, Tunica 10-35, Coahoma 0-5, Tallahatchie 0-20, Panola 20-80, Yazoo 0-28. (Dinkins). LOUISIANA - Punctured squares averaged 15 percent in 158 fields in Madison Parish; ranged 1-61 percent in 152 fields infested. Weevils found in 71; 1-7 per 100 squares. (Cleveland et al., Aug. 18). Weevils "hatching out" in "hot spots" in fields. No general infestation present, but spread from "hot spots" will continue. (Tynes, Aug. 15). ARKANSAS - Of 5,557 fields scouted, 87 percent infested, 36 percent above treatment level, compared with 81 percent and 25 percent, respectively, last week. (Barnes, Boyer). OKLAHOMA - Percent punctured square counts as follows: 17-35 in Tillman and Greer Counties; 10-25 in dryland and over 50 in irrigated cotton in Grady County; 0-16 in Wagoner, Muskogee and Sequoyah Counties; 32 in irrigated cotton in Garvin County. Moderate to heavy in Bryan, Marshall, Coal, Choctaw and Caddo Counties. (Okla. Coop. Sur.).

For Boll Weevil in High Plains area of Texas, see page 846.

BOLLWORMS (*Heliothis* spp.) - NORTH CAROLINA - Ranged 6-22 percent and averaged 10 percent terminal infestation in 8 fields examined in Robeson County August 9. Two fields also had 6-8 percent square damage from larvae ranging up to half-grown. Both fields treated regularly, but adequate control not obtained. Only terminal infestations of very small larvae present in other fields. (Mount, Aug. 12). SOUTH CAROLINA - Damage very light to 60 percent or higher. No longer definite pattern of broods; eggs and small to large larvae expected until harvest. (Cott. Ltr. Aug. 15). Still most troublesome pests in Florence area with many heavily infested fields seen. Percent larval infestation, 0.6-9.9 in treated plots, 1-5 in untreated plots. (Taft et al., Aug. 17). TENNESSEE - Continue to increase over western area; eggs and larvae 1-12 per 100 terminals. (Locke). GEORGIA - Light to heavy in cotton in southern area (French); up to 20 percent injured squares, 6 percent in effectively treated plots in Putnam County (Beckham); 0-96 larvae and 0-20 eggs per 100 terminals in Bleckley County (Lawson). ALABAMA - Extremely heavy in many cotton fields throughout State. Pose major threat in some southern area fields where good control of boll weevil accomplished and where larvae not controlled for various reasons. Average of 21 bolls per 10 feet damaged on 2 large Chambers County farms, large larvae averaged 5 per 10 feet. General buildup serious throughout northern area; control difficult in some counties. (McQueen et al.). MISSISSIPPI - Injured squares found in 8 of 10 fields in delta counties. Injury averaged 6.6 (maximum 11) percent. Moth flight increased at Stoneville, remained same as previous week at Rolling Fork, decreased at Tunica. (Pfirmer et al., Aug. 18). Population pressure generally light to moderate with local "hot spots" scattered throughout State. Percent square damage and egg counts per 100 terminals by county as follows: Pontotoc, damage 0-25, eggs 0-10; Marshall, damage 0-5, eggs 0-10; Tunica, damage 5-10, eggs 10-20; Coahoma, damage 2-5, eggs 10-15; Tallahatchie, damage 2-7, eggs 10-20; Panola, damage 2-5, eggs 10-15. Infestation 3-6 percent in Yazoo County. (Dinkins).

LOUISIANA - Infestations not yet severe but expected to increase. Egg laying continues but remains light. (Tynes, Aug. 15). Damaged squares ranged 1-8 percent in 129 of 158 fields in Madison Parish. Averaged 0.5 larva per 100 squares in 56 infested fields. Eggs 1-6 per 100 terminals in 33 of 82 fields; averaged 0.15 larva per 100 terminals in these fields; infestation 1-3 percent in 9 fields infested. (Cleveland et al., Aug. 18). ARKANSAS - Infested 68 percent of fields scouted; 12 percent at or above recommended treatment level (5 percent damaged squares), compared with 55 percent and 7 percent, respectively, previous week. (Barnes, Boyer). MISSOURI - In 514 fields scouted in "delta" area in southeast, *H. zea* larvae 1-11 per 100 terminals in 53 percent and eggs ranged 1-9 per 100 terminals in 39 percent of fields. (Jones). OKLAHOMA - *H. zea* egg counts 12-68 percent in cotton in east central area, larvae 0-8 percent. Eggs 6 percent and larvae 11 percent in Garvin County. Larvae 7-9 percent in Tillman and Greer

Counties, 10-15 percent in Grady County. Larvae light to moderate in most cotton in Coal, Choctaw, Marshall, Bryan and Caddo Counties. (Okla. Coop. Sur.). NEW MEXICO - *H. zea* medium on cotton in Luna, Hidalgo and Dona Ana Counties. (Garcia, Elson). ARIZONA - *H. zea* populations continue to increase in cotton in Maricopa, Pinal and Pima Counties. Light in Cochise and Graham Counties. (Ariz. Coop. Sur.). CALIFORNIA - Bollworms continue of most concern in Kern County cotton. Populations high throughout county; however, some fields relatively free of larvae. Populations of small larvae controlled by predators in many fields. (Black, Aug. 12). Moth flight heavy in Shafter area; 12-25 per night in each of two light traps. Larvae evident in many fields. Infestations moderate to severe; 38-100 per 100 plants in fields recently treated with broad spectrum insecticide. Predators giving excellent control in many fields in spite of heavy hatch. (Leigh, Aug. 11).

CABBAGE LOOPER (*Trichoplusia ni*) - CALIFORNIA - Increase noted in Kern County cotton, but not of concern at present time. (Black, Aug. 14). Severe infestations evident in much of Kings and Fresno County cotton; larvae abundant elsewhere. Virus infection initiated in some fields and may provide some control. (Leigh, Aug. 11). ARIZONA - Moderate populations causing light damage to cotton in Maricopa, Pinal and Pima Counties. (Ariz. Coop. Sur.). OKLAHOMA - Small larvae 5-6 per plant in irrigated cotton in Grady County, 12 per 100 plants in Tillman County. Light in cotton in east central area. (Okla. Coop. Sur.). MISSISSIPPI - Large increase in moth flight observed in delta counties; larvae noted in several fields. "Ragging" of foliage noticeable in many fields but of minor importance at present. (Pfirimmer et al., Aug. 18). ALABAMA - Continues light to heavy in cotton as far north as Lamar, Tuscaloosa and Talladega Counties. Some growers alarmed concerning potential damage. Naturally occurring virus present in some fields in Dallas, Montgomery and Lee Counties. Dead larvae hanging on leaves and stems in tops of plants. Reoccurring generations expected to appear in southern counties and move northward into other counties. (McQueen). TENNESSEE - Light in several fields in western area. (Locke).

BEE T ARMYWORM (*Spodoptera exigua*) - ALABAMA - Light in maturing cotton in Montgomery County; larvae feeding largely on leaves but some damage to bracts and buds of squares noted. Large numbers of eggs observed on top and bottom sides of leaves. (Wilder et al.). CALIFORNIA - Severe in the Tulare Lake area. (Leigh, Aug. 11).

SALT-MARSH CATERPILLAR (*Estigmene acrea*) - ARIZONA - Infestations light and scattered in Graham, Maricopa, Pinal and Pima Counties. Damage light. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) - ARIZONA - Definite increase noted in cotton in Maricopa, Pinal and Pima Counties. Moderate to heavy in Yuma County. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (*Platynota stultana*) - ARIZONA - Larvae light on cotton in Tucson area, Pima County; 4 per 100 plants. (Ariz. Coop. Sur.).

PLANT BUGS - TENNESSEE - *Lygus lineolaris* and *Adelphocoris rapidus* increased slightly in western area cotton. (Locke). MISSOURI - Adults and nymphs 1-38 per 100 terminals in 92 percent of 514 cotton fields in "delta" area of southeast. (Jones). LOUISIANA - Infestation decreased in Madison Parish cotton; no *Psallus seriatus* or *L. lineolaris* found in 11 fields checked. (Cleveland et al., Aug. 18). NEW MEXICO - *Lygus* spp. moderate on cotton in Luna, Hidalgo and Dona Ana Counties. (Garcia, Elson). CALIFORNIA - *Lygus* spp. situation unchanged in Kern County cotton. Many fields with some nymphs, but many of these populations not being treated for fear of aggravating already acute bollworm problem. (Black, Aug. 15). *Lygus* spp. declined sharply in many San Joaquin Valley fields. (Leigh, Aug. 11).

STINK BUGS (*Chlorochroa* spp.) - NEW MEXICO - Spotted to medium in cotton in Luna County. (Garcia, Elson).

SPIDER MITES - SOUTH CAROLINA - Continue second most important pests of cotton; infestations range none to heavy. (Cott. Ltr., Aug. 15). TENNESSEE - Rains reduced

populations over western area. Conditions not favorable for increase. (Locke). ALABAMA - Increasing steadily especially in more northern counties. No hot, dry weather favorable for these pests during past 15-20 days, but movement of control equipment in fields much more general than in most years; probably contributed to movement of mites to all parts of fields. Change of present rainy weather and high humidity conditions to hot and dry could result in serious problem in northern area cotton. (McQueen). MISSISSIPPI - Tetranychus spp. population in some areas in delta counties still heavy in some cotton although rains apparently decreased numbers. (Pfrimmer et al., Aug. 18). T. urticae remains problem in several Tallahatchie County fields; infestations moderate. T. atlanticus spotted and light in some Yazoo County fields. (Dinkins). MISSOURI - Mainly Tetranychus atlanticus present in 4 percent of 514 fields scouted in "delta" area. (Jones). OKLAHOMA - Tetranychus spp. heavy in spots in field in Webbers Falls area, Muskogee County; up to 120 per medium sized leaf. (Okla. Coop. Sur.). CALIFORNIA - Evident in many San Joaquin Valley fields; will result in development of reddened spots. (Leigh, Aug. 11).

TOBACCO

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Infestations average 23 percent in 19 tobacco fields surveyed in St. Marys County. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Feeding damage evident on 15 percent of plants in 19 tobacco fields surveyed in St. Marys County. (U. Md., Ent., Dept.).

HAWAII INSECT REPORT

Insects of Regional Significance - All stages of a LEAF MINER FLY (Liriomyza sp.) heavy on cucumbers, watermelons, tomatoes and eggplants in Wailua and Kapaa Home-steads, Kauai. Growers report difficulty in control. Medium on tomatoes in Pulehu and on lima beans in Lahaina, Maui. Medium on snap beans in Waimanalo area, Oahu. (Au, Fujimoto, Takishita, Higa). SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) nymphs and adults medium on asparagus at Captain Cook, Kona, Hawaii Island, and on snap beans in Hana, Maui. Surveys in Koloa, Lihue, Wailua and Kapaa, Kauai, showed populations extremely low on truck crops. (Iwane, Miyahira, Au). MELON FLY (Dacus cucurbitae) larvae infesting 60-80 percent of immature tomatoes in backyard plantings in Hilo, Hawaii Island; eggs and adults noted on fruits. (Yoshioka). ORIENTAL FRUIT FLY (Dacus dorsalis) adults caused oviposition injury to approximately 90 percent of mature passion-fruits in 5-acre planting in Wailua, Maui. (Miyahira).

General Vegetables - PEPPER WEEVIL (Anthonomus eugeni) larvae and adults caused medium to heavy damage to bell peppers in Wailua, Kauai; discarded peppers heavily infested. (Haw. Ins. Rpt.).

Cucurbits - HEMISPHERICAL SCALE (Saissetia coffeae) adults very heavy in seven 25-foot rows of bittermelons in Ewa, Oahu; stems one-third inch in diameter with as many as 31 scales per inch. (Hironaka).

Fruits - GIANT AFRICAN SNAIL (Achatina fulica) caused 20 percent damage to newly planted seedlings in 25-acre papaya planting in Hana, Maui, although chemical pellets applied. (Miyahira).

Man and Animals - MOSQUITOES - Light trap collections from 46 stations on Oahu for July yielded 64 Aedes vexans nocturnus and 3,702 Culex pipiens quinquefasciatus. Data obtained from Mosquito Control Board, Department of Health. (Haw. Ins. Rpt.).

POTATOES, TOMATOES, PEPPERS

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Common on tomatoes and lima beans in most areas of State. (Burbutis, Davis). MARYLAND - Damaging tomatoes in Wicomico County. (U. Md., Ent. Dept.).

LOOPERS - WISCONSIN - Larvae continue numerous on potatoes in gardens and some commercial fields. (Wis. Ins. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Few young larvae noted in peppers in Sussex County. (Burbutis, Davis).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Abundant on some tomatoes and peppers in Kent and Sussex Counties; present on tomatoes in New Castle County. (Burbutis, Davis). COLORADO - Populations increasing on Weld County potatoes; 5-6 per leaf. (Jenkins). IDAHO - Populations ranged 6-10 per 25 leaves on mustard and nightshade at margins of potato fields in Bingham County. Few on potatoes in fields; few winged females present. (Bryan, Aug. 12).

POTATO APHID (Macrosiphum euphorbiae) - WISCONSIN - Common in most areas; generally more numerous than last week. (Wis. Ins. Sur.).

Potato Aphids in Maine - Populations of Aphis nasturtii, Myzus persicae, Macrosiphum euphorbiae and Acyrtosiphon solani on potatoes at Presque Isle decreased substantially, due largely to entomogenous fungi. (Shands et al.).

TUBER FLEA BEETLE (Epitrix tuberis) - OREGON - Collected on potatoes in Medford, Jackson County, by L. G. Gentner. This is new county record. (Gentner).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - IDAHO - Moving in numbers from alfalfa, grain and weeds into potato fields in Bingham County during past 10 days. Heavy damage in several fields to potatoes in spots from 0.25-6 acres in size. Lighter in remainder of these fields. (Bryan, Aug. 12).

GARDEN SYMPHYLAN (Scutigera immaculata) - OREGON - Heavy in experimental check plots in potato fields of central area, causing extensive damage to tubers. (Morrison).

BEANS AND PEAS

THRIPS - MARYLAND - Snap bean seedlings in Somerset County infested by adults; damage expected. Also on lima beans in Queen Annes County. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Few young larvae present on lima beans in Kent and Sussex Counties. (Burbutis, Davis).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Larvae increased on lima beans in most areas of Kent and Sussex Counties. (Burbutis, Davis).

PLANT BUGS - WISCONSIN - As many as 3 per sweep in some Dane County lima bean fields. Adelphocoris lineolatus about three times as numerous as Lygus lineolaris. (Wis. Ins. Sur.).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - IDAHO - Abundant in all bean fields near Caldwell, Canyon County. (Homan, Aug. 12). OREGON - Heavy on beans in Willamette Valley. (Larson).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Abundant on cabbage and causing heavy injury in New Castle County. (Burbutis, Davis).

APHIDS - NEW YORK - Very severe in some cabbage fields in Orleans County and nonexistent in others. (N. Y. Wkly. Rpt., Aug. 15).

CUCURBITS

SQUASH BUG (Anasa tristis) - OKLAHOMA - Moderate to heavy on squash in Choctaw and Washita Counties. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Present on squash in New Castle County. (Burbutis, Davis).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Still active in cucumbers in Orleans County in decreased numbers. (N. Y. Wkly. Rpt., Aug. 15).

GENERAL VEGETABLES

PARSLEYWORM (Papilio polyxenes asterius) - DELAWARE - Noted on carrots in New Castle County. (Burbutis, Davis).

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Increased considerably on vegetables during past week. (Ins.-Dis. Newsltr.).

ONION THRIPS (Thrips tabaci) - IDAHO - This species and Frankliniella occidentalis infested onion seed heads at Caldwell, Canyon County. Det. by K. O'Neill. (Homan)

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - OREGON - Buildup occurred on most vegetable and fruit crops in western area. (Larson).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - MAINE - Late first-brood larval entries numerous in untreated trees in Monmouth and Orono areas. First-generation adult flights heavy in late July in Monmouth area. Infestations negligible or non-existent in commercial orchards. (Boulanger, Aug. 13). NEW YORK - Active in Columbia County. Fly emergence about complete. (N. Y. Wkly. Rpt., Aug. 15). MICHIGAN - Second-brood adults continue numerous in research emergence cages. (Wooley). NEW MEXICO - Light to heavy on apple trees in Sandoval area; heavy damage noted on untreated trees. Heavy moth flights expected soon in area. (Heninger).

PEACH TREE BORER (Sanninoidea exitiosa) - GEORGIA - Killed 2 of 12 trees in peach planting in Bartow County. (Holland). FLORIDA - Larvae moderate in galls on stems on 75 percent of 25 peach trees in nursery at Tampa, Hillsborough County. (Hale, McFarlin, Aug. 5).

FILBERTWORM (Melissopus latiferreanus) - OREGON - Larvae burrowing into peaches in several orchards of Washington County. One orchard 75 percent infested. (Burkhart).

APPLE MAGGOT (Rhagoletis pomonella) - MAINE - Emergence about complete with few adults recovered in cages in Monmouth area. (Boulanger, Aug. 13). VERMONT - Fly activity easily observed in unsprayed blocks. (Nielsen, Aug. 15). NEW YORK - Emergence slow in Columbia County; second-brood entries readily found in Monroe

County. (N. Y. Wkly. Rpt., Aug. 15). MICHIGAN - Adults continue high in apple trees where insecticides not used; high adult populations observed August 17 on crab apple fruit and foliage in Ingham County. (Wooley). WISCONSIN - Adult populations still high. Controls imperative for sound fruit. (Wis. Ins. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - MAINE - Populations showing strong increase in untreated trees; fifth-generation eggs expected August 14. Complete development of present generation doubtful. (Boulanger, Aug. 13). VERMONT - Extremely severe in many blocks; prolonged hot, dry weather a factor. (Nielsen, Aug. 15). NORTH CAROLINA - Under good control in treated apple orchards throughout mountains. (Falter, Aug. 12). MICHIGAN - Populations remain high in many orchards. (Wooley).

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Continues to damage peaches in some areas. Heavy in Cleveland and Grady Counties. (Okla. Coop. Sur.).

PLUM CURCULIO (Conotrachelus nenuphar) - OKLAHOMA - Full-grown larvae in peaches in Oklahoma County. (Okla. Coop. Sur.).

PEAR-SLUG (Caliroa cerasi) - MARYLAND - Cherry tree on Kent Island 80 percent defoliated. (U. Md., Ent. Dept.).

PERIODICAL CICADA (Magicicada septendecim) - NORTH CAROLINA - Caused considerable damage in 15 acres of apple trees in Caldwell County; orchard surrounded by wooded areas. (Falter, Aug. 12).

APPLE LEAFHOPPER (Empoasca maligna) - NEW MEXICO - Probably this species, light to heavy in some apple orchards with heavy discoloration of leaves in Alameda area, Bernalillo County. (Heninger).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on apple trees in Nicolaus, Sutter County. (Cal. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Heavy in many pecan orchards in Mobile and Montgomery Counties. (Vickery et al.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Continued rains causing increased adult emergence in many areas. (Okla. Coop. Sur.).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Infestations in pecans throughout Covington County. (Linder).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Full-grown larvae decreasing in pecans in northeast, north central and south central areas. (Okla. Coop. Sur.).

FILBERT APHID (Myzocallis coryli) - OREGON - Populations in Willamette Valley filbert orchards very low due to extended high temperatures. (Jones).

CITRUS

Citrus Insect Situation in Florida - Mid-August - CITRUS RUST MITE (Phyllocoptruta oleivora) infested leaves in 54 percent of groves (norm 62 percent); 41 percent economic (norm 48 percent); infested fruit in 64 percent of groves (norm 65 percent); 47 percent economic (norm 52 percent). Populations appear at summer peak at normal level; expected to subside gradually through September. Decrease will be greater on leaves than fruit. Most districts will have important infestations in 10-30 percent of groves. Highest districts west, north, central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 26 percent of groves (norm 53 percent); 13 percent economic (norm 25 percent). Decreased to low level and is much below average. Expected to remain low. Highest district east. CITRUS RED MITE

(Panonychus citri) infested 29 percent of groves (norm 55 percent); 13 percent economic (norm 30 percent). Also much below average; expected to remain at current low level. Highest district east. Population decreased greatly but still at record high for August. Further decrease will occur. Highest districts east, west, central, south. GLOVER SCALE (Lepidosaphes gloverii) infested 48 percent of groves; 11 percent economic. Population decreased to normal low level and will remain low. Highest districts east and west. PURPLE SCALE (L. beckii) infested 40 percent of groves; none economic. Populations below normal and will continue low. All districts low. CHAFF SCALE (Parlatoria pergandii) infested 27 percent of groves; 3 percent economic. Population below normal and low; will go lower. Highest district east. YELLOW SCALE (Aonidiella citrina) infested 58 percent of groves; 6 percent economic. Has decreased but still above normal. Expected to continue near current moderate level. Highest districts north and central. MEALYBUGS infested 71 percent of groves; 18 percent economic. Decreased to moderate levels but more abundant than in any August in 15 years of record. Continued decrease to low level expected. Highest district south. WHITEFLIES below average and will continue low. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - Adults infesting citrus trees in grove in Citrus County July 14. (Williams). Infesting leaves of Citrus nobilis in nursery at Lake Como, Putnam County, July 15. (Graham). Moderately damaging leaves and fruit of Citrus reticulata in nursery at Mascotte, Lake County, July 21. (Henderson). Light damage to 90 Citrus sinensis plants in nursery at Plant City, Hillsborough County, August 6. (Vaughn). Citrus and Putnam new county records. (Fla. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota rostrana) - FLORIDA - Found in damaged blossom ends of about half of navel orange crop at Leesburg, Lake County. (Mosteller, Aug. 8).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - Infestations reported for first time this year in citrus plantings on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

SMALL FRUITS

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Damaging ripening grapes in Payne County. (Okla. Coop. Sur.).

LEAFHOPPERS (Erythroneura spp.) - OKLAHOMA - All stages extremely heavy on grapes in Payne County. Some vines dying. (Okla. Coop. Sur.).

Cranberry Fruitworm (Acrobasis vaccinii) - MASSACHUSETTS - Some egg laying noted in late berries in southeast. (Tomlinson, Aug. 12).

Blueberry Maggot (Rhagoletis mendax) - MASSACHUSETTS - Fly population declining in southeast; maggot infested fruit common. (Tomlinson, Aug. 12).

ORNAMENTALS

FALL WEBWORM (Hyphantria cunea) - WISCONSIN - Common in roadside shrubs in several areas, particularly in Columbia, Brown and Calumet Counties. (Wis. Ins. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - MARYLAND - Damaging redcedar, arborvitae and yew in Cecil County. Light on willow and arborvitae in Queen Annes County. (U. Md., Ent. Dept.).

A WEEVIL (Brachyrhinus cribricollis) - CALIFORNIA - Medium locally on privet plants in Tulare, Tulare County, and heavy on roses in Merced, Merced County. (Cal. Coop. Rpt.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - ARIZONA - Heavy on commercial property inside city of Phoenix; found on cocculus and holly plants. (Ariz. Coop. Sur.).

GREEN SHIELD SCALE (Pulvinaria psidii) - FLORIDA - Moderate on 150 magnolias in nursery at Miami, Dade County. (Dillon, July 21).

EUROPEAN EARWIG (Forficula auricularia) - COLORADO - Seriously damaging flowers and home gardens in La Porte. (Thatcher).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Populations increased considerably due to extreme drought of past several weeks, especially in Piedmont. Generally confined to areas where problem previously present, specifically upper Piedmont counties of Forsyth, Yadkin, Davie, Davidson, Rowan, Iredell, Granville and Vance. Infestations lower in some of surrounding counties. (For. Pest Newsltr., Aug. 10).

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) - OREGON - Outbreaks increasing in ponderosa and lodgepole pines in most forests east of Cascade Mountains. (Orr).

ENGRAVER BEETLES (Ips spp.) - VIRGINIA - Killed 6 loblolly pines at 2 locations in Brunswick County. (Berisford). NORTH CAROLINA - Epidemic conditions exist in several lower Piedmont counties. Serious outbreaks probably occurring throughout most of Piedmont, but exact limits not determined. Very serious with numerous outbreaks in Cabarrus, Warren, Vance, Granville, Person, Caswell, Alamance, Orange, Durham, Wake, Anson, Montgomery and Richmond Counties. Also serious in counties infested with southern pine beetle. (For. Pest Newsltr., Aug. 10).

WHITE-PINE WEEVIL (Pissodes strobi) - VERMONT - Adults emerging from infested terminals in Chittenden County. (Nielsen, Aug. 15). RHODE ISLAND - New-generation adults present in Kingston. (Mathewson).

WHITE-SPOTTED SAWYER (Monochamus scutellatus) - VERMONT - This and other long-horned beetles emerging from and flying to pine logs in Lamoille County. (Nielsen, Aug. 15).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - KANSAS - Population moderate in Dickinson County. (Redding). OKLAHOMA - Late-stage larvae light in pines in Payne County. (Okla. Coop. Sur.).

PANDORA MOTH (Coloradia pandora) - OREGON - Main flight underway in lodgepole pine in Winema National Forest near Chemult, Klamath County. (Orr).

GELECHIID MOTHS (Coleotechnites spp.) - OREGON - At least 2 species damaging 100,000 acres of lodgepole and ponderosa pines in Winema National Forest, Klamath County, and Deschutes National Forest, Deschutes County. Defoliation severe on some lodgepole pines, minor on ponderosa pines. Full flight period occurred week of August 12. (Orr).

AN OLETHREUTID MOTH (Petrova albicapitana) - MAINE - Moderate populations caused light injury on jack pine in Lamoine in late June. (Boulanger, Aug. 13).

EASTERN SPRUCE GALL APHID (Adelges abietis) - MAINE - Heavy populations and moderate damage occurred on white spruce in central and eastern areas during June. (Boulanger, Aug. 13). OHIO - Galls opening, winged forms emerging on some Norway spruce in Cuyahoga County. (Wells).

A MEALYBUG (Oracella acuta) - FLORIDA - All stages on terminal tip of stems of slash pine at Gainesville, Alachua County, August 11. This new State record. (Dekle).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - VERMONT - Larvae nearing full growth; severely defoliating hard pines, especially red pine, in northwestern counties. (Nielsen, Aug. 15).

LARCH SAWFLY (Pristophora erichsonii) - MAINE - Heavy populations and damage occurred on larch across central part of State during June and July. Aerial spraying resulted in good control in Bingham area. (Boulanger, Aug. 13).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Larvae causing very heavy damage to untreated elms in Fallon, Churchill County; damage medium in Schurz, Mineral County. (Cooney). UTAH - Damage unusually widespread in State this season. (Knowlton). NEW MEXICO - Heavy damage with considerable leaf drop noted on Chinese elm in Albuquerque area, Bernalillo County. (Heninger). KANSAS - Very light in Rawlins, Sherman, Wallace and Wichita Counties. All new county records. (Martinez). Fourth generation reported from Wichita. (Redding). OHIO - Second-generation larvae damaging ornamental elms in Franklin and Madison Counties. (Jones, Thomas). Completely skeletonized foliage of 2 Chinese elms, less severely affected other trees in Franklin County. Nearly all larval stages present. (Rose). DELAWARE - Larvae observed on elms in several areas of State. (Burbutis, Davis). MAINE - Heavy numbers pupating; attracting attention. (Boulanger, Aug. 13).

IMPORTED WILLOW LEAF BEETLE (Plagiodes versicolora) - VERMONT - Adults and larvae common; skeletonizing willows and occasionally poplars in many areas. (Nielsen, Aug. 15).

A BARK BEETLE (Corthylyus punctatissimus) - VERMONT - Infested sugar maple reproduction wilting. (Nielsen, Aug. 15).

FALL WEBWORM (Hyphantria cunea) - NORTH DAKOTA - Webs and larvae evident on 25 percent of chokecherry trees in west central counties. Complete defoliation evident on some trees. (Brandvik). KANSAS - Increasing in southeastern area, particularly on walnut and pecan. (Simpson). OHIO - Webbing abundant in Knox County. Wild cherry trees adjacent to highway heavily damaged; common on walnut. Also damaged sycamore, apple, hickory and oak. (Davidson). Spotty on 7 wild cherry trees in Morrow County. (Rose). RHODE ISLAND - Webs abundant along rural roads throughout State; small in most instances. Many webs contained stink bug nymphs and few or no H. cunea larvae. (Mathewson).

SYCAMORE LACE BUG (Corythucha ciliata) - MICHIGAN - Adult and nymphal injury caused foliage discoloration of sycamore in central area; populations still high. (Wells).

WALKINGSTICKS - VERMONT - Defoliating red oaks in Chittenden County. (Nielsen, Aug. 15). INDIANA - Diaperomera femorata egg deposition underway in 40-acre black oak stand near Knox, Starke County. (Knauer).

SAWFLIES - MAINE - Heavy Profenusa mainensis populations and leaf mining damage observed on red and white oak in western area during July. P. lucifex light with light damage on white oak and possibly red and bur oaks in same area in July. This first record in State of this species on white oak. Profenusa sp. more severe on white birch in central Oxford County than birch leaf miner which was predominant throughout remainder of State on gray and some white birches. (Boulanger, Aug. 13). OHIO - Caliroa lineata caused extensive foliage damage to pin oaks in spots in Portage and Trumbull Counties. All leaves on many trees skeletonized; apparently larval feeding occurred within last few weeks. (Rose). WISCONSIN - Fenusia pusilla numerous in many portions of State; most numerous in central area. (Wis. Ins. Sur.).

A SPIDER MITE (Oligonychus platani) - CALIFORNIA - Medium on sycamore trees in Sacramento, Sacramento County. Continued high daytime temperatures and warm nights may cause serious buildup and damage. (Cal. Coop. Rpt.).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - UTAH - Numerous on cattle in Uintah and Duchesne Counties. (Knowlton). WYOMING - Counts 75-125 per side on cattle in southern Goshen and Laramie Counties. (Marks). SOUTH DAKOTA - Remains unchanged in Charles Mix County; 100-150 per side common on untreated cattle. (Balsbaugh, Berndt, Aug. 12). OKLAHOMA - Counts per head on cattle 600 in Major County, 125 in Washita County. Moderate in Cleveland and Marshall Counties. (Okla. Coop. Sur.). MICHIGAN - Adults relatively low in beef herds in Shiawassee, Livingston and Ingham Counties. (Dowdy). MARYLAND - None found on 2 treated herds, but 75 per cow on untreated herd in Frederick County. (U. Md., Ent. Dept.).

STABLE FLY (Stomoxys calcitrans) - WYOMING - Adults 8-12 per animal in pastures in southern Goshen and Laramie Counties. (Marks). WISCONSIN - Continues most numerous and bothersome fly species on cattle. Very numerous in few central counties; moderately annoying to cattle over remainder of State. (Wis. Ins. Sur.). MARYLAND - Ranged 3-10 per cow in 3 dairy herds in Frederick County. (U. Md., Ent. Dept.).

TABANIDS - WYOMING - Tabanus spp. and Chrysops spp. adults remain annoying to man and animals throughout southern Goshen and Laramie Counties. (Marks). WISCONSIN - Deer flies and horse flies minor nuisance on cattle. (Wis. Ins. Sur.).

MOSQUITOES - UTAH - Very troublesome in Myton, Duchesne and Duchesne River areas of Duchesne County; moderate at Roosevelt and in Vernal and Jensen areas of Uintah County, and Delta and Deseret areas of Millard County. Seriously annoying about homes at Logan, Cache County. (Knowlton). MINNESOTA - Aedes vexans most numerous species taken in light traps, evening bite collections and larval collections in Metropolitan Mosquito Control District west ending August 13. Total of 87 female Culex tarsalis found in light traps; 75 larvae collected. Very heavy brood of mosquitoes hatched following rains of August 13-15. Larviciding underway. (Minn. Ins. Rpt.). WISCONSIN - Mosquito populations low, but recent rains may result in rapid increase near areas where ground pools formed. (Wis. Ins. Sur.). NORTH CAROLINA - Aedes atlanticus moderate in Carteret and Onslow Counties; recent heavy rains in area caused increase. (Ashton). LOUISIANA - Larval collections by Jefferson Parish Department of Mosquito Control August 12-19 contained Aedes sollicitans, Culex pipiens quinquefasciatus, Psorophora confinnis and P. ciliata. Light trap collections contained mostly C. salinarius, A. sollicitans, A. vexans and P. confinnis. (Stokes).

FACE FLY (Musca autumnalis) - IDAHO - Flies collected from beef animals 6 miles east of Bonners Ferry, Boundary County. This new county record. (Studer). UTAH - Annoyance increased throughout much of Cache, Weber and Box Elder Counties and northern Davis County, especially on horses. (Knowlton). SOUTH DAKOTA - Low in Charles Mix County; 2 per face on untreated cattle. (Balsbaugh, Berndt, Aug. 12). INDIANA - Building up in north central and northeastern districts;

8-31 per animal on pastured cattle. (Huber). MICHIGAN - Adult numbers in Ingham and adjoining county beef herds reduced from early August levels; probably due to cooler weather. Pink-eye in cattle not spread to degree considered possible earlier. (Dowdy). OHIO - Large population, over 50 per face, on herd of mixed breed beef cattle in Morrow County; heavy on backs and flanks. (Rose). MARYLAND - Ranged 1-5 per cow in 3 dairy herds in Frederick County. (U. Md. Ent. Dept.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Continues moderate to heavy on cattle in Cherokee County. (Okla. Coop. Sur.). GEORGIA - Continues heavy on cattle in Hancock County. Nymphs increased; 2-5 per square inch in neck area with several thousand per cow. (Snoddy).

CHIGGER MITES (Eutrombicula spp.) - KANSAS - Continuous problem in many eastern areas. (Simpson).

HOUSEHOLDS AND STRUCTURES

ROOT WEEVILS (Brachyrhinus spp.) - OHIO - Adults of B. ovatus and B. rugosostriatus continue moving into homes and other buildings over much of State. (Crown, Mowbray, Jones). IDAHO - B. sulcatus adults prevalent in basements of homes at Blackfoot, Bingham County. (Weston, Aug. 12).

ELM LEAF BEETLE (Pyrrhalta luteola) - VERMONT - Now entering homes in many areas for hibernation. (Nielsen, Aug. 15).

EUROPEAN EARWIG (Forficula auricularia) - MAINE - Unusually abundant in Cumberland and Kennebec Counties; caused considerable annoyance to homeowners. (Boulanger, Aug. 13).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Adults of several species 0-20 and larvae 0-10 per 100 sweeps in clover and alfalfa in northern area. (White). WYOMING - Several species remain numerous in alfalfa and potatoes in southern Goshen and Laramie Counties. (Marks). UTAH - These and pirate bugs conspicuously reduced aphid populations on black walnuts at Provo, Utah County, and at Ogden, Weber County. (Knowlton).

GREEN LACEWINGS - WYOMING - Chrysopa spp. remain numerous in alfalfa and potatoes in southern Goshen and Laramie Counties. (Marks). ILLINOIS - Chrysopa oculata adults 0-10 per 100 sweeps in clover and alfalfa in northern area; no larvae observed. (White). MISSISSIPPI - Apparently maintaining populations in cotton fields in Yazoo County; appear most numerous beneficial insect in fields at present. Very numerous in soybeans, with many larvae observed. (Dinkins).

DAMSEL BUGS (Nabis spp.) - WYOMING - Remain numerous in alfalfa and potatoes in southern Goshen and Laramie Counties. (Marks). ILLINOIS - Adults and nymphs 10-140 per 100 sweeps in clover and alfalfa in northern area. (White).

FLOWER BUGS (Orius spp.) - WYOMING - Remain numerous in alfalfa and potatoes in southern Goshen and Laramie Counties. (Marks).

Beneficial Insects in Cotton - CALIFORNIA - Abundant in many Kern County fields but noticeably absent in others. Lacewings particularly abundant; big-eyed bugs continue abundant throughout San Joaquin Valley; apparently resulted in collapse of lygus bug infestations in some fields. Green lacewing flights extremely large in Shafter area; larvae abundant in most untreated fields. Minute pirate bugs, damsel bugs and Collops spp. very abundant in many fields. (Cott. Ltr., Aug. 15).

A PREDACEOUS PHYTOSEIID MITE (Typhlodromus sp.) - OREGON - Probably this genus active in prune orchards of Douglas County on European red mite. (Passon).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - NEW MEXICO - Mostly Melanoplus differentialis 5-10 per 25 sweeps in alfalfa in Los Padillas, Bernalillo County. (Heninger). Grasshoppers heavy on ornamentals in Albuquerque area; heavy damage noted on various plants, flowers and shrubs. (Heninger). OKLAHOMA - Grasshoppers economic on approximately 200,000 acres of rangeland in Harper, Major, Woods, Woodward, Beckham, Blaine and Dewey Counties; 8-15 per square yard. Melanoplus bivittatus, Ageneotettix deorum, Phliobostroma quadrimaculatum and M. packardii dominant. Not generally economic in east central counties. M. bivittatus taken at Comanche, Stephens County, August 10 and near Stigler, Haskell County, August 17. M. differentialis taken near Stigler, August 17. These new county records. (OKla. Coop. Sur.). KANSAS - Grasshoppers 10-17 per square yard in Wallace County. (Martinez). Ranged 8-14 per square yard in Marshall, Nemaha, Cherokee, Labette, Montgomery and Crawford Counties. Light to moderate in roadsides and field margins. Melanoplus femurrubrum, M. sanguinipes, M. bivittatus, M. differentialis, Ageneotettix deorum and Phoetaliotes nebrascensis principal species. (Simpson). MISSOURI - Melanoplus spp. adults and nymphs light to heavy in southwestern and west central areas; 13-26 per square yard in pastures in Stone, Barry and Jasper Counties. Ranged 1-7 per square yard in crops, only slight damage observed. Forms 50-60 percent adults; M. femurrubrum and M. sanguinipes dominant. (Houser). NEBRASKA - Mostly Melanoplus spp. heavy in some areas of Butler, Platte, Colfax, Boone and Polk Counties. (Rhine).

SOUTH DAKOTA - Continue heavy in some areas; moving out of roadsides, dry alfalfa fields and soil bank fields into corn in some southeastern counties. Adults economic in Fall River, Custer, Shannon, Pennington, Haakon, Ziebach and Dewey Counties. Severe, stripped sweetclover and other plants, in northwestern Stanley County; north of Rapid City, Pennington County; and east of Black Hawk, Piedmont and White Owl, Meade County. Heavy in Spearfish-Whitewood area, Lawrence County. Dominant species in most cases Melanoplus femurrubrum, third and fourth instar to adult, and adults of M. bivittatus and M. differentialis. Some M. sanguinipes also present. Numbers usually 20-30 per square yard in borders and roadsides, and 15-20 in fields, both alfalfa and soil bank. Continue heavy in Cheyenne River bottom on Highway 34 in northwestern Haakon County; 20-30 per square yard common. Vegetation stripped. M. bivittatus, M. differentialis and M. femurrubrum dominant. (Jones et al., Aug. 12). NORTH DAKOTA - Adults noneconomic to moderate in Morton, Sioux, Stark, Hettinger, Grant and Adams Counties. Field counts 1-20 per square yard; marginal counts 2-24. Heaviest in alfalfa and sweetclover in Morton and Sioux Counties. M. sanguinipes, M. packardii, M. femurrubrum, M. bivittatus and M. differentialis dominant. Development fourth instar to adult. (Stoltenow). Grasshoppers noneconomic in Oliver, Mercer, Dunn and McKenzie Counties. Marginal counts 2-15 per square yard, up to 6 in fields. M. femurrubrum, M. bivittatus, M. packardii, M. differentialis and M. sanguinipes dominant. Development third instar to adult. Noneconomic in Barnes, Stutsman, Kidder, Wells, Foster, Eddy and Griggs Counties; up to 10 per square yard in margins, less than 1 in fields. M. bivittatus, M. femurrubrum, M. sanguinipes, M. packardii and M. differentialis dominant. (Brandvik).

MINNESOTA - Grasshoppers noneconomic to light in southwest counties. Melanoplus femurrubrum dominant. M. differentialis and M. bivittatus found in few alfalfa fields. Some light feeding on corn by M. differentialis observed, but this unusual. Epicauta pennsylvanica (a grasshopper egg predator) numbers low in less than 10 percent of fields. Grasshoppers 1 per square yard in Marshall and Kittson Counties; M. femurrubrum dominant. Few slant-faced grasshoppers noted in some fields. (Minn. Ins. Rpt.). WISCONSIN - Populations relatively low; cooler weather apparently slowing development in many fields. Grasshoppers most numerous and more developed in idle land and roadsides. M. femurrubrum maturing in advanced areas; most in third or fourth instar. M. differentialis noted feeding

on corn in few areas, but damage negligible. (Wis. Ins. Sur.). VIRGINIA - Mostly *Melanoplus femurrubrum* nymphs and adults 40-60 per square yard in roadsides and field margins with some marginal damage to corn in Rappahannock County. Numerous in pasturelands and roadsides throughout northern part of State. (Isakson).

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Infestations in High Plains area increasing in most untreated fields below the Cap Rock. Some weevil movement apparently occurring with emergence of second generation. More infested fields being found along edge of the Cap Rock. (Parker, Hanna, Aug. 16).

CEREAL LEAF BEETLE (*Oulema melanopus*) - MICHIGAN - Inactive adults common under leaf base of volunteer corn in soybean fields near Galien, Berrien County. (Moore).

EUROPEAN CHAFER (*Amphimallon majalis*) - PENNSYLVANIA - Additional infestation found at Allentown, Lehigh County. Total of 14 infested sites now found in Erie County outside treated area. Trapping in CONNECTICUT revealed extension of infestations in Meriden and Berlin areas. New county records established in NEW YORK for Jefferson, Montgomery, Schenectady and Orleans Counties. Adults found in NEW JERSEY at 1 site in Newark, Essex County, and 2 new sites in Bayonne, Hudson County, close to previously infested areas. Specimens also collected in Jersey City in area treated in June. Survey negative in all other Eastern States. (PPC East. Reg., July Rpt.).

JAPANESE BEETLE (*Popillia japonica*) - ALABAMA - Seven adults trapped and feeding signs observed at railroad yards in Irondale, Jefferson County. This is first established infestation for State. Traps in other areas of State negative. GEORGIA - Two adults caught in separate traps at Savannah River State Docks and Dam north of Augusta Municipal Airport in Richmond County. Two beetles collected at airport. No catches in traps in 26 other counties. Damaging ornamental plants and grapes in Stephens County, light on blackberries and grassland in Banks County. LOUISIANA - Traps in Rapides and Plaquemines Parishes negative. Additional traps placed in operation in Orleans, Caddo and Bossier Parishes. MISSISSIPPI - Single adult trapped near parking ramp of Air National Guard at airport in Rankin County. Other traps placed in vicinity. No catches made in other traps over State. NORTH CAROLINA - Adults heavy in some mountain and Piedmont counties. Considerable damage on tobacco and other crops. TENNESSEE - Beetles trapped or collected in Bradley, Blount, Cocke, Hawkins, Johnson, Loudon, Monroe, Polk and Sevier Counties. Most specimens from within or just outside treated areas. All traps negative in ARKANSAS, FLORIDA, OKLAHOMA and TEXAS. (PPC South. Reg., July Rpt.). INDIANA - Adults damaging 11 acres of soybeans and 8 acres of corn in Cass County. Field infestations more numerous and widespread during 1966 than previously reported. (Huber, Lehker). MICHIGAN - Nine additional finds recently made in Metropolitan Detroit area. Additional beetle taken in Carlton, Monroe County, where earlier specimen recorded. Survey of fairways on Merrywood Golf Course, north of Battle Creek, Calhoun County, revealed moderate turf damage from larval feeding. Adults in area noted feeding on sassafras foliage, but no heavy injury observed. (Moore). OHIO - Large numbers damaging corn silks and ears in field in Knox County. Ranged 1-6 per ear on 80-90 percent of plants in first 10-12 rows on edge of field, but decreased to 2-3 percent of plants infested further inside field. (Barry). MASSACHUSETTS - Still present and injuring many ornamental plants in western area; particularly severe on ornamental crab apple and mountain ash. (Wave, Aug. 13). VERMONT - Adults numerous in Bradford area. (Nielsen, Aug. 15).

SWEETPOTATO WEEVIL (*Cylas formicarius elegantulus*) - ALABAMA - Inspections in Baldwin, Mobile and Washington Counties negative. LOUISIANA - Inspections in 20 parishes showed 14 new infested properties, all in known infested parishes. MISSISSIPPI - Four new infested properties found in Covington County and in 1 bin of storehouse at Collins. Surveys in Adams, Amite, Jefferson Davis, Lincoln, Wayne and Wilkinson Counties negative. (PPC South. Reg., July Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Heavy in Covington County, damaging 7-acre field of peanuts; light in 2 soybean fields. Damaged some

peanuts in Houston County. Light damage to soybeans in Geneva County. (Pike et al.). Adults occurring in many old infested areas in Lee and Macon Counties. (Brackeen). Adults collected for first time in Cherokee County at Centre. New infestations or extensions found in Baldwin, Covington, Crenshaw, Madison, Montgomery, Shelby and Tallapoosa Counties. ARKANSAS - Inspections in 17 counties negative with exception of small extension of infested area at Forrest City and new property at Shell Lake, St. Francis County. FLORIDA - Survey in Jefferson and Leon Counties showed few new properties adjacent to known infestations. GEORGIA - Found for first time in Jeff Davis County. New infestations, or extensions, in 16 infested counties. LOUISIANA - Detection surveys in 19 parishes showed small extensions of infested area in Pointe Coupee and St. John the Baptist Parishes. MISSISSIPPI - Surveys in 17 counties negative. Extensions of infested area found in vicinity of Vicksburg, Warren County, and in parts of Coahoma and De Soto Counties. NORTH CAROLINA - Small extensions of infested area found in Cleveland and Lenoir Counties. SOUTH CAROLINA - Survey negative except for minor extension to infested area at Columbia, Richland County. TENNESSEE - Extensions or new spot infestations found in Crockett, Davidson, Fayette, Houston, Lauderdale, Madison, McNairy, Shelby, Tipton and Weakley Counties. Adults damaged soybeans in Madison and Weakley Counties. TEXAS - Inspections in Chambers, Galveston, Harris and Liberty Counties negative. (PPC South. Reg., July Rpt.). KENTUCKY - Few beetles found at 2 locations in Fulton, and apparent extension of 1965 infestation found near Hickman, Fulton County. Other areas surveyed in Fulton and Graves Counties, and around previous infestations at Murray and Hazel, Calloway County, negative. MISSOURI - All survey negative. (PPC Cent. Reg., July Rpt.).

BROWN-TAIL MOTH (*Nygmia phaeorrhoea*) - MAINE - Heavy numbers stripped foliage of oaks on 1 Casco Bay island; oaks partially stripped by late June on other 2 islands in bay. (Boulanger, Aug. 13). Infestation found on Outer Brothers Island, off Falmouth, Maine, in Casco Bay and treated. Additional infestation found on Cow Island, off tip of Great Diamond Island. (PPC East. Reg., July Rpt.).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - Additional male moth taken in trap where 5 moths taken earlier near Calhoun County infestation area. No new trap finds made. Live female moth noted at infestation site August 13. Search revealed no additional specimens. Egg masses in area appear smaller than normal. (Moore).. PENNSYLVANIA - First male moth of year recovered July 21 in Dingmans Township, Pike County. By end of month males recovered from 6 sites in Pike County, 5 in Northampton County and 1 in Bucks County. None of recoveries in or near 1966 spray areas. NEW JERSEY - New county records established for Atlantic and Cumberland Counties. NEW YORK - One live female and old egg clusters found in Stone Mills, Jefferson County. Total of 32,210 acres defoliated in New York, New Jersey and NEW ENGLAND; 5 acres found in New Jersey first recorded defoliation in State since early 1920's. (PPC East. Reg., July Rpt.).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Moth catches increased abruptly in sex lure traps. One male and one female moth taken in light traps. Total of 104 male moths taken in 1 sex lure trap. Larvae being found. Total of 550 moths taken in traps to date; 536 in sex lure traps, 14 in light traps. In Imperial County, Bard Valley 284, Calipatria 99, Brawley 9, Holtville 1, Niland 1. In Riverside County 150 in Blythe. Larvae taken: Calipatria 13, Bard 8, Brawley 4, Imperial County; Blythe 2, Riverside County. (Cal. Coop. Rpt.). NEW MEXICO - Inspections in Luna and southern Dona Ana Counties showed general buildup of larvae in bolls. (Garcia, Elson).

RANGE CATERPILLAR (*Hemileuca oliviae*) - NEW MEXICO - Spray program completed on 177,000 acres of rangeland in Union and Colfax Counties; over 90 percent control obtained. (N. M. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) - CALIFORNIA - First to third-stage larvae found on 8 properties in Davis, Yolo County; delimiting survey continuing. Eradication treatment scheduled. All infestations dooryard grapes. Boston ivy and Virginia-creeper plants complicate problem. This new county record. (Cal. Coop. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Survey on fringe areas of infested counties showed additional infested acreage in Fayette and Morgan Counties. ARKANSAS - Detection surveys in 16 counties negative. FLORIDA - Survey outside treated area in Lake, Orange, Polk and Volusia Counties, and in nearby 19 nurseries in Manatee County, negative. GEORGIA - Survey of nurseries and environs in Bibb, Houston, Peach and Pulaski Counties, and areas of Atkinson, Brantley, Lowndes, Jeff Davis and Pierce Counties, negative. Few active mounds found in city of Macon and on roadsides in Bibb County. Spot checks on treated blocks in Dodge, Early, Miller and Telfair Counties show good kills in all areas. LOUISIANA - Inspections made in areas where overall treatment applied or planned. Incipient infestations found in Grant and La Salle Parishes. MISSISSIPPI - Detection surveys in 12 counties negative. Appraisal surveys on treated areas in Covington, Jefferson Davis and Pike Counties showed active mounds. None found in Franklin County. SOUTH CAROLINA - Surveys in north Augusta and Aiken showed several mounds in previously infested areas. Extension to infestation in Columbia also found. TENNESSEE - All surveys negative. TEXAS - Surveys outside proposed treatment area at Dallas; in Bexar, Galveston, Harrison and Wharton Counties; and in city of San Antonio, negative. (PPC South. Reg., July Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Three adult females in McPhail trap in Key West, Monroe County, August 4 (Buchanan); 9 larvae collected from cattley guava in dooryard at Winter Haven, Polk County, August 10 (Burnett, Tyner); 1 adult caught by hand and larvae taken from fruit on cattley guava tree in dooryard at Murdock, Charlotte County, August 12 (Walsh, Crews); 1 adult in Steiner trap in eucalyptus tree in nursery at Naples, Collier County, August 16 (Williams). These new county records. (Fla. Coop. Sur.).

MEXICAN FRUIT FLY (Anastrepha ludens) - ARIZONA - Larvae in fruits in Nogales. First infestation found in 3 years. (Ariz. Coop. Sur.). Larvae found in pear, peach and apple fruit on one infested property. (PPC).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - At end of July, 1,360 traps in operation in and around area where one male trapped at Limita, Los Angeles County, June 21. Trapping and fruit cutting negative, no additional flies found. (PPC West. Reg., July Rpt.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 17 cases reported in U. S. August 14-20 as follows: NEW MEXICO - Grant 2, Dona Ana 1, Lincoln 1. ARIZONA - Yavapai 12, Yuma 1. Total of 285 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 27, Sonora 99, Chihuahua 123, Coahuila 1, Nuevo Leon 7, Tamaulipas 28. Total of 595 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 3,706,250, New Mexico 5,328,000, Arizona 13,548,000, Mexico 94,360,000. (Anim. Health Div.).

Weather continued from page 826.

PRECIPITATION: Most of the weekly rainfall was confined to the eastern half of the Nation. The heaviest totals were recorded in a north-south oriented line from Arkansas through Minnesota, but spotty showers also brought locally heavy amounts to the Southeast and lower Great Lakes region. The meteorological drought areas of the East and West were generally dry, but the light rain in the Northeast was sufficient to sustain some crops. Conditions in Utah, Nevada, and Oregon, however, remain serious. The usual summer thundershowers, windstorms, tornadoes, funnel clouds, and cloudbursts spread across the Country during the week. Damage was slight except during a windstorm on Tuesday in New York. Losses in excess of \$140,000 were incurred at the Canastota Airport when a hangar was tossed 100 yards, 7 planes were completely destroyed, and 3 other aircraft were heavily damaged. (Summary supplied by Environmental Data Service, ESSA).

INSECT DETECTION

New State Records

A MEALYBUG (Oracella acuta) - FLORIDA - All stages on terminal tip of stems of slash pine in Alachua County August 11. (p. 842).

JAPANESE BEETLE (Popillia japonica) - ALABAMA - Seven adults trapped and feeding signs observed at railroad yards in Irondale, Jefferson County. (p. 846).

New County Records

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - NEBRASKA - Light on corn in Colfax County. (p. 829).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - ARKANSAS - Collected on corn in Clay County. Det. by E. P. Rouse. (p. 829).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - WISCONSIN - Found for first time in Grant, Dunn and Polk Counties. MISSOURI - Adults very light in Cooper, Johnson, Benton, St. Clair and Bates Counties. (p. 829).

TUBER FLEA BEETLE (Epitrix tuberis) - OREGON - Collected on potatoes in Jackson County. (p. 837).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - Infested citrus in Citrus and Putnam Counties. (p. 840).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Very light in Rawlins, Sherman, Wallace and Wichita Counties. (p. 842).

FACE FLY (Musca autumnalis) - IDAHO - Flies collected on beef animals in Boundary County. (p. 843).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Found for first time in Jefferson, Montgomery, Schenectady and Orleans Counties. (p. 846).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Adults collected in Cherokee County. GEORGIA - Found for first time in Jeff Davis County. (p. 847).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Found on 8 properties in Yolo County. (p. 847).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Found for first time in Monroe, Polk, Charlotte and Collier Counties. (p. 848).

CORRECTIONS

CEIR 16(31):759 - LARCH SAWFLY (Pristiphora erichsonii) - RHODE ISLAND - Should read "Cocoon spinning apparently complete..".

CEIR 16(32):788 - FACE FLY (Musca autumnalis) - Line 9: ILLINOIS should read SOUTH CAROLINA.

CEIR 16(33):817 - A PUNCTURE-VINE STEM WEEVIL (Microlarinus larynii) - Should read A PUNCTURE-VINE SEED WEEVIL.

CEIR 16(33):820 - MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - Should read "Three male flies collected July 20 across Rio Grande..".

Preparation of Notes for Cooperative Economic Insect Report

Requests have been received relative to the type of information desired for the Cooperative Economic Insect Report and suggestions made for revision in the format.

The report will be reorganized on a principal crop basis. This will simplify present format and make the material more accessible and useful. It is hoped this approach will also stimulate greater participation by pointing out lack of reporting on individual crop problems. Efforts will be made to evaluate and present the information in ways to make it more useful in insect control.

Forecasting statements will be developed wherever field reports support such action. Reporters are encouraged to include this vitally important information in their notes. Emphasis of the Cooperative Economic Insect Report will be on the important insect problems of a regional nature, notes on routine insect occurrence will be kept to a minimum. Routine notes submitted on common insects will be added to the National insect files as warranted, however.

The following guidelines are suggested for preparation of notes. It is realized that all of the information outlined will not be available in each situation, but give the following information when possible.

1. Common (if available) and scientific name of species involved. Stages of insect involved. (If a taxonomic problem exists, it should be noted).
2. Location (definite, recognized area within state, such as region, county or town), date, name of observer or reporter. If note is for period other than current reporting period, give date of observation.
3. Host involved, scope and extent of infestation in number of counties, acres, trees, animals, etc. Also stage of host.
4. Quantitative evaluation of infestation according to recognized survey methods. Where such methods are not available, give numerical data such as number per linear foot, per plant, per sweep or per animal. These data should be based on a representative sampling. An adjectival rating should be accompanied by a numerical rating.
5. Estimation of extent of injury or damage.
6. Comparisons with previous infestations, outlook or predictions for future infestations, unusual influences.
7. Status of natural or applied control.
8. When reporting new State, United States, or North America records, include the above information insofar as applicable, as well as name of taxonomist making determination.

Examples of notes including these data are as follows:

EUROPEAN RED MITE (Panonychus ulmi) - Egg populations have reached point where protective sprays are warranted in 10 percent of apple orchards in Knox County. Counts on June 30 showed 0 to 4.8 live mites per leaf and 0 to 37.6 eggs per leaf. Further increase and spread expected with continued favorable weather. (Jackson, July 2).

EUROPEAN CORN BORER (Ostrinia nubilalis) - Oviposition and hatch practically complete in central counties. Fifty egg masses per 100 stalks in northwest area. In southern counties, all corn 35 inches or taller, 70 to 100 percent infested with 2 to 22 larvae per stalk. Larvae from first to third instar. (Smith).

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

Service Operations Division
Office of Plant and Operations
United States Department of Agriculture
Washington, D. C. 20250

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

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM, FALL ARMYWORM and a CHINCH BUG damaging pastures and forage grasses in Texas. (pp. 855, 858). CORN EARWORM building up on sweet corn on Long Island, New York, abundant in most corn in western Colorado but at lower level than in 1965; adults increasing in Delaware. (p. 855). SPOTTED ALFALFA APHID outbreak in large area of Millard County, Utah, difficult to control; increasing on alfalfa in Arkansas Valley, Colorado. (p. 856).

EUROPEAN CORN BORER second generation moderate to heavy in Illinois, may be increasing in southern part of State; borers more numerous on Eastern Shore of Virginia than for several years and moth flights continue heavy on Eastern Shore of Maryland; moths continue unusually heavy in blacklight traps in Wisconsin. (p. 856). STINK BUGS heavy in grain sorghum in Texas and New Mexico, and SPIDER MITES damaging corn in Colorado and Utah. (p. 858). GREEN CLOVERWORM damaging soybeans in some areas; MEXICAN BEAN BEETLE increasing on same crop in South Carolina. (p. 859).

BOLL WEEVIL population lower than usual in Florence area of South Carolina, but increasing slowly; continues to cause heavy damage to cotton in western Tennessee; infestations high throughout delta area of Mississippi. Boll weevil infestations increasing rapidly in some portions of High Plains area of Texas. (pp. 860, 870). BOLLWORM populations highest observed since 1961 in North Carolina, continue of primary concern on cotton in Kern County, California; also of concern in other cotton-growing areas. (p. 861). COTTON APHID increasing on cotton in New Mexico and California; of concern on commercial watermelons in Oklahoma. (pp. 862, 864). PINK BOLLWORM moth catches increased sharply in California. (p. 871). Adult APPLE MAGGOT flight prolonged in Wisconsin; emergence continues in Michigan. (p. 864).

ELM LEAF BEETLE damage extensive throughout Rolling Plains and High Plains areas of Texas. (p. 866). WESTERN OAK LOOPER damage to native oak in Willamette Valley, Oregon, less than in 1965. (p. 867). MOSQUITO population in Dallas area of Texas drastically reduced by controls. FACE FLY population heaviest in 3 years in Iowa and increasing. HORN FLY a problem on livestock in some areas. STABLE FLY major problem to livestock in Wisconsin. (pp. 876, 868). GRASSHOPPERS economic on 300,000 acres in Oklahoma and large acreages of crop and rangeland in Utah; heavy in areas of South Dakota; damage to crops reported in some locations. (pp. 869, 870).

Detection

For new county records see page 871.

CONTENTS

Special Insects of Regional Significance.....855

Insects Affecting

Corn, Sorghum, Sugarcane.....	856	Cole Crops.....	863
Turf, Pastures, Rangeland.....	858	Cucurbits.....	864
Forage Legumes.....	858	General Vegetables.....	864
Soybeans.....	859	Deciduous Fruits and Nuts.....	864
Peanuts.....	860	Small Fruits.....	865
Cotton.....	860	Ornamentals.....	866
Sugar Beets.....	863	Forest and Shade Trees.....	866
Miscellaneous Field Crops.....	863	Man and Animals.....	867
Potatoes, Tomatoes, Peppers.....	863	Households and Structures.....	868
Beans and Peas.....	863	Stored Products.....	868

Hawaii Insect Report..... 862

Beneficial Insects..... 869

Federal and State Plant Protection Programs..... 869

Insect Detection..... 871

Corrections..... 871

Light Trap Collections..... 872

WEATHER OF THE WEEK ENDING AUGUST 29

HIGHLIGHTS: (1) Cold Central; hot West. (2) Heavy rains Texas and New Mexico.

TEMPERATURE: A continental polar air mass brought pleasant, cool, dry weather to most of the Nation east of the Rockies. Hot, humid conditions ended as low temperature records fell eastward from the Dakotas to Texas. The reading of 38° in Rapid City, South Dakota, on Monday morning and the maximum of 66° in Midland, Texas, on Wednesday set new August records. The week was the coolest since mid-June in Kentucky. It was also the 6th consecutive week of below normal temperatures in Iowa and the 4th consecutive cool week in Nebraska. Negative anomalies greater than 3° were common throughout the central part of the Country; 15° departures were reported in the Texas Panhandle. In the extreme Southwest and the northern Rockies the 6-week hot, dry spell continued unabated. The 97° recorded at Helena, Montana, on Friday was the highest ever this late in the summer season at this city. The desert drought areas did not receive relief from the searing weather, and potential fire hazard remains high.

PRECIPITATION: Heavy rains in Texas and southeastern New Mexico during the early part of the week caused extensive damage. Dell City, Texas, was 90 percent flooded and property and crop damage was in excess of \$4 million; Over \$1 million worth of damage was reported in the Carlsbad area of New Mexico. The extensive flooding

Weather of the week continued on page 871.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - NEW MEXICO - This species and *Trichoplusia ni* heavy in young stands of lettuce in Mesilla Valley. Spraying in progress. (N. M. Coop. Rpt.).

ARMYWORM (*Pseudaletia unipuncta*) - MASSACHUSETTS - Total of 94 moths taken in blacklight trap at East Wareham August 13-19. Peak flight August 16, when 76 moths taken. (Tomlinson). TEXAS - Light, but increasing on grain sorghum, Coastal and Bermuda grass pastures and on lawns in Walker, San Augustine and Madison Counties. Moderate on Coastal Bermuda grass and other pastures near Jasper, Jasper County. (Gaskamp et al.).

BEET LEAFHOPPER (*Circulifer tenellus*) - WYOMING - Curly top symptoms noted in nearly all sugar beet fields of Washakie County. Survey of 10 fields indicated 172 of 1,700 plants affected. Beet leafhopper adults 0-12 per 100 sweeps. (Marks). COLORADO - Ranged 0-5 per 100 sweeps in the Arkansas Valley. (Schweissing). UTAH - Curly top damage to tomatoes moderate in Washington County this season. (Knowlton, Huber).

CORN EARWORM (*Heliothis zea*) - MASSACHUSETTS - First moths of season trapped at East Wareham August 16. (Tomlinson). NEW YORK - Few adults taken in blacklight trap at Poughkeepsie. Ear infestation 5 percent in unsprayed trial corn harvested at Hurley August 18-19. Building up rapidly in Nassau and Suffolk Counties, 5 moths caught August 17. (N. Y. Wkly. Rpt., Aug. 22). DELAWARE - Adults increasing in blacklight traps in Sussex County. (MacCreary, Davis). MARYLAND - Moths averaged 52 per night in blacklight trap at Centreville, Queen Annes County. (U. Md., Ent. Dept.). VIRGINIA - Most ears checked showed larval feeding damage in tips. Most larvae dropped from plants and pupated. (Isakson). NORTH CAROLINA - Larvae appearing on soybeans in Wayne and Johnston Counties; 0-7 per 25 feet of row in 6 fields examined. Most larvae second and third instar. Single larva found in 6 fields in Washington and Beaufort Counties. Pods beginning to fill in all 12 fields. (Mount). SOUTH CAROLINA - Present on soybeans in all counties. Increasing in Allendale and Lee Counties. (Thomas, Aug. 23). GEORGIA - Infested 9 of 35 soybean fields in Bleckley County. (Lawson). MISSISSIPPI - None found in soybeans in Yazoo and Coahoma Counties. Movement into soybeans expected soon. (Dinkins). TEXAS - Larvae heavy and feeding on soybeans and grain sorghum in Wharton County. (Smith). NEW MEXICO - Heavy damage to entire plants noted in field of corn in southern Dona Ana County. Larvae damaging geraniums in Las Cruces area. (Durkin et al.).

COLORADO - Abundant in most corn fields in western area, but at lower level than 1965. In Arkansas Valley, this species and fall armyworm found in all fields checked, with damage to ear tips on 17 percent of plants. (Bulla, Schweissing). OKLAHOMA - Ranged 0-5 per 10 sweeps in alfalfa in Kay, Pawnee, Noble, Garfield and Grady Counties. Moderate in grain sorghum in Cleveland and Garvin Counties. (Okla. Coop. Sur.). ARKANSAS - Occasional larva found in most of 40-50 fields in Desha, Lincoln and Jefferson Counties. Larvae 0-24 per 30 row feet in 5 soybean fields in Desha County. (Boyer). MISSOURI - Fourth and fifth-stage larvae in few soybean fields in "delta" area of southeast. Highest counts averaged 4 per yard of row in random fields. (Houser, Jones). Moth flights heavy in area. (Kearster, Harrendorf, Jones). WISCONSIN - No larvae yet found, but flight increased; reached sustained flight stage in some instances. (Wis. Ins. Sur.). MICHIGAN - Annual movement from adjacent States imminent. Present cold weather and unfavorable winds apparent reasons migration not occurred to date. (Dowdy).

CORN LEAF APHID (*Rhopalosiphum maidis*) - WYOMING - Light in corn in Washakie, Big Horn and Park Counties. Ranged 15-150 per tassel, with 10-50 percent of plants infested. Large numbers of predators present in all fields. (Marks). COLORADO - Present in many corn fields in Weld County but kept down by lady beetles. (Boyes). Infesting 50-60 percent of sorghum plants in Arkansas Valley; not at economic levels. (Schweissing). OKLAHOMA - Moderate in late corn in Osage County and in

grain sorghum in Cleveland County. (Okla. Coop. Sur.). MARYLAND - Colonies evident on field corn in most sections; few economic. (U. Md., Ent. Dept.).

PICKLEWORM (*Diaphania nitidalis*) - GEORGIA - Large larvae heavy on summer squash in Henry County. (Dupree).

POTATO LEAFHOPPER (*Empoasca fabae*) - MARYLAND - Ranged 13-150 per sweep on unprotected alfalfa in Frederick County. Heavy on some lima beans in Prince Georges and Queen Annes Counties. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - UTAH - Outbreak in large area about Delta, Millard County, very difficult to control with phosphate insecticides; resistance evidently high. (Knowlton). COLORADO - Trace numbers, 3-10 per 100 sweeps, in alfalfa in Delta, Garfield and Mesa Counties. Increasing in Arkansas Valley; 100-5,000 per 100 sweeps. (Bulla, Schweissing). NEW MEXICO - Generally light throughout State. (N. M. Coop. Rpt.). OKLAHOMA - Light, 10-20 per 10 sweeps, in north central area alfalfa. (Okla. Coop. Sur.). KANSAS - Counts per sweep 4-10 in Rush County, 10 on Hays Branch Experiment Station and 30 elsewhere in Ellis County. (Harvey). Light to moderate in alfalfa in northeast and north central districts. Ranged from zero in some fields in Brown and Atchison Counties to 75 per 10 sweeps in most other areas; occasional field with 150 per 10 sweeps. One field in Pottawatomie County with 500 per 10 sweeps. Some aphids found in most fields. (Simpson). WISCONSIN - Decreased noticeably in western Dane County and northern Iowa County. Attributed to recent severe storms in area. (Wis. Ins. Sur.). INDIANA - Averaged 2 per sweep in Elkhart County. (White).

TOMATO HORNWORM (*Manduca quinquemaculata*) - UTAH - Damage light to tomatoes and potatoes in Washington County. (Knowlton). COLORADO - Continues in trace numbers in Arkansas Valley. (Schweissing). TEXAS - Larvae heavy on tomatoes near Garden City, Glasscock County. Current controls ineffective. (Werst). NEW YORK - First high infestation observed. (N. Y. Wkly. Rpt., Aug. 22).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - VIRGINIA - Heavy damage noted on field corn in Westmoreland County; most stalks show damage. (Isakson). Borers more numerous on Eastern Shore than for several years. Large numbers appeared after 5 years of relatively low populations. Sweet corn planting at Painter Experiment Station with 23 borers per stalk and 100 percent infestation in ears. Field corn heavily damaged in some areas; many other plants damaged. (Hofmaster). MARYLAND - Moth flights continue heavy on Eastern Shore; averaged 122 per night in blacklight trap in Queen Annes County. (U. Md., Ent. Dept.). NEW YORK - Moth emergence ended in cages in Hudson Valley; moths common in fields, but ear infestations light. (N. Y. Wkly. Rpt., Aug. 22). OHIO - Survey of 23 corn fields in Van Wert County showed approximately 420 borers per acre. Populations light compared with last 2 years. (Barry). MICHIGAN - Adult numbers decreasing at blacklight traps; fully 80 percent females. Egg laying will increase next 10-14 days. (Newman et al.). ILLINOIS - Second generation moderate to heavy in some areas. Populations may be increasing in southern area. (Ins. Sur. Bul.). IOWA - Recent moth flight indicates previous treatment justified. (Iowa Ins. Inf., Aug. 15). WISCONSIN - Moth numbers continue unusually high in blacklight traps. Few fifth-stage larvae of first generation remain. Populations 15 percent fifth stage, 85 percent empty pupal cases in corn examined in Spring Green area. Late sweet corn near Mazomanie with 8-16 percent ear and silk infestation. Larvae first to third stages; apparently prefer ears in which silk drying. (Wis. Ins. Sur.). NORTH DAKOTA - Pupation 8 percent in Cass County; emergence light. (Frye). In Pierce, Towner, Benson, Ramsey, Rolette and Bottineau Counties, up to 215 (average 65) borers per 100 plants; 10-25 percent of plants infested (average 15). (Brandvik). SOUTH DAKOTA - Larvae third to fifth instar. Broods overlapping; some late first-brood larvae present with early second-brood larvae. (Jones). NEBRASKA - Adults numerous in light traps in Saunders County. Larvae in first to fourth instars in eastern area. (Roselle).

CHINCH BUG (Blissus leucopterus) - TEXAS - Moderate on grain sorghum near Roaring Spring, Motley County; heaviest on old grain in dough stage and probably beyond economic damage. Damage to hybrid Sudan and other grass hay crops heavy in Falls County. Some spraying underway. (Wood, Pallmayer).

A FALSE CHINCH BUG (Nysius sp.) - NEW MEXICO - Some spraying on grain sorghum in progress in Luna County. (N. M. Coop. Rpt.). Light, spotted infestations noted on sorghum in Quay County. (Durkin).

STINK BUGS (Chlorochroa spp.) - NEW MEXICO - Spotted, medium to heavy populations of C. ligata and C. sayi noted on grain sorghum in Quay County. (Durkin). TEXAS - C. ligata light to very heavy in most grain sorghum in South Plains and Panhandle areas. (Rummel).

SPIDER MITES - IOWA - Present on corn in dryer areas. (Iowa Ins. Inf., Aug. 15). COLORADO - Tetranychus spp. populations show considerable variation on corn throughout State. In western area, light to moderate with occasional injury; in Arkansas Valley damage severe in untreated fields. Continue active in Weld County. (Bulla, Schweissing, Boyes). UTAH - Unspecified species moderately damaging corn in Duchesne-Roosevelt area of Duchesne County; damage severe in Salt Lake County. (Knowlton). CALIFORNIA - Oligonychus sp. and Tetranychus sp. heavy on milo in Lemoore, Kings County. (Cal. Coop. Rpt.).

TURF, PASTURES, RANGELAND

A CHINCH BUG (Blissus insularis) - TEXAS - Heavily damaged St. Augustine grass lawns in much of coastal, east and central areas. Damage in College Station area, Brazos County, as high as 75-80 percent dead grass. Most extensive damage began August 1, continued to date. Economic losses reported in Jefferson, Falls, Montgomery, Orange, Angelina, Jasper and Brazos Counties. Populations and damage appear higher than in previous years. (Straughan et al.).

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Heavy, spotty damage to pastures and forage crops near Shepherd, San Jacinto County. Pastures near Lufkin, Angelina County, have damaged spots up to 10-15 acres. (Jackson, Walla).

SOD WEBWORMS - GEORGIA - Heavy on lawn grass in Pickens County. (Norris). IOWA - Adults currently numerous. Brown, patchy areas on lawns due to previous larval infestations, probably these pests. (Iowa Ins. Inf., Aug. 15). NEBRASKA - Crambus sp. caused moderate to severe injury to bluegrass lawns in eastern area. (Rosefle).

RED HARVESTER ANT (Pogonomyrmex barbatus) - TEXAS - New swarms heavy in Tarrant and Milam Counties. (Baily, Greenway).

FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Adults abundant over most alfalfa in State. (N. M. Coop. Rpt.). COLORADO - Larvae abundant in alfalfa in Delta and Mesa Counties, range 30-50 per 100 sweeps. Arkansas Valley counts 0-100 per 100 sweeps. (Bulla, Schweissing). WYOMING - Larvae 0-4 per 10 sweeps in alfalfa in Washakie, Big Horn and Park Counties. Adults numerous in all areas. (Marks). KANSAS - Present in most alfalfa in northeast and north central areas; 2-10 per 10 sweeps. (Simpson).

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Heavy in alfalfa in Hanford, Kings County; medium in 60 acres of cowpeas in Sanger, Fresno County. (Cal. Coop. Rpt.).

WEBWORMS (Loxostege spp.) - KANSAS - Larvae very light in alfalfa in northeast and north central areas; less than 3 per 10 sweeps. Adult counts still high in many fields. (Simpson). OKLAHOMA - Loxostege sp. 20 per 10 sweeps in alfalfa in Grady County; 1-4 per 10 sweeps in north central area. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - WYOMING - Small numbers of larvae continue in alfalfa in Washakie, Big Horn and Park Counties. Larvae 1-12 and adults 8-15 per 10 sweeps. (Marks).

PEA APHID (Acyrtosiphon pisum) - COLORADO - Populations continue high in alfalfa in Prowers, Bent, Otero, Crowley and Pueblo Counties; 200-5,000 per 100 sweeps. (Schweissing). WYOMING - Light in alfalfa in Washakie, Big Horn and Park Counties. Adults and nymphs 35-45 per 10 sweeps. (Marks).

COWPEA APHID (Aphis craccivora) - CALIFORNIA - Adults medium on 20 acres of cowpeas in Kingsburg, Fresno County. (Cal. Coop. Rpt.).

PLANT BUGS - KANSAS - Adelphocoris lineolatus light in most areas of northeast; 5-20 per 10 sweeps. Less than 2 per 10 sweeps in north central area. (Simpson). INDIANA - A. lineolatus adults and nymphs 2-7 per sweep in northern half of State. Lygus lineolaris adults 4-7 per sweep in northern counties. (White).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Averaged 13 per 10 sweeps in Grady County alfalfa; 0-6 per 10 sweeps in north central area. (Okla. Coop. Sur.).

SOYBEANS

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Feeding heavily on soybeans in southern New Castle County. (MacCreary, Davis). VIRGINIA - Most common insect in soybeans in King George, Westmoreland, Northumberland, Richmond, and Lancaster Counties. Averaged 1-3 larvae per row foot. (Isakson). SOUTH CAROLINA - Increased on soybeans in Sumter, Allendale and Darlington Counties. (Thomas, Aug. 23). ARKANSAS - Generally low in soybeans in Desha, Lincoln and Jefferson Counties; 166 larvae found on 30 row feet of very late beans 15-18 inches high in Desha County field, with 30 percent of foliage destroyed. (Boyer). MISSOURI - Larvae in all stages of development averaging 4-8 per yard of row in soybeans in northeast and north central districts. Defoliation up to 20 percent. (Thomas). Larvae averaged 2 full-grown forms and 4 early instar forms per yard of row in soybeans in southeast "delta" area; leaf feeding light. (Houser). IOWA - Damaging soybeans in Page, Polk and Wapello Counties. Light to moderate, few fields need treatment. (Iowa Ins. Inf., Aug. 15). ILLINOIS - Abundant in western and northwestern area soybean fields; destroying leaves. (Ins. Sur. Bul.).

CABBAGE LOOPER (Trichoplusia ni) - ARKANSAS - Larval numbers low in most soybeans. (Boyer). KANSAS - Few noted on soybeans in Atchison, Brown, Doniphan, Nemaha, Labette, Cherokee and Crawford Counties. (Wilde, Simpson).

LOOPERS - SOUTH CAROLINA - Reported on soybeans from all counties. Increased in Allendale, Darlington, Lee, Edgefield, Florence, Chesterfield and Clarendon Counties; decreasing in Sumter, Marion and Dillon Counties. (Thomas, Aug. 23).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - SOUTH CAROLINA - Appearing on soybeans in few coastal counties. First observed in Beaufort County August 16. (Thomas, Aug. 23). GEORGIA - Infesting soybeans in 8 of 35 fields in Bleckley County. (Lawson).

ALFALFA WEBWORM (Loxostege commixtalis) - ILLINOIS - Larvae still found on soybean fields. (Ins. Sur. Bul.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Present on soybeans in all counties. Increased populations noted in Allendale, Darlington, Lee, Florence, Dillon and Marion Counties. (Thomas, Aug. 23). VIRGINIA - Adults very light in most soybeans in King George, Westmoreland, Northumberland, Richmond and Lancaster Counties. (Isakson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ARKANSAS - Low numbers present in most soybeans in Desha, Lincoln and Jefferson Counties. (Boyer). VIRGINIA - Present in few soybean fields in King George, Westmoreland, Northumberland, Richmond and Lancaster Counties. (Isakson).

STINK BUGS - NORTH CAROLINA - Several species relatively low in soybeans in Johnston County. Ranged 0-11 (average 2.9) per 25 row feet in 12 fields. (Mount). SOUTH CAROLINA - Reported on soybeans from all counties; buildup noted in Marion County. (Thomas, Aug. 23). KANSAS - Acrosternum hilare averaged 1 adult per foot of row on soybeans in Crawford, Labette and Cherokee Counties. Many feeding on pods. Eggs and new nymphs in many fields. (Wilde).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARKANSAS - Numbers low in soybeans in Desha, Lincoln and Jefferson Counties. Nymphs now girdling leaf petioles of older plants. (Boyer).

SPIDER MITES - IOWA - Present on soybeans in dryer areas of State. (Iowa Ins. Inf., Aug. 15). MARYLAND - Tetranychus telarius found on soybeans at Manokin, Somerset County. (U. Md., Ent. Dept.).

PEANUTS

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Moderate numbers damaging peanuts in Marshall County. Some fields sprayed. (Okla. Coop. Sur.).

CUTWORMS - GEORGIA - Light to moderate in 12 of 15 fields of peanuts in Bleckley County. (Lawson).

COTTON

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Infestations remain lower than normal in Florence area although numbers increasing slowly. Adults 0-2 per 100 squares in treated plots, 4-21 in untreated plots. Percent larval infestation, 0.4-9 in treated plots, 43-51 in untreated plots. (Taft et al., Aug. 24). TENNESSEE - Continues to cause heavy damage in regularly infested portion of State. Very severe on late planted cotton. Counts 20-100 percent punctured squares; average 72 percent for treated and untreated fields. Migration continues to those counties not previously known to support infestations. In fields where squares scarce, heavy damage to bolls occurring. Increase will continue. (Locke). GEORGIA - Percent punctured squares 1-15 in 3 treated fields in Putnam County, infestations in Spalding County increased (Beckham); percent punctured squares 1-25 in 59 fields, average 10 percent, in Bleckley County (Lawson). MISSISSIPPI - Punctured squares found in 21 of 23 fields in delta counties. Infestation averaged 12.7 percent (maximum 69). Higher infestations mostly where cotton "quitting" and squares scarce. (Pfrimmer et al., Aug. 25). Infestations remain high in most counties throughout delta region. Pontotoc County cotton subjected to heavy pressure by many fields in county terminating. "Hatch out" heavy in Marshall County; infestations as high as 70 percent. Infestation heavy in De Soto County, up to 40 percent; however, many fields terminating production of squares. (Dinkins). LOUISIANA - Weevils 0.6 per 100 squares in 178 fields checked in Madison Parish; 1-15 per 100 squares in 66 infested fields. Punctured squares averaged 15 percent in these fields, ranged 1-61 percent. (Cleveland et al., Aug. 25). ARKANSAS - Present in 89 percent of 5,406 fields checked; 33 percent of infestations above recommended treatment level, compared with 36 percent previous week. (Barnes, Boyer). OKLAHOMA - Moderate to heavy in cotton in Garvin County and moderate in Marshall County. (Okla. Coop. Sur.).

For Boll Weevil in High Plains area of Texas see page 870.

BOLLWORMS (*Heliothis* spp.) - NORTH CAROLINA - Populations highest observed since 1961. Problem in all cotton-growing areas of State. Ranged from 1-2 percent to as high as 60 percent square and boll infestation in Scotland County field. Infestations difficult to control with some materials, particularly in Robeson and Scotland County areas. (Robertson). **SOUTH CAROLINA** - Heavy damage seen in many fields in Florence area. Protection must be maintained until bolls sufficiently hard to prevent damage. Percent larval infestation 0.1-11 in treated plots, 3 in untreated plots. Total of 478 *H. zea* and 33 *H. virescens* adults taken in light trap. (Taft et al., Aug. 24). **TENNESSEE** - Heaviest in boll weevil treated area but present throughout western area. Eggs or larvae 1-17 per 100 terminals. Nearly all fields surveyed found infested. Egg laying increased considerably. Much damage will result if controls not applied, especially in late cotton. (Locke). **GEORGIA** - Percent damaged squares 6-15 in 3 treated fields, heavy damage to bolls in Putnam County (Beckham); egg and larval counts much lower than previous week in Bleckley County (Lawson). **MISSISSIPPI** - Injured squares found in 12 of 23 fields in delta counties. Percent injury averaged 1.7 (maximum 5). Eggs found in terminals of 16 fields; averaged 3.9 per 100 terminals. Moth flight increased at all locations. (Pfrimmer et al., Aug. 25). Extremely high egg counts and light numbers of *H. zea* and *H. virescens* larvae found throughout southern delta region. Eggs 10-100 per 100 terminals. "Hatch out" expected in area by middle of week. Egg counts and percent damage by county as follows: Pontotoc 10-20 eggs per 100 terminals, 2-5 percent damage; Marshall 5-15 eggs, 3-7 percent damage, with approximately 33 percent of live larvae *H. virescens*, 66 percent *H. zea*; De Soto, 0-5 eggs, 0-3 percent damage; Tunica 5-15 eggs, few big larvae; Coahoma 10-20 eggs, 5-7 percent damage; Tallahatchie 5-15 eggs, 5-10 percent damage; Panola 10-25 eggs, 5-10 percent damage; Yazoo 30-40 eggs, 3-12 percent damage. (Dinkins).

LOUISIANA - Percent damaged squares 1-9 in 139 of 178 fields in Madison Parish; averaged 1.8 per 100 squares. Larvae 0.4 per 100 squares; ranged 1-4 in 55 infested fields. Total of 129 *H. zea* and no *H. virescens* collected in light trap. (Cleveland et al., Aug. 25). **ARKANSAS** - *H. zea* present in 74 percent of 5,406 fields; 9 percent of infestations above recommended treatment level, compared with 12 percent previous week. Controls applied to 3,921 fields. Low percentage of fields with infestations above treatment level indicated good control results. (Barnes, Boyer). **MISSOURI** - Larvae 1-18 and eggs 0-34 per 100 plants in 65 percent of 649 fields scouted in southeastern "delta" area. Treatments applied to 1,576 acres in 45 fields. (Jones). **NEW MEXICO** - *H. zea* remains generally light to medium in all cotton-growing areas of State. Some fields require treatment in all areas. (N. M. Coop. Rpt.). **CALIFORNIA** - Bollworms continue primary concern of most growers and field men in Kern County; increasing throughout county. In some fields, decrease in high populations accomplished with repeated applications of phosphate insecticides but in most cases populations build back up when treatment discontinued. Generally, fields not sprayed in past month in better condition than those treated. Many eggs being found on pink and dry blooms. (Black, Aug. 19).

CABBAGE LOOPER (*Trichoplusia* ni) - **TENNESSEE** - Light in cotton over western area; damage very light. (Locke). **MISSISSIPPI** - Moth flight continues in delta counties. Scattered "ragging" of foliage noted in most fields but no serious infestations observed. (Pfrimmer et al., Aug. 25). Increasing in Yazoo County cotton. Leaf damage moderate in some fields. (Dinkins). **CALIFORNIA** - Populations unchanged in Kern County cotton but should be watched for rapid buildup. (Black, Aug. 24).

PLANT BUGS - **TENNESSEE** - *Lygus lineolaris* and *Adelphocoris rapidus* continue to cause some light damage to late cotton over western area. (Locke). **MISSOURI** - Plant bug adults and nymphs 1-38 per 100 terminals in 86 percent of 649 fields scouted. (Jones). **LOUISIANA** - No *Psallus seriatus* and only 4 *L. lineolaris* (2 in each of 2 fields) found in 69 fields in Madison Parish. (Cleveland et al., Aug. 25). **CALIFORNIA** - *Lygus* spp. numbers continue high in Kern County cotton; 10-20 per 50 sweeps common. Counts higher in some fields. (Black, Aug. 19).

COTTON APHID (*Aphis gossypii*) - NEW MEXICO - Increasing on cotton in Dona Ana County; some honeydew evident in some fields. (Garcia, Campbell). CALIFORNIA - Present in many Kern County fields; building up in some Buttonwillow area fields. Bolls opening; pest should be watched closely. (Black, Aug. 24).

SPIDER MITES (*Tetranychus* spp.) - TENNESSEE - No increase noted in western area, but infestations remain numerous. (Locke). MISSISSIPPI - Continue to pose problem in some fields in delta counties. Reported heavy in 5 of 23 fields. (Pfrimmer et al., Aug. 25). *Tetranychus urticae* light in many fields in Tallahatchie County. (Dinkins). MISSOURI - Mainly *T. atlanticus* present in 3 percent of 649 fields scouted. (Jones). CALIFORNIA - Spider mites under control in most Kern County fields. Should be of no great concern remainder of season. (Black, Aug. 19).

HAWAII INSECT REPORT

Insects of Regional Significance - MELON FLY (*Dacus cucurbitae*) adults generally light to medium in gardens in Lanai City, Lanai; readily seen in and about squash, tomato, watermelon, string bean and eggplant plantings. (Gaddis).

Fruits and Nuts - A MEALYBUG (*Pseudococcus obscurus*) - Although medium in few scattered areas, population generally reduced to very low level in 200-acre passion-fruit orchard in Kahului, Maui. All stages of a LADY BEETLE (*Cryptolaemus moustrozieri*) increased noticeably in orchard. (Miyahira). FULLER ROSE BEETLE (*Pantomorus godmani*) caused conspicuous foliar damage on young plum trees in Puako, Hawaii Island; defoliation near 100 percent. (Fukumura, Oshiro).

Ornamentals - Adults of an ANTHRIBID BEETLE (*Araeocorynus cumingi*) heavy in pods of *Canavalia cathartica* (mauna-loa) in Lawai, Kauai; 100 percent of pods infested. (Au). FULLER ROSE BEETLE adults caused heavy foliar damage on *Dracaena* spp., *Metrosideros collina* (ohia-lehua), camellias, gardenias and wild olives in Waimea, Hawaii Island. Terminal growth of *Dracaena* and ohia-lehua completely denuded. (Oshiro, Fukumura).

Forest and Shade Trees - A PLATYPODID BEETLE (*Platypus* sp.) caused additional damage to monkeypod trees in Poipu, Kauai. Many dead adults "encased" in fresh exudations observed. Following heavy attack by this borer in Lihue, small dying monkeypod branches heavily infested by a SCOLYTIID BEETLE (*Xyleborus fornicatus*). (Au). Adults of a SCARAB (*Protaetia fusca*) heavy on blossoms of *Casuarina equisetifolia* (common ironwood) in Puako, Hawaii Island; up to 6 on single flower cluster. (Fukumura, Oshiro).

Beneficial Insects - A PUNCTURE-VINE STEM WEEVIL (*Microlarinus lypriformis*) heavy in stems of *Tribulus cistoides* (nohu) in Kamiloloa, Molokai, and in Maunalei, Lanai. Few pupae and numerous emergence holes noted. No releases made on Molokai and Lanai. (Nakao). Range of an ARCTIID MOTH (*Selca brunella*) extended on eastern end of Hawaii Island. Results of heavy foliar feeding by larvae observed on few *Melastoma* plants along roadside at 24 miles, Volcano Road, Hawaii Island, at 2,700 feet. This also highest elevation where *Melastoma* growth and *S. brunella* larval activity noted. Heavy larval activity noted on *Tibouchina semidecandra* (glory-bush), another weed pest, on both sides of road for distance of approximately 2 miles in Mountain View, Hawaii Island. (Kami). A GORSE SEED WEEVIL (*Apion ulicis*) moderately active on *Ulex europaeus* (gorse) in Olinda Forest Reserve, Maui; infested 28 percent of 125 seed pods examined. In another area where chemicals used for gorse control, infested only 1 of 200 seed pods examined. (Miyahira). A TEPHRITID FLY (*Acinia picturata*) very active on *Pluchea odorata* (sourbush) in Kahului, Kihei, Puunene and Waiehu, Maui. Random sampling of 100 flower heads from each area showed following percent infestation: Kahului 100, Kihei 94, Puunene 97, Waiehu 95. (Miyahira).

SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - WYOMING - Small numbers present in all sugar beet fields of Washakie County. Averaged 1-2 percent of plants affected. (Marks).

MISCELLANEOUS FIELD CROPS

SUNFLOWER MOTH (Homoeosoma electellum) - NORTH DAKOTA - Larvae and pupae of this species and Phalonia hospes 6 per head in sunflowers in Cass County. Emergence light. (Brandvik).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - This species and pea aphid heavy in tomato plantings in Eureka, Humboldt County. (Cal. Coop. Rpt.).

POTATO APHID (Macrosiphum euphorbiae) - COLORADO - Continues increase on lower leaves of potato plants in San Luis Valley. (Jenkins).

Aphids on Potatoes in Maine - Populations of Aphis nasturtii, Myzus persicae, Macrosiphum euphorbiae and Acyrtosiphon solani continued to decline on untreated potato foliage in northeast area due to entomogenous fungi; rate of decline at Presque Isle slowed by dry weather. Populations small in Lee, Houlton and Presque Isle districts. Fall migration of Aphis nasturtii began about August 15, usual time. (Shands et al.).

BLACK CUTWORM (Agrotis ipsilon) - MARYLAND - Larvae causing an increasing amount of injury to tubers dug near Pocomoke, Somerset County. (U. Md., Ent. Dept.). MICHIGAN - Reported feeding on potato foliage and tubers below ground level. Apparently tuber feeding due to lack of moisture. (Reath, Newman).

TOMATO FRUITWORM (Heliothis zea) - COLORADO - Light in Mesa County tomato fields to date, harvest underway. No eggs found on plants in Arkansas Valley. (Bulla, Schweissing). UTAH - Damage to tomato fruits light in most areas. (Knowlton).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - KANSAS - Moderate on snap beans in Riley County. This new County record. (Eshbaugh). MARYLAND - Heavy on garden lima beans in Prince Georges and Queen Annes Counties. (U. Md., Ent. Dept). DELWARE - Feeding injury on both snap and lima beans in southern New Castle County. (MacCreary, Davis).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Heavy on southern peas in Bulloch County. (Underwood).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Heavy on collards in Oconee County. (Brannen). DELAWARE - Averaged 3 per plant in field in Kent County. (MacCreary, Davis). NEW YORK - Real problem in some fields in Orleans and Genessee Counties. (N.Y. Wkly. Rpt., Aug. 22). MICHIGAN - Additional moths trapped in blacklight traps as far north as Gratiot County. According to surveys annual problems associated with this species expected soon as far north as Saginaw County. (Newman, et al.).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - At very high levels in most fields in Orleans and Genessee Counties. (N.Y. Wkly. Rpt., Aug. 22).

A WEEVIL (*Ceutorhynchus* sp.) - CALIFORNIA - Adults medium on 100 acres of Brussels sprouts in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.)

CUCURBITS

MELON APHID (*Aphis gossypii*) - OKLAHOMA - Infestations causing concern to commercial watermelon growers, especially in Cleo Springs area, Major County. Heavy on watermelon plants in Noble County. (Okla. Coop. Sur.).

SQUASH BUG (*Anasa tristis*) - DELAWARE - Common on squash in southern New Castle County. (MacCreary, Davis).

GENERAL VEGETABLES

CABBAGE LOOPER (*Trichoplusia ni*) - COLORADO - Low numbers, 0-50 per plant, on lettuce in Arkansas Valley. (Schweissing). Appearing in Weld and Adams Counties. (Schweissing, Counter).

ONION THRIP (*Thrips tabaci*) - COLORADO - Low on onions in Arkansas Valley; 0-40 per plant. (Schweissing).

APHIDS - COLORADO - Range 0-10 per plant on lettuce in Arkansas Valley fields. Populations on weeds in fields 0-30 per leaf. (Schweissing).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Carpocapsa pomonella*) - MARYLAND - Heavy in unsprayed apples at Hancock, Washington County. (U. Md., Ent. Dept.).

UNICORN CATERPILLAR (*Schizura unicornis*) - TENNESSEE - Feeding on apple leaves in McMinn County August 10. (Williams et al.).

PEACH TREE BORER (*Sanninoidea exitiosa*) - GEORGIA - Heavy on peach trees in Bartow County. (Holland). TEXAS - Moderate in peach trees near Groveton, Trinity County; 1-2 per tree on two-year-old trees. (Lange).

PEACH TWIG BORER (*Anarsia lineatella*) - OREGON - Probably this species infesting 1 percent of prunes in Polk County orchards. (Brown). TEXAS - Heavy in peaches and plums near Sweetwater, Nolan County. (Templeton).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - COLORADO - Moth flight heavy August 14-20; 717 moths taken in 15 bait traps on 3 properties in Palisade area, Mesa County. As high as 170 taken in 15 traps in 1 day; flight continued at high levels. Controls recommended. (Anderson, Merlino).

APPLE MAGGOT (*Rhagoletis pomonella*) - WISCONSIN - Adult flight prolonged. Some treatment underway in Gays Mills area. In Door County, 168 flies caught on 8 sticky boards August 15-22. (Wis. Ins. Sur.). MICHIGAN - Emergence continues, especially in lower southwestern and southeastern area orchards. Emergence very low in Oakland County. (Wooley, Carpenter, Lincoln).

ORCHARD MITES - NEW YORK - Active on apples in Columbia County; continue most important problem on fruit in Niagara County. (N. Y. Wkly. Rpt., Aug. 22). MARYLAND - *Panonychus ulmi* very prevalent in some orchards in Carroll and Washington Counties. (U. Md., Ent. Dept.). MICHIGAN - *P. ulmi* control problem in isolated southern orchards. (Wooley, Carpenter). COLORADO - *Aculus cornutus* light in most peach orchards in Mesa County; occasional controls used. (Bulla).

PEAR-SLUG (Caliroa cerasi) - WISCONSIN - Large larvae of second generation causing noticeable damage to pear and cherry foliage in Middleton. (Wis. Ins. Sur.).

PEAR PSYLLA (Psylla pyricola) - OREGON - Heavy in poorly treated pear orchards in Polk County. (Brown).

WALNUT CATERPILLAR (Datana integerrima) - WISCONSIN - Scattered walnut trees in western counties completely defoliated. (Wis. Ins. Sur.). OHIO - Larvae appear more common this year on walnut foliage in Delaware and Franklin Counties. Some severely defoliated trees noted. Larvae currently late stage. (Galford).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Heavily damaged pecans in Eastland County this season. (Cooper).

FALL WEBWORM (Hyphantria cunea) - OREGON - Web masses in walnuts scattered and light throughout Willamette Valley. (Larson).

PECAN WEEVIL (Curculio caryae) - GEORGIA - Total of 63 adults jarred from large pecan tree in Schley County, 0-12 from 9 other trees in Randolph County. (Osburn). OKLAHOMA - Emerging but light in Marshall County. (Okla. Coop. Sur.).

A WALNUT HUSK FLY (Rhagoletis suavis) - MICHIGAN - Adult catches sharply reduced in Frick traps in many English and Carpathian walnut plantations. (Newman et al.).

A LONCHAEID FLY (Lonchaea sp.) - CALIFORNIA - Larvae medium in walnut husks in Redding, Shasta County. This scavenger periodically becomes problem in nut husks and some tree fruits. (Cal. Coop. Rpt.).

SMALL FRUITS

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Moths continue more active than usual for this late in season. Eggs being laid on late berries. (Tomlinson). WISCONSIN - Few full-grown larvae feeding lightly on cranberries near Three Lakes, Oneida County. (Wis. Ins. Sur.).

GRAPE BERRY MOTH (Paralobesia viteana) - UTAH - Damage especially serious this season in some Washington County vineyards. (Huber, Knowlton).

A LEAF ROLLER MOTH (Sparganothis sulfurana) - MASSACHUSETTS - Larvae damaging cranberries in 2 Wareham bogs. (Tomlinson, Aug. 19).

RASPBERRY CROWN BORER (Bembecia marginata) - TENNESSEE - Pupae found in raspberry stems in Knox County. (Williams et al.).

RED-NECKED CANE BORER (Agrilus ruficollis) - WISCONSIN - Probably this species damaging raspberry canes in Ashland County. (Wis. Ins. Sur.).

A SAP BEETLE (Glischrochilus fasciatus) - MICHIGAN - Causing problem on raspberries in many growing areas in southern counties. In some areas controls indicated. (Wooley, Carpenter).

WEEVILS - OREGON - Sciopithes obscurus moving into spring planted strawberry fields of Columbia and Washington Counties; considerable foliage damage evident. Nemocestes spp. and Trachyphloeus spp. still active in strawberry fields in same counties. (Every).

SPIDER MITES (Tetranychus spp.) - NEW JERSEY - Building up again in strawberries. (Ins.-Dis. Newsltr.).

ORNAMENTALS

PAINTED LADY (Vanessa cardui) - NEW MEXICO - Larvae abundant on chrysanthemum in Las Cruces area, Dona Ana County. (Durkin).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - NEW MEXICO - Heavily skeletonized leaves of Boston ivy in Las Cruces, Dona Ana County. (Durkin).

FLEA BEETLES - MINNESOTA - Heavy and causing considerable damage in large field of dahlias in Rosemount and Lakeville area. (Minn. Ins. Rpt.).

A COREID BUG (Euthochtha galeator) - TENNESSEE - Nymphs infesting roses in Cumberland County August 10. (Williams et al.).

A LEAF-FOOTED BUG (Leptoglossus sp.) - NEW MEXICO - Moderately heavy on ornamental junipers in Bernalillo County. (Heninger).

HEMISPHERICAL SCALE (Saissetia coffeae) - CALIFORNIA - Heavy on fern nursery stock in Encinitas, San Diego County. (Cal. Coop. Rpt.).

A LACE BUG (Corythucha incurvata) - CALIFORNIA - Heavy on California holly along highway in Placerville, El Dorado County. (Cal. Coop. Rpt.).

SPIDER MITES - IOWA - Injury to ornamentals and gardens increased due to dry conditions. (Iowa Ins. Inf., Aug. 22). NEW MEXICO - Generally light to medium on Arizona cypress and ornamental junipers in Albuquerque area. (Heninger).

FOREST AND SHADE TREES

WHITE-PINE WEEVIL (Pissodes strobi) - RHODE ISLAND - Infested leaders from Kingston area contained pupae, adults and very few larvae. (Mathewson).

AN OLETHREUTID MOTH (Eucosma gloriola) - MICHIGAN - Caused considerable lateral shoot damage in Cadillac area, especially in Scotch pine plantations. (Wallner, Newman).

EASTERN SPRUCE GALL APHID (Adelges abietis) - MICHIGAN - Emerging from galls in Cadillac area. (Woolley, Wallner).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Heavy populations present in Upton and Garza Counties. Damage remains extensive throughout Rolling Plains and High Plains area. (Conner, Day, Boring). NEVADA - New infested area found in west Las Vegas, Clark County, during July, 6 miles from original area infested in 1965. Survey continues negative in 1965 area of infestation. Infestation found in Henderson, Clark County, for second locality record in this county. (Weiland, Zoller). CALIFORNIA - This leaf beetle and larvae of mourning-cloak butterfly locally heavy on elm in Santa Cruz, Santa Cruz County, and heavy in Morgan Hill, Santa Clara County. (Cal. Coop. Rpt.).

LARGER ELM LEAF BEETLE (Monocesta coryli) - GEORGIA - Heavy on elm in Pike County. (Beckham).

FALL WEBWORM (Hyphantria cunea) - DELAWARE - Common on roadside trees in most areas of State. (MacCreary, Davis). MARYLAND - Very conspicuous on some roadside deciduous trees in Queen Annes County. (U. Md., Ent. Dept.). OHIO - Heavy on wild cherry in Ashland County; up to 6 colonies per tree. Larvae 0.75-1.25 inches long. Foliage damage of little consequence. (Rose). INDIANA - Heavy in extreme northern counties, especially Noble County. (White). TEXAS - Moderate widespread populations webbing terminal growth of ornamental shade trees, especially cottonwoods, in Brewster County. (Sims).

RED-HUMPED CATERPILLAR (Schizura concinna) - COLORADO - Damaging honeylocust in Denver area. (Chambers).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - TENNESSEE - Infesting pin oak in Knox County August 19. (Williams et al.). VIRGINIA - Larvae feeding on red oak in Nansemond County. (Isakson, Smith). RHODE ISLAND - First infestation of season noted in Kingston. (Mathewson).

WESTERN OAK LOOPER (Lambdina fiscellaria somnaria) - OREGON - Foliage damage to native oak in Willamette Valley much less than in 1965. (Larson).

AMERICAN DAGGER MOTH (Acronicta americana) - NEVADA - Heavy on boxelder in Genoa, Douglas County. (Cooney).

MIMOSA WEBWORM (Homadula albizziae) - MARYLAND - Heavy on many mimosa and honeylocust trees in central and southern sections. (U. Md., Ent. Dept.).

SYCAMORE LACE BUG (Corythucha ciliata) - TENNESSEE - Heavy on sycamore trees on University of Tennessee campus in Knox County. (Williams et al.).

ASH PLANT BUG (Neoborus amoenus) - MINNESOTA - Third generation appearing on some green ash trees in St. Paul-Minneapolis area. (Minn. Ins. Rpt.).

AN ARMORED SCALE (Aspidiotus liquidambaris) - OHIO - Unusual occurrence noted on leaves of sweetgum in Franklin County. Crawlers active. (Campbell).

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

MAN AND ANIMALS

MOSQUITOES - NORTH CAROLINA - Aedes aegypti found in 4-block area in Charlotte. Larvae readily found in tin cans, old tires and other receptacles. Aedes sollicitans adults lighting at rate of 20-30 per minute in small area in Mecklenburg County. Breeding in lagoon area containing wastes from dye manufacturing plant. (Ashton). LOUISIANA - Larval collections by Jefferson Parish Department of Mosquito Control August 21 to August 26 contained Anopheles crucians, Culex pipiens quinquefasciatus, C. salinarius, C. tarsalis and Uranotaenia lowii. Light trap collections contained mostly Aedes vexans and C. salinarius. (Stokes). TEXAS - Culex pipiens quinquefasciatus dominant in Dallas, Dallas County, area, and thought to be major vector in transmission of St. Louis encephalitis in area. Total populations during August show no increase compared with recent years. However, 1 of every 200 mosquitoes checked contained the virus. Population drastically reduced by mass control; not expected to build up for several weeks. (Blankenship). OKLAHOMA - Heavy populations, mainly Psorophora cyanescens, along Black Bear and Red Rock Creeks in northern Noble County. No extensive populations of Culex spp. found. Mosquitoes heavy in Marshall and Mayes Counties. (Okla. Coop. Sur.). KANSAS - On August 24, 3 female Culex tarsalis taken in 1 light trap at Manhattan. (Simpson). MINNESOTA - During week ending August 20 Metropolitan Mosquito Control District light traps collected 1,909 female mosquitoes. Aedes vexans most numerous species taken in light traps, larval collections and in evening and daytime bite collections. Culex tarsalis accounted for 41 found in light trap collections, 117 in larval collections and 2 in evening bite collections. An increase in A. vexans adults expected during week of August 29. (Minn. Ins. Rpt.). NEVADA - Aedes dorsalis adults and Culex tarsalis larvae medium in southern Las Vegas, Clark County. (Milner). A. dorsalis and A. melanimon adults heavy in Schurz, Mineral County. (Cooney).

FACE FLY (Musca autumnalis) - UTAH - Annoying cattle and horses in Syracuse area of Davis County. (Knowlton). SOUTH DAKOTA - Mostly light, less than 3 per face on animals in Lincoln, Minnehaha, Moody and Lake Counties. Small herd of Hereford and Angus near Norway Center, Lincoln County, with 10-30 (average 20) per face.

These highest numbers observed this season. South of Burke, Gregory County, 4-5 on horses. (Balsbaugh, Jones, Kantack). IOWA - Increasing; 50 per face on individual cows in Jasper County herd August 9. Average for herd, 35+. This heaviest population observed in State for 3 years. Increases also noted in other areas. (Iowa Ins. Inf., Aug. 15). WISCONSIN - Much less of problem this season. Incidence of pink-eye reportedly much less in Richland County than last season. (Wis. Ins. Sur.). INDIANA - Populations 7-10 per animal in east central counties; up to 25 per animal in Howard County. (White). MARYLAND - Generally light, highest count 8 per head, on beef and dairy cattle in Frederick County. (U. Md., Ent. Dept.).

HORN FLY (Haematobia irritans) - SOUTH DAKOTA - Variable on herds in Lincoln, Minnehaha, Moody and Lake Counties; 200+ per side. Mostly less than 100 per side on untreated cattle south of Burke, Gregory County. (Balsbaugh et al.). NEBRASKA - Counts 100 or more per side on untreated cattle in pastures. Light to moderate on cattle in range areas where backrubbers available; 0-50 per side. (Roselle). COLORADO - Numerous on cattle in stockyards at Alamosa. (Jenkins). KANSAS - Up to 2,000 per head in Russell County; 500-1,500 per head in Riley and Marshall Counties. Light to heavy elsewhere in northeast area. (Simpson). OKLAHOMA - Heavy on cattle in Garvin and Mayes Counties and moderate in Cleveland County. (Okla. Coop. Sur.). INDIANA - Ranged 50-150 per animal in east central counties; much higher on bulls. (White). MARYLAND - Ranged 200-350 per head in beef herds checked in Frederick County. (U. Md., Ent. Dept.).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Continues major problem to animals, but not as numerous as in previous weeks. (Wis. Ins. Sur.). NEBRASKA - Numbers increasing in feedlots in Lincoln area. (Roselle).

BLACK FLIES - SOUTH DAKOTA - Annoyance to horses severe near Blunt, Hughes County. (Balsbaugh, Jones).

LONE STAR TICK (Amblyomma americanum) - GEORGIA - Adults 25-50 and larvae 5-8 per square inch on untreated beef cattle in Hancock County. Treatments giving temporary control in most cases. (Nolan). OKLAHOMA - Numbers along trails and in grass and weeds decreased in Atoka and Cherokee Counties; 10-1,000 per 15 sweeps; about 99 percent larvae. (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEBRASKA - Heavy in homes and lawns in Alliance (west) and Newman Grove (northeast). (Roselle).

HOUSEHOLDS AND STRUCTURES

WEEVILS (Brachyrhinus spp.) - OHIO - B. ovatus and B. rugosostriatus adults active and entering buildings. (Jones et al.). WISCONSIN - Particularly B. ovatus continues problem to many householders. (Wis. Ins. Sur.). NEBRASKA - B. ovatus migrating into homes in several locations in eastern to western counties. (Roselle).

PHAROAH ANT (Monomorium pharaonis) - TEXAS - Heavy and widespread in Wilson County. (Weaver).

STORED PRODUCTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - NORTH DAKOTA - Adults severe in 5,000 bushels of 1-year-old stored oats near Casselton, Cass County. (Ness).

BENEFICIAL INSECTS

LADY BEETLES - KANSAS - Numbers high in most alfalfa in northeast area. (Simpson). WYOMING - Several species continue in large numbers in alfalfa, corn, beans and sugar beets throughout Washakie, Big Horn and Park Counties. (Marks).

GREEN LACEWINGS - KANSAS - Numbers high in most alfalfa in northeast area. (Simpson). WYOMING - *Chrysopa* spp. continue in large numbers in alfalfa, corn, beans and sugar beets throughout Washakie, Big Horn and Park Counties. (Marks).

DAMSEL BUGS (*Nabis* spp.) - ARKANSAS - Continue one of principal predators in soybeans; numbers very low in some fields. (Boyer). WYOMING - Continue in large numbers in alfalfa, corn, beans and sugar beets throughout Washakie, Big Horn and Park Counties. (Marks).

ANTHOCORID BUGS (*Orius* spp.) - WYOMING - Continue in large numbers in alfalfa, corn, beans and sugar beets throughout Washakie, Big Horn and Park Counties. (Marks).

BIG-EYED BUGS (*Geocoris* spp.) - ARKANSAS - Continue one of principal predators in soybeans; numbers very low in some fields. (Boyer).

Beneficial Insects in Cotton - CALIFORNIA - Populations vary from field to field in Kern County. Generally flower bugs and lacewings abundant in most fields except those recently sprayed. Other predators less abundant. (Black, Aug. 24).

PARASITIC HYMENOPTERA - KANSAS - Numbers high in most alfalfa in northeast area. (Simpson).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - INDIANA - Adults and nymphs, mostly *Melanoplus* spp., 2 per sweep on alfalfa in northern counties. (White). ILLINOIS - Feeding on soybean pods in some fields. Numbers generally low, but control justified in occasional field to prevent pod damage. (Ins. Sur. Bul.). WISCONSIN - *Melanoplus femurrubrum* populations appear somewhat lower than in 1965; some damage along margins of corn, alfalfa and soybeans noticeable. As more second-crop alfalfa cut more migrations into other crops expected. *Dissosteira carolina* populations decreased somewhat; few *M. bivittatus* and *M. differentialis* adults dominant in parts of Dunn County. (Wis. Ins. Sur.). MINNESOTA - Grasshoppers noneconomic to light in central district. Moderate to severe in few widely scattered fields throughout district. Counts 9-72 per square yard in Meeker, Carver, Kandiyohi, Stearns and Sherburne Counties. Damage restricted to few fields where populations high. *M. femurrubrum* dominant in all but 1 field in district. *Camnula pellucida* dominant in Cass County field; concentrated in noncrop area, depositing eggs. Grasshoppers noneconomic in northwest district; averaged 2 per square yard in fields, 5 in roadsides and margins. *M. femurrubrum* dominant in area. Noneconomic to light in west central district. (Minn. Ins. Rpt.).

NORTH DAKOTA - Adults noneconomic in Pembina, Walsh, Nelson, Grand Forks, Steele, Traill and Cass Counties; marginal counts averaged 2 and field counts less than 1 per square yard. Highest counts found in alfalfa and sweetclover. *Melanoplus bivittatus*, *M. sanguinipes*, *M. femurrubrum*, *M. differentialis*, *M. packardii* and *Chorthippus curtipennis* present; third instar to adult. Light marginal damage to corn and soybeans noted in southern Cass County. (Stoltenow). Noneconomic in Ransom and Sargent Counties, light throughout Richland County. Field counts average 1 and marginal counts 6 per square yard. Light marginal damage evident in corn and soybeans in Richland County. *M. femurrubrum*, *M. bivittatus*, *M. differentialis*, *M. dawsoni* and *C. curtipennis* present. Noneconomic in Benson, Pierce, Rolette, Towner, Cavalier and Ramsey Counties. Field and marginal infestations less than 1 per square yard. *M. packardii*, *M. femurrubrum* and *M. bivittatus* dominant. (Brandvik).

SOUTH DAKOTA - Grasshoppers very heavy in Hand, Tripp, Butte, Meade, Lawrence and Fall River Counties; spotty but numerous in Haakon and Brule Counties. Damaged some alfalfa in Dewey and Faulk Counties, and corn in Perkins County. Grasshoppers may be threat to winter wheat plantings in Ziebach County. Corn, sorghum and alfalfa damaged in Beadle County; some crop damage reported from Mellette County. (Jones). Adults generally light in cropland areas of southwest section; no infestation in any portion of Jones County. M. femurrubrum and M. differentialis dominant. (Nichol). South of Burke, Gregory County, grasshoppers 25 per square yard in fields, up to 35 in roadsides; 80 percent adults; most immatures M. femurrubrum. Adults 65 percent M. differentialis. M. bivittatus and M. sanguinipes also present (Kantack). NEBRASKA - Melanoplus spp. 6-8 per square yard in margins of corn in some eastern area fields. (Roselle).

OKLAHOMA - Grasshoppers economic on total of 360,900 acres over State. Ageneotettix deorum, Phliobostroma quadrimaculatum, M. bivittatus, M. packardii, Hesperotettix sp. and M. differentialis dominant. (Okla. Coop. Sur.). NEW

MEXICO - Heavy populations, mostly adults, noted in arroyos and lowlands in Luna, Hidalgo, Grant and Sierra Counties. (Jennings). Ranged 10-25 per 25 sweeps in alfalfa in Bernalillo County. (Heninger). Heavily damaged trees and shrubs in nurseries and around homes in Bernalillo County. (Heninger). COLORADO - Melanoplus spp., M. femurrubrum and M. bivittatus damaging ears on margins of corn fields in Mesa County. (Hantsbarger). UTAH - Approximately 50,000 acres of cropland and 78,000 acres of range conspicuously infested in Box Elder County. (Thornley, Collmar).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations increasing rapidly in some areas of control zone. Many newly infested fields detected above the Cap Rock in eastern Floyd and Crosby Counties. Few infested fields found above the Cap Rock in Briscoe County. Infestations above the Cap Rock still light. Increasing rapidly in Dickens and Kent Counties. (Hanna, Parker, Aug. 23).

JAPANESE BEETLE (Popillia japonica) - INDIANA - Beetles found in Vevay, Switzerland County; this new county record. (PPC Cent. Reg., July Rpt.). MICHIGAN - Total of 4 new finds in Detroit area, 1 new find in Monroe and 5 new finds in Calhoun County area verified. These finds in general areas of suspected, closely calculated areas of inspection. (Turner, Moore et al.). OHIO - Feeding on foliage of sassafrass, sycamore and linden in Morgan County. Defoliation 5 percent on some small trees. Beetles common but not severely damaging. (Peacock, Aug. 14).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ARKANSAS - New infestation found in Walcott, Greene County, August 8-12. Infestation involves 160 acres. (Shotts). Extension in nursery sales yard found in West Memphis, Crittenden County, August 15-19. Extension 1.5 miles from Walcott area found same period. (Ark. Ins. Sur.).

GYPSY MOTH (Porthetria dispar) - MASSACHUSETTS - Total of 6 male moths taken in blacklight trap at East Wareham August 13-19. These first of season and considerably later than usual. (Tomlinson). MICHIGAN - No new finds of male moths in infested area. (Turner, Moore).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Survey of 56,337 trees on 2,683 properties in States of Nuevo Leon, Sonora, Baja California and Tamaulipas showed single infested leaf in Municipio Hualahuises, Nuevo Leon. In Hualahuises 1,724 trees on 66 properties received first spray, 1,191 trees on 3 properties received second and 1,931 trees on 3 properties received third application. In Matamoros, Tamaulipas, 11 trees on 10 properties received first spray, 226 trees on 98 properties received second and 155 trees on 29 properties received third treatment. Biological Control Zone - Surveys of 18,161 trees on 33 properties in Municipios Mainero, Villagran, Hidalgo, Guemez and Padilla, Tamaulipas, showed light infestations on 351 trees on 16 properties in Hidalgo and Padilla. Sprays applied to 1,082 trees on 4 properties in Mainero. (PPC Mex. Reg., July Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Moth catches in sex lure traps increased sharply; few moths taken in central Imperial Valley. Total of 875 moths taken this season; 829 in sex lure traps in desert cotton areas, 46 in argon light traps. Total of 37 larvae taken in field inspections. Collections in desert areas as follows: Bard Valley, Imperial County - 27 moths in sex lure traps, 43 moths in light traps, 9 larvae in bolls; Imperial Valley, Imperial County - 230 moths in sex lure traps, no moths in light traps, 25 larvae; Palo Verde Valley, Riverside County - 329 moths in sex lure traps, 3 moths in light traps, 3 larvae. (Cal. Coop. Rpt.). NEW MEXICO - Infestation 2-10 percent in Luna County. Spray program underway in some fields. Infestation heavy in southern Dona Ana County. (Durkin et al.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 18 cases reported in U. S. August 21-27 as follows: ARIZONA - Yavapai 14, Mohave 1. NEW MEXICO - Otero 1, Hidalgo 1. CALIFORNIA - San Diego 1. Total of 235 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 4, Sonora 109, Chihuahua 86, Nuevo Leon 4, Tamaulipas 32. Total of 561 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released: Texas 10,166,250, New Mexico 6,348,000, Arizona 13,644,000, California 600,000, Mexico 105,612,000. (Anim. Health Div.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Recently infested many cleared areas throughout Hardin County. (Rea).

INSECT DETECTION

New County Records

WESTERN CORN ROOTWORM (Diabrotica virgifera) - MISSOURI - Adults light in corn in Randolph County. (p. 857).

MEXICAN BEAN BEETLE (Epilachna varivestis) - KANSAS - Moderate on snap beans in Riley County. (p. 863).

JAPANESE BEETLE (Popillia japonica) - INDIANA - Beetles found in Vevay, Switzerland County. (p. 870).

CORRECTIONS

CEIR 16(31):759 - LARCH SAWFLY (Pristiphora erichsonii) - MINNESOTA - Should read: "Larvae of all stages observed, most in last instar and many in cocoon stage. Defoliating tamarack..."

CEIR 16(33):802 - WHEAT STEM MAGGOT (Meromyza americana) - Delete NORTH DAKOTA note; pest involved was WHEAT STEM SAWFLY (Cephus cinctus).

Weather continued from page 854.

closed most highways and disrupted communications. Beneficial rains fell in most of the East. Moderate amounts were reported across central New York and New England and along the western Appalachians. Heavier showers produced more than 2 inches along the Carolina coasts and central Florida. The dominance of the dry, high pressure system over the Central States caused the remainder of the Country to receive only slight precipitation. (Summary supplied by Environmental Data Service, ESSA).

LIGHT TRAP COLLECTIONS

ARKANSAS	62-93	BL	6	52	5	444	3	1	91	3	17	7 1036
GEORGIA	51-81	0.15	41	11	13	3	spp.	4	53	790	4	7 1336
ILLINOIS (county)	59-92		3	9	2	326	53	8	97	20	11	24
CHAMPAIGN 8/19-25	57-83	0.49	17	313	6	436	spp.	11	203	41	14	22
KANSAS	67		17	2	2	326	2	45	84	2	2	4
MARQUETTE 8/19	59-92		3	97	32	326	2	45	54	20	11	24
MARYLAND	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
MICHIGAN (counties)	67		17	2	2	326	2	45	84	20	11	24
JACKSON 8/16-22	59-92		3	97	32	326	2	45	54	20	11	24
IONIA 8/16-22	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
MISSISSIPPI	67		17	2	2	326	2	45	84	20	11	24
ROLLING FORK 8/19-25	59-92		3	97	32	326	2	45	54	20	11	24
UNION 8/19-25	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
STONEVILLE 8/19-25	67		17	2	2	326	2	45	84	20	11	24
MISSOURI	59-92		3	97	32	326	2	45	54	20	11	24
PORTAGEVILLE 8/20-26	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
NEBRASKA	67		17	2	2	326	2	45	84	20	11	24
LINCOLN 8/16-22	59-92		3	97	32	326	2	45	54	20	11	24
NEW JERSEY	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
EDINBURG 8/22-26	67		17	2	2	326	2	45	84	20	11	24
SEABROOK 8/22-26	59-92		3	97	32	326	2	45	54	20	11	24
NORTH DAKOTA	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
BOWMAN 8/17	67		17	2	2	326	2	45	84	20	11	24
FARGO 8/25	59-92		3	97	32	326	2	45	54	20	11	24
OHIO	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
HILLIARD 8/18-23	67		17	2	2	326	2	45	84	20	11	24
WOOSTER 8/19-24	59-92		3	97	32	326	2	45	54	20	11	24
SOUTH CAROLINA	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22
CHARLESTON 8/15-21	67		17	2	2	326	2	45	84	20	11	24
TEXAS	59-92		3	97	32	326	2	45	54	20	11	24
BROWNSVILLE 8/13-19	57-83	0.01	8	10	30	10	1	1	1	1	1	16
WACO 8/20-26	67		15	6	177	6	1	1	1	1	1	16
VIRGINIA (county)	72-94	0.09	1	1	60	3	17	3	17	6	8	9
MONTGOMERY 8/8-16	72-97		8	3	17	3	17	3	17	6	8	9
WISCONSIN	67		15	6	177	6	1	1	1	1	1	16
PLATTEVILLE 8/19-24	59-92		3	97	32	326	2	45	54	20	11	24
MADISON 8/16-23	57-83	0.49	17	6	436	6	spp.	11	203	41	14	22



UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

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U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

VOL. 16 No. 36

September 9, 1966

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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN EARWORM at lowest level in 16 years in Hudson Valley, New York. POTATO LEAF-HOPPER moderate on alfalfa in Michigan and Ohio. (p. 875). SPOTTED ALFALFA APHID increasing in Arizona; some high counts reported in Oklahoma and Kansas. (pp. 875, 876). NEOTROPICAL CORN BORER heavy in Texas; caused 25-50 percent lodging. (p. 876). A CHINCH BUG caused heavy damage to grasses in large area of Texas. (p. 877).

BOLL WEEVIL heaviest in several years in Alabama; heavy on late cotton in western Tennessee. Two adults found in El Paso, Texas; first in 3 years. (pp. 879, 887). BOLLWORMS continue heavy and damaging to cotton in Alabama; infestations higher than normal in South Carolina; some increase noted in Georgia. (p. 880).

SUNFLOWER MOTH and BANDED SUNFLOWER MOTH heavy in sunflower fields in North Dakota. (p. 882). Several PECAN PESTS damaging pecans in several Southern States. (p. 883).

More than usual numbers of a MOSQUITO (*Anopheles albimanus*) being taken in light traps in southern Florida. Mosquito activity increased in Arizona, Utah and Wisconsin. HORN FLY and STABLE FLY annoying livestock in several areas. (pp. 885, 886).

No male GYPSY MOTH adults taken at infestation site in Michigan since August 8. PINK BOLLWORM moth numbers increased sharply in California. (p. 888).

Detection

Two BOLL WEEVIL adults taken in El Paso, Texas. These first weevils found in area since September 23, 1963. Spraying underway in attempt to again eradicate pest at this location. (p. 887).

For new county records see page 888.

Prediction

GRASSHOPPERS expected to be more serious in Utah during 1967 than in 1966. (p. 887).

Special Reports

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1965. (pp. 891, 892). These are corrected estimates and replace those in CEIR 16(15):317, 318.

● Some of the More Important Introduced Insects Reported in the United States since 1912. (pp. 893-896).

Reports in this issue are for week ending September 2 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	875
Insects Affecting	
Corn, Sorghum, Sugarcane.....	876
Cucurbits.....	882
Turf, Pastures, Rangeland.....	877
General Vegetables.....	883
Forage Legumes.....	877
Deciduous Fruits and Nuts.....	883
Soybeans.....	878
Citrus.....	883
Peanuts.....	879
Small Fruits.....	884
Cotton.....	879
Ornamentals.....	884
Tobacco.....	881
Forest and Shade Trees.....	884
Miscellaneous Field Crops.....	882
Man and Animals.....	885
Potatoes, Tomatoes, Peppers.....	882
Stored Products.....	886
Cole Crops.....	882
Beneficial Insects.....	887
Federal and State Plant Protection Programs.....	887
Insect Detection.....	888
Light Trap Collections.....	889
Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1965.....	891
Some of the More Important Introduced Insects Reported in the United States Since 1912.....	893

WEATHER BUREAU'S 30-DAY OUTLOOK

SEPTEMBER 1966

The Weather Bureau's 30-day outlook for September calls for temperatures to average above seasonal normals over the Rocky Mountains, the Northern and Central Plains and the northern Mississippi Valley. Subnormal temperatures are indicated for the North Atlantic States as well as most of the South Atlantic States and the southern half of Texas. Elsewhere near normal temperatures are in prospect.

Precipitation is expected to exceed normal along the North Pacific Coast and also over the Southern Rockies, the Southern Plains and along the Gulf and South Atlantic Coasts. Subnormal totals are called for from the Northern Plains eastward through the Midwest to the Middle and North Atlantic Coast States. In unspecified areas near normal precipitation is expected.

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 the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 881.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BET LEAFHOPPER (Circulifer tenellus) - UTAH - Curly top caused 20 percent loss of tomatoes in some home gardens at Castle Dale and Clawson, Emery County; and 5 percent loss at Monticello, San Juan County. Curly top 3 percent on table beets at Monticello. (Knowlton).

CORN EARWORM (Heliothis zea) - NEW YORK - Moth catches in traps in Hudson Valley averaged 1 per night. Larvae found in 5 percent of ears in untreated field corn in prime milk stage August 26. Appears lowest level in 16 years; no sign of increase in moth flights. (N. Y. Wkly. Rpt., Aug. 29). PENNSYLVANIA - Larvae heavy on garden corn in Centre County. (Udine, Aug. 22). NEW JERSEY - Moths heavy in central area; 112 taken at New Market August 30. (Ins.-Dis. Newsltr.). NORTH CAROLINA - Larvae 2 per 25 row feet in 6 Wayne and Johnston County soybean fields; ranged 0-7. Single larva found in 25 row feet in each of 6 fields in Beaufort and Washington Counties. Counts made by shaking; these 12 fields in pod-fill stage. (Mount). SOUTH CAROLINA - This pest and armyworms damaging peanuts in Lee County. (Linder, Aug. 30). GEORGIA - Light to heavy populations causing light to moderate pod damage to soybeans in Dooly, Houston and Peach Counties; control measures justified where bloom ceasing and moisture lacking; control good to excellent in fields observed. (French et al.). Light to moderate on soybeans in Warren County. (Yelton). ALABAMA - Larvae damaged late corn in Cleburne County. Medium in 10-acre field of soybeans in Fayette County. (Ventress, Tucker, Aug. 26). Larvae continue severe in late corn in Bibb County. (Odom).

ARKANSAS - Few larvae present on soybeans in Desha County. Controls applied to 100 of 4,900 acres on one large farm. Most soybeans not subject to infestation. Beans planted in late June and July now blooming; should be checked. (Boyer). OKLAHOMA - Ranged 1-25 per 10 sweeps in alfalfa in Rogers, Washington, Nowata, Craig and Jackson Counties. Ranged 0-4 per 10 row feet in soybeans in northeast counties; 30-50 percent damage to soybeans in Jackson County. Ranged 4-20 per 100 heads in grain sorghum in Nowata, Ottawa and Mayes Counties; heavy in Bryan County, moderate in Cleveland County, light in Noble County. Moderate to heavy in peanuts in Bryan and Caddo Counties. (Okla. Coop. Sur.). KANSAS - Very light on corn in northwest area; less than 30 percent infested ears. (Simpson). MISSOURI - Moth flight, egg laying, and all larval stages more common in late planted soybeans in extreme southeastern counties, but no general outbreak underway. Larvae 0-6 per yard of row. Some controls applied. (Jones). MICHIGAN - Seasonal migration of adults still pending. No specimens taken at any of 14 blacklight stations. (Newman). WISCONSIN - Adult populations remain relatively low; occasional second-instar larvae appearing in ears of sweet corn. (Wis. Ins. Sur.). NORTH DAKOTA - Larvae found in trace numbers on sweet corn in Cass County. (Frye).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Moderate and causing some damage to sweet corn at Ferron, Emery County. (Knowlton).

HORNWORMS (Manduca spp.) - UTAH - Defoliated some tomato plants at Clawson and Huntington, Emery County, and Monticello, San Juan County. (Knowlton).

POTATO LEAFHOPPER (Empoasca fabae) - MICHIGAN - Adults and nymphs up to 40 per 10 sweeps in Livingston County alfalfa. (Dowdy). OHIO - Averaged 5 per sweep on alfalfa in west central area. (Rose).

POTATO PSYLLID (Paratrioza cockerelli) - UTAH - Occasional adults taken on rabbit brush at Green River, Huntington and Castle Dale, Emery County, and Helper, Carbon County. (Knowlton).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MICHIGAN - Up to 10 per 10 sweeps in Livingston County alfalfa. (Dowdy). WISCONSIN - Populations vary considerably with high percentage winged. Infestations noted in Green County where none found earlier. Ranged 1-80 per sweep in sandy-soiled areas; decrease continues in Brodhead and Mazomanie areas. (Wis. Ins. Sur.). KANSAS - Populations variable in north central and northwest areas. Some fields in Jewell, Republic,

Phillips, Graham and Rooks Counties with up to 500 per 10 sweeps; 15-30 per 10 sweeps in other fields. In Norton, Decatur, Rawlins, Thomas and Sheridan Counties, counts 50-150 per 10 sweeps. Predators prevalent in most fields. (Simpson). OKLAHOMA - Ranged 10-175 per 10 sweeps in alfalfa in Washington, Nowata, Craig, Rogers and Garvin Counties. (Okla. Coop. Sur.). ARIZONA - Increasing in alfalfa in Cochise and Maricopa Counties. Damage moderate in San Simon area, Cochise County, and along Baseline Road in Maricopa County. (Ariz. Coop. Sur., Aug. 26). UTAH - Resistant to phosphate insecticides in Delta, Sutherland, Deseret area of Millard County. Light to scarce on alfalfa at Blanding and Monticello, San Juan County. (Knowlton).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - Found in 5 percent of untreated corn ears and silks in Hudson Valley August 26. Moth catches negligible. Larvae first to fourth stage. (N. Y. Wkly. Rpt., Aug. 29). WISCONSIN - Adult flights decreased in most areas; egg laying continues heavy in late corn. Larvae in silks of sweet corn first to fourth instar, but second and third instar predominate. Infestation 0-40 percent. (Wis. Ins. Sur.). NORTH DAKOTA - Emergence of second-generation moths light. Few egg masses evident in Cass County. Full-grown, first-brood larvae observed in whorls and silks of corn in Cass County. (Frye). Damage extensive in single field near Cogswell, Sargent County, with 100 percent of plants infested. Borers 12 per plant, 90 percent of stalks or tassels broken. (Brandvik).

ARMYWORMS (*Spodoptera* spp.) - NEW YORK - *S. frugiperda* moths continued 1-10 per night in light traps in Hudson Valley. Larvae found in whorls in late plantings of sweet corn. (N. Y. Wkly. Rpt., Aug. 29). NEW JERSEY - *S. frugiperda* present in corn in substantial numbers. (Ins.-Dis. Newsltr.). WISCONSIN - Half-grown larvae of *S. frugiperda* feeding in whorls of late field corn in Rock County. Few adults caught in Cedar Grove blacklight trap. Will probably damage late corn in scattered areas. (Wis. Ins. Sur.). CALIFORNIA - *S. exigua* heavily infesting sorghum planting in Ballico, Merced County. (Cal. Coop. Rpt.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ARIZONA - Larvae continue damaging late planted sorghums in Yuma and western Maricopa Counties. (Ariz. Coop. Sur., Aug. 26).

NEOTROPICAL CORN BORER (*Zea diatraea lineolata*) - TEXAS - Populations on corn and grain sorghum intermixed equally with sugarcane borer (*Diatraea saccharalis*) throughout Cameron and in southeast Hidalgo Counties. Populations heavy; caused 25-50 percent lodging in many fields throughout area. Fields where neotropical corn borer present, excessively ragged in appearance. (Riherd, Deer).

SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*) - ALABAMA - This and southwestern corn borer heavy and widespread in Fayette County. Cornstalks falling. Infestations and winter survival of larvae heavy in county in 1965. (Pitts).

SORGHUM WEBWORM (*Celama sorghiella*) - TEXAS - Larvae medium to heavy on late grain sorghum near Rockwall, Rockwall County. Heavier on late planted milo now in late bloom and dough stage. (Corbin). OKLAHOMA - Ranged 1-40 per head in 8 percent of heads in late grain sorghum in Mayes and Nowata Counties; none seen in other north-east area fields. (Okla. Coop. Sur.).

CORN FLEA BEETLES (*Chaetocnema* spp.) - NEW YORK - *C. pulicaria* continues abundant, 5-7 per plant, in whorl-stage corn in Hudson Valley. (N. Y. Wkly. Rpt., Aug. 29). UTAH - *C. ectypa* damage normal in "Dixie" area of Washington County. (Knowlton). ARIZONA - Light to moderate numbers of *C. ectypa* continue to damage sorghum in Kansas Settlement area, Cochise County. Heavy populations damaging sweet corn seedlings in Yuma County; controls required. (Ariz. Coop. Sur.).

CORN ROOTWORMS (*Diabrotica* spp.) - PENNSYLVANIA - *D. longicornis* feeding on corn silk at Ligonier, Westmoreland County; 2-4 per plant. (Koch, Aug. 11). ILLINOIS - *D. longicornis* adults abundant in corn and adjacent fields in northwestern area. (Ill. Ins. Rpt.). NORTH DAKOTA - *D. undecimpunctata howardi* adults evident in trace numbers in Dickey County corn. (Brandvik).

A WEEVIL (*Hyperodes humilis*) - FLORIDA - Eggs and young larvae observed on 40 acres of sweet corn at Belle Glade, Palm Beach County. About 20 percent of corn lost, most of remainder heavily infested. (Genung, Aug. 23).

CHINCH BUG (*Blissus leucopterus*) - OKLAHOMA - Continues light to moderate in northeast area sorghum; feeding in heads as well as other parts of plants. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

A CHINCH BUG (*Blissus insularis*) - TEXAS - Heavy and widespread throughout Wharton County on St. Augustine grass. Heavy damage to many lawns continues from central area to gulf coast. Populations not yet subsided. (Smith, Parker).

SOD WEBWORMS - GEORGIA - Heavy in dwarf Bermuda grass golf greens in Telfair County. (McKinnon). KANSAS - Moderate populations causing some damage to home lawns in northeast area. (Thompson). OKLAHOMA - *Crambus* spp. damaging golf courses in Tulsa and Garfield Counties, lawns in Payne County. (Okla. Coop. Sur.). SOUTH DAKOTA - Unspecified species heavy in many lawns in State. (Jones).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Infesting grass and other hay crops in Pike, Montgomery, Morgan and Lowndes Counties. (Carter et al., Aug. 26).

ARMYWORMS - GEORGIA - Larvae heavy in dwarf Bermuda grass golf greens in Telfair County. (McKinnon).

THRIPS (*Chirothrips* spp.) - ARIZONA - Necessitated controls on Bermuda grass in Roll area, Yuma County. (Ariz. Coop. Sur.).

SPITTLEBUGS - GEORGIA - Infesting centipede grass in Laurens County. (Brown).

SPIDER MITES (*Tetranychus* spp.) - ARIZONA - Sufficiently heavy to require controls in Bermuda grass seed fields in Roll area, Yuma County. (Ariz. Coop. Sur.).

FORAGE LEGUMES

PEA APHID (*Acyrtosiphon pisum*) - UTAH - Numerous in some alfalfa at Springville, Utah County. Increased in some Uintah Basin alfalfa. (Knowlton). WYOMING - Adults and nymphs 20-42 per 10 sweeps in alfalfa in Lincoln, Teton and Sublette Counties. (Marks). KANSAS - Appearing in northwest area alfalfa; 5-20 per 10 sweeps in Decatur, Rawlins, Thomas, Sheridan and Graham Counties. (Simpson). WISCONSIN - Ranged 30-80 per sweep in many alfalfa plantings in southern and southwestern areas. Increase largest in new seedings; winged forms common in most fields. Predators and parasites not adequate to restrain buildup in many fields. (Wis. Ins. Sur.). MICHIGAN - Adults and nymphs up to 110 per 10 sweeps in Livingston County alfalfa. (Dowdy).

PLANT BUGS - UTAH - *Lygus* spp. 2.5 adults and 2 nymphs per sweep in alfalfa at Castle Dale, Emery County. *Adelphocoris superbus* common in alfalfa in Emery County. (Knowlton). WYOMING - *Lygus* spp. adults 8-10 per 10 sweeps in alfalfa at Lincoln, Teton and Sublette Counties. (Marks). KANSAS - *Adelphocoris lineolatus* light in most alfalfa in northwest area; 5-10 per 10 sweeps. (Simpson). OHIO - *Lygus lineolaris* 3 per sweep on alfalfa in Miami and Darke Counties. (Rose). MICHIGAN - *L. lineolaris* adults up to 20 per 10 sweeps, average 10 per 10 sweeps on alfalfa in Livingston County. (Dowdy).

MEADOW SPITTLEBUG (Philaneus spumarius) - MICHIGAN - Adults up to 22 per 10 sweeps on alfalfa in Livingston County. (Dowdy). OHIO - Adults 3-19 per sweep, highest in Warren County. (Rose).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Light in alfalfa in 7 north central counties. (Texas Coop. Rpt.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Heavy adult flights observed in Coolidge and Casa Grande areas, Pinal County, and in many areas of Maricopa County; larvae light to medium. Moderate in Yuma and Cochise Counties week ending August 26. Larvae increasing rapidly in alfalfa in Graham and Cochise Counties; 300 per 100 sweeps in many fields. (Ariz. Coop. Sur.). TEXAS - Most numerous pest in alfalfa surveyed in Montague, Clay, Wichita, Wilbarger, Hardeman, Childress and Cottle Counties. Larvae ranged from 1-2 to as high as 18 per sweep. Due to growth stage and time of year no field with economic infestation. (Texas Coop. Rpt.). SOUTH DAKOTA - Larvae and adults common in alfalfa in southeastern area; 40-60 second to fourth-stage larvae per 100 sweeps in alfalfa 10-12 inches high. (Jones). WISCONSIN - Larvae common in alfalfa in southwestern counties; 2 per sweep in nearly all fields, adults general. (Wis. Ins. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Numerous moderate to heavy infestations noted in alfalfa in Mesa, Chandler, Buckeye and Goodyear areas of Maricopa County. (Ariz. Coop. Sur., Aug. 26).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Counts per 10 sweeps in alfalfa, 150 in Washington County, 62 in Craig County; 3-35 in Rogers, Nowata, Stephens and Jackson Counties. Heavy in Beckham, Roger Mills and Mayes Counties, moderate in Caddo County. (Okla. Coop. Sur.). TEXAS - L. commixtalis light in alfalfa in 7 north central counties. (Texas Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - UTAH - Averaged 5 larvae and 1 adult per 10 sweeps at Castle Dale, Emery County. (Knowlton). WYOMING - Larvae 6-8 and adults 8-12 per 10 sweeps in alfalfa in Lincoln, Teton and Sublette Counties. (Marks). TEXAS - Survey of alfalfa in Montague, Clay, Wichita, Wilbarger, Hardeman, Childress and Cottle Counties negative. (Texas Coop. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - WISCONSIN - Adults common in many southwestern area alfalfa fields, particularly where clovers interseeded; up to 12 per sweep. (Wis. Ins. Sur.).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - KANSAS - Light to moderate on alfalfa in Jewell and Republic Counties, 10-15 per 10 sweeps; 5-10 per 10 sweeps in Norton, Decatur and Rawlins Counties. (Simpson).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - OHIO - Adults most numerous on alfalfa in Clark County; less than 2 per sweep. (Rose).

SOYBEANS

GREEN CLOVERWORM (Plathypena scabra) - GEORGIA - Very light on soybeans in Dooly, Houston and Peach Counties. (French et al.). TENNESSEE - Abundant in most soybean fields. (Johnson, Aug. 29). ARKANSAS - Large numbers present in some late soybeans. Vegetative growth good, leaf feeding noneconomic. Loopers also present; few Pseudoplusia includens collected; mostly Trichoplusia ni. (Boyer). MISSOURI - Larvae increased in soybeans in southeastern and southwestern areas; decreased over northern half of State. All larval stages present; 6-15 per foot of row. Defoliation 5-25 percent; only occasional field shows pod feeding. Much unwaranted treatment underway in southeast. (Jones, Thomas). ILLINOIS - Larvae 0.1-6 per foot of row of soybeans with many acres treated in Henry and Bureau Counties. (Ill. Ins. Rpt.).

ARMYWORMS (*Spodoptera* spp.) - ARKANSAS - Few *S. exigua* larvae found on soybeans in Desha County August 24. (Boyer). ALABAMA - *S. frugiperda* light to damaging on soybeans in central Mobile County. (Vickery).

CABBAGE LOOPER (*Trichoplusia ni*) - GEORGIA - Light to moderate on soybeans in Dooly, Peach and Houston Counties; virus killing loopers in all fields examined. (French et al.). Present on soybeans in Warren County. (Yelton).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - ALABAMA - Light to damaging numbers observed on soybeans in central Mobile County. (Vickery).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Light to damaging on soybeans in central Mobile County. (Vickery).

SOUTHERN GREEN STINK BUG (*Nezara viridula*) - ALABAMA - Light to damaging on soybeans in central Mobile County. (Vickery).

SPIDER MITES (*Tetranychus* spp.) - NEW JERSEY - Destroying soybean foliage in several Burlington County fields. (Ins.-Dis. Newsltr.).

PEANUTS

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - TEXAS - Larvae light but increasing and widespread in Atascosa County. (Duke).

GRANULATE CUTWORM (*Feltia subterranea*) - ALABAMA - Light throughout most Coffee County peanut fields. (Cassady).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Injury by this pest and Heliothis spp. caused abandonment of 10-acre field of late-planted cotton in Johnston County. Treatment began August 1; control unobtainable with regular applications from that date. (Mount). SOUTH CAROLINA - Remaining squares in Florence area too scarce to estimate infestations, but overall populations still lower than normal. No general migration seen in area. (Taft et al., Aug. 31). GEORGIA - Infestation increased greatly in Spalding County. (Beckham). Control good in fields of large, succulent, irrigated cotton in Dooly County. (Jordan). ALABAMA - Heaviest, most damaging infestation in several years continued throughout most of north section and as far south as Randolph County week ending August 26. Some increase noted in late cotton and in fields of second growth in central and southern areas during same period. Infestation worst in several years in Colbert, Franklin, Marion, Lawrence, Marshall, Morgan, Bibb, Shelby, De Kalb, Madison, and Limestone Counties. Boll weevil and other cotton insects may be worst ever experienced in Colbert County. (McQueen). MISSISSIPPI - Squares becoming scarce in many fields in delta counties, infestation increasing. Punctured squares found in 14 fruiting fields. Average percent infestation 7.7 (maximum 21.5). (Pfrimmer et al., Sept. 1). LOUISIANA - Infestations still spotted but increasing. Some movement of weevils into young, fruiting cotton noted; could become serious during next 2-3 weeks. (Tynes, Aug. 29). Weevils 1-22 per 100 squares in 33 of 129 fields in Madison Parish; overall average 0.7 per 100 squares. Punctured squares 10 percent in these fields; ranged 1-41 percent. (Cleveland et al., Sept. 1). ARKANSAS - Weevils present in 4,380 fields (88 percent) of 4,969 fields scouted; 1,674 fields (34 percent) with infestations above recommended treatment level, compared with 89 percent and 33 percent, respectively, previous week. (Barnes, Boyer). TENNESSEE - Heavy populations continue damaging to late cotton in western area. Counts up to 100 percent punctured squares common in regularly infested portion of State. Migration to previously noninfested counties continues. Heavy damage to middle and top crop occurring. Conditions remain favorable for further buildup. (Locke). OKLAHOMA -

Percent infestation by county: Tillman 17-27, Jackson 10-13, Beckham 3-20. Heavy in Caddo County, moderate in Bryan County. (Okla. Coop. Sur.).

For Boll Weevil in West Texas, see page 887.

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Infestations much higher than normal with late fields still requiring protection for soft bolls in Florence area. Total of 131 *H. zea* and 11 *H. virescens* taken in light trap. (Taft et al., Aug. 31). GEORGIA - Infestations increased in Spalding County (Beckham). Total of 343 *H. zea* and 9 *H. virescens* moths caught in light trap at Tifton, Tift County, August 25-31. (Copeland). ALABAMA - Continue heavy and damaging in many fields throughout State, especially north section during week ending August 26. *H. virescens* 21 percent of larvae in large field in Colbert County, *H. zea* remaining 79 percent; 80 larvae examined. *H. zea* in sixth and seventh instars, *H. virescens* in fourth and fifth instars. Bollworm complex continues high in northern area; considerable damage further south in Hale, Marengo, Mobile, Covington and Barbour Counties. (McQueen). MISSISSIPPI - Injured squares found in 12 of 14 fields in delta counties. Average percent injury 4.1 (maximum 9.5). Eggs found in 13 fields; averaged 4.27 per 100 terminals. (Pfrimmer et al., Sept. 1). LOUISIANA - Egg laying by *H. zea* increased sharply in Shreveport area, eggs laid on all parts of cotton plant; could be severe problem. No increase in infestations noted in other areas of State; however expected at any time. (Tynes, Aug. 29). Damaged squares 1-6 percent in 89 of 129 fields checked in Madison Parish; averaged 1.3 per 100 squares. Larvae 1-3 per 100 squares in 33 of these fields. Total of 63 *H. zea* and 3 *H. virescens* collected in light trap. (Cleveland et al., Sept. 1). TENNESSEE - Heavy in fields in southern tier of counties; up to 26 larvae or eggs per 100 terminals observed. (Locke). ARKANSAS - Present in 3,078 fields (62 percent) of 4,969 fields scouted; 455 fields (9 percent) with infestations above recommended treatment level, compared with 74 percent and 9 percent respectively, previous week. (Barnes, Boyer). MISSOURI - *H. zea* larvae 1-11 and eggs 1-14 per 100 plants in 449 of 628 fields scouted. Controls applied to 2,491 acres in 75 fields. (Jones). OKLAHOMA - Terminal damage ranged 7-10 percent, square damage 15 percent in Jackson County. Percent infestation 11-13 in Tillman County, 2-6 in Beckham County. Larvae 4-5 per 100 bolls in Dewey County; moderate in Caddo and Roger Mills Counties. (Okla. Coop. Sur.). ARIZONA - *H. zea* continues light in cotton in Graham, Cochise and Yuma Counties. Moderate to heavy numbers still require controls in Maricopa, Pinal and Pima Counties. (Ariz. Coop. Sur.). CALIFORNIA - Remain major concern to Kern County growers; populations high, similar to past 2 weeks. Small larvae appearing continuously. Where multiple applications of phosphates used, larval populations reappear requiring further treatment. Some fields with low counts. (Black, Aug. 29).

CABBAGE LOOPER (*Trichoplusia ni*) - ALABAMA - Continues to cause some concern in Tuscaloosa, Covington, Greene, Marion, Lawrence, Cherokee, Marshall, and other Counties. (McQueen, Aug. 26). MISSISSIPPI - Larvae numerous in many fields in delta counties. "Ragging" of foliage more noticeable but still not economic. (Pfrimmer et al., Sept. 1). TENNESSEE - Light to medium in late cotton in western area. Control not in order as cotton maturing rapidly. (Locke). ARIZONA - Increasing rapidly in fields of central area, some increase reported in Cochise and Pima Counties. Damage appears light to moderate. (Ariz. Coop. Sur., Aug. 26).

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) - ARIZONA - Slowly increased in cotton in Pima and Pinal Counties, but no increase observed in Maricopa County August 26. Scattered infestations heavy enough to require controls in areas of Yuma, Maricopa, Pinal and Pima Counties. Few very light infestations found in Graham and Cochise Counties. (Ariz. Coop. Sur.).

APHIDS - CALIFORNIA - Still present in most Kern County cotton. Should be watched closely with onset of cool nights and open cotton. (Black, Aug. 29). LOUISIANA - No increase in infestations noted. (Tynes, Aug. 29).

LYGUS BUGS (*Lygus* spp.) - CALIFORNIA - Populations remain high in many Kern County cotton fields with high percentage of nymphs. (Black, Aug. 26).

SAY STINK BUG (*Chlorochroa sayi*) - ARIZONA - Spotted infestations causing moderate damage to cotton in Graham County. Heaviest in fields adjacent to grain and sorghum. (Ariz. Coop. Sur., Aug. 26).

SPIDER MITES (*Tetranychus* spp.) - ALABAMA - Increased in most northern counties. (McQueen). MISSISSIPPI - Present in many fields in delta counties. Injury light to severe, mostly in small areas. (Pfrimmer et al., Sept. 1). TENNESSEE - Present in most cotton in western area but apparently not increasing to point where control necessary at this time. (Locke). MISSOURI - Mainly *T. atlanticus* present in 14 of 628 fields scouted. (Jones).

TOBACCO

A NOCTUID MOTH (*Heliothis phloxiphaga*) - TEXAS - Larvae heavy on tobacco plants in research plots at College Station, Brazos County. (Nemec).

Weather continued from page 874.

WEATHER OF THE WEEK ENDING SEPTEMBER 5

HIGHLIGHTS: (1) Hot, humid conditions continue East. (2) Cool, crisp air invades West.

The week's weather news was dominated by a persistent warm, humid air mass over the East and by a cool, dry air mass over the West. The former system, present for 2 weeks, resulted in generally mild and hazy conditions from the Midwest to the Atlantic. There was a dearth of precipitation associated with this system. (The driest week of the summer season was reported in Virginia). The stability of the anticyclone trapped pollutants in most industrial areas. Under the influence of the light, southerly winds, temperatures rose and positive departures from normal of more than 6° were common throughout the Middle Atlantic and Great Lakes States.

In contrast to the languid weather in the East was the crisp, cool air in the West. Generally dry, sunny, and very pleasant autumn conditions prevailed. Temperatures averaged about 3° below normal, and rainfall was slight. The dryness in the desert drought areas continued, especially in Nevada. Since January 1, 1966, Reno and Carson City, Nevada have received only 13 percent of normal precipitation, and the southeastern part of the State has received only 25 percent of normal rainfall. During the latter part of the week, this cool, Canadian air mass gradually spread eastward ending the hot, humid weather in the Midwest and East.

Most of the precipitation during the week was associated with the instability at the boundary between the cool, dry, western air and the hot, humid, eastern air. The more violent showers and thundershowers occurred during the weekend. Locally heavy rain was reported in Texas and Oklahoma, along the Mississippi Valley, and in central New York and New England. It was the fifth consecutive week that general showers have occurred in Texas. (Summary supplied by Environmental Data Service, ESSA).

MISCELLANEOUS FIELD CROPS

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Infested millet in Sargent and Dickey Counties; 10-40 percent infested plants. In heavily infested fields, severe lodging, broken stems and dead plants evident. Larvae 1 per infested plant. (Brandvik).

SUNFLOWER MOTH (Homoeosoma electellum) - NORTH DAKOTA - Larvae of this and banded sunflower moth evident in most sunflower fields in Ransom, Traill, Cass and Steele Counties. Infested heads ranged 20-90 percent. Populations ranged 2-21 larvae per head. (Brandvik).

SUNFLOWER MAGGOT (Strauzia longipennis) - NORTH DAKOTA - Trace numbers of larvae found in Cass County sunflower fields. (Frye).

POTATOES, TOMATOES, PEPPERS

CUTWORMS - NEW YORK - General and heavy on potatoes past 7-10 days. (N. Y. Wkly. Rpt., Aug. 29).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - General and heavy on potatoes past 7-10 days. (N. Y. Wkly. Rpt., Aug. 29).

FLEA BEETLES - PENNSYLVANIA - Abundant on tomatoes and eggplant in Westmoreland County, even where controlled earlier. (Udine, Aug. 30).

CABBAGE LOOPER (Trichoplusia ni) - NEW YORK - General and heavy on potatoes past 7-10 days. (N. Y. Wkly. Rpt., Aug. 29).

APHIDS - CALIFORNIA - Macrosiphum euphorbiae medium on tomato plantings in Pepperwood, Humboldt County. (Cal. Coop. Rpt.). MICHIGAN - Aphids necessitated controls in some Monroe County pepper fields. (Laser).

COLE CROPS

DIAMONDBACK MOTH (Plutella maculipennis) - CALIFORNIA - Medium on Brussels sprouts in Watsonville, Santa Cruz County; problem throughout season. (Cal. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - UTAH - Damaging cabbage at Clawson and Castle Dale, Emery County. (Knowlton).

FLEA BEETLES - PENNSYLVANIA - Abundant on cabbage in Westmoreland County, even where controlled earlier. (Udine, Aug. 30).

CABBAGE APHID (Brevicoryne brassicae) - NEW YORK - Continues problem in Orleans and Genesee Counties despite rains. (N. Y. Wkly. Rpt., Aug. 29).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Unusually troublesome in Orleans and Genesee Counties; third brood expected. (N. Y. Wkly. Rpt., Aug. 29).

A SNAIL (Oxyloma effusa) - FLORIDA - Probably this species feeding on broccoli and collards; also noted on chrysanthemums, daylilies, peppers, petunias and geraniums in garden center at Tampa, Hillsborough County. (Mead).

CUCURBITS

SQUASH BUG (Anasa tristis) - OKLAHOMA - Heavy on watermelons in Dewey County and squash in Choctaw County. (Okla. Coop. Sur.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Heavy on lettuce in Cedarville area August 29, also present on cabbage. (Ins.-Dis. Newsltr.).

FIELD CRICKETS (Gryllus spp.) - ARIZONA - Damaging fall seedling cantaloups and tomatoes in Yuma County. Some controls necessary. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

APPLE MAGGOT (Rhagoletis pomonella) - WISCONSIN - Adults still active, although numbers reduced. Total of 77 taken on 8 sticky board traps in Door County August 22-29; 52 caught at Madison August 27-September 1. (Wis. Ins. Sur.).

AN APHID (Anuraphis helichrysi) - UTAH - Damage conspicuous on some plum trees at Castle Dale, Emery County. (Knowlton).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - WISCONSIN - Damaged fruit and twigs of apples in Fond du Lac County where no dormant sprays used for several years. (Wis. Ins. Sur.).

SPIDER MITES - GEORGIA - Infesting pecan leaves in Walton County. (Harris). ALABAMA - Continue heavy on untreated pecans in Baldwin and Mobile Counties. (Vickery, Turner). UTAH - Caused severe discoloration of pears and moderate damage to apple foliage at Blanding, San Juan County, and apples at Green River, Emery County. Largely Tetranychus spp. and T. mcdanieli severely damaging pear and apple foliage in Roy-Ogden and North Ogden areas, Weber County, and in Davis County. (Knowlton).

PECAN NUT CASEBEARER (Acrobasis juglandis) - TEXAS - Moderate and widespread in pecans in Atascosa County. (Duke).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Damage significant on pecans in Covington County; heavy in Bullock County. (Linder, Stone).

PECAN WEEVIL (Curculio caryae) - GEORGIA - Light to heavy on pecans in Sumter County; light in Schley County. (Fletcher). ALABAMA - Damage significant on pecans in Covington County; heavy in Bullock County. (Linder, Stone). OKLAHOMA - Moderate numbers damaging pecans in Choctaw and Cleveland Counties. (Okla. Coop. Sur.).

BLACK PECAN APHID (Myzocallis caryaefoliae) - ALABAMA - Continue very heavy in pecan orchards in Mobile, Covington and Baldwin Counties. (Turner et al.). GEORGIA - Medium on pecans in Sumter County. (Fletcher).

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Infested black walnuts at Bountiful, Davis County. (Knowlton).

CITRUS

ORANGE-DOG (Papilio cressphontes) - TEXAS - Larvae heavy and feeding on foliage of lemon trees near Yoakum in De Witt County. (Texas Coop. Rpt.).

BROWN SOFT SCALE (Coccus hesperidum) - ARIZONA - Found in citrus nursery near Yuma, Yuma County. (Ariz. Coop. Sur., Aug. 26).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Infestation continues in citrus groves in Yuma and Maricopa Counties. (Ariz. Coop. Sur., Aug. 26).

SMALL FRUITS

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Moths still unusually abundant in eastern area for late season; some egg laying continues, making control difficult close to harvest. (Tomlinson, Aug. 26).

FALL WEBWORM (Hyphantria cunea) - NEW JERSEY - Appears more plentiful than normal in blueberries. (Ins.-Dis. Newsltr.).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Third-brood adults emerging in southwestern area. Egg laying likely to continue through harvest. (Wooley, Carpenter).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Larvae infesting Blue Lake grape at Bloomingdale, Hillsborough County. (Simmons, Aug. 12).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - This and other leafhoppers caused 90-percent loss of grape variety at Moab, Grand County. (Knowlton).

A WHITEFLY (Trialeurodes vittatus) - CALIFORNIA - Heavy on grapevines in Lower Lake vineyard, Lake County. (Cal. Coop. Rpt.).

SPIDER MITES - NEW JERSEY - Continue threat to strawberries; buildup expected. (Ins.-Dis. Newsltr.).

ORNAMENTALS

MIMOSA WEBWORM (Homadaula albizziae) - OHIO - Populations high this season. Observed in Miami, Montgomery, Preble, Warren, Fairfield and Franklin Counties. Infestation varied 5-100 percent leaf destruction on individual trees. Heaviest damage to honeylocust noted in Warren County. (Rose). Isolated occurrence reported from Summit County. This new county record. (Kelly). ILLINOIS - Caused severe browning of honeylocust in central area. Cass County new county record. (White, Aug. 11).

A COTONEASTER WEBWORM (Cremona cotoneastri) - NORTH DAKOTA - Severe on cotoneaster in Fargo. (Frye).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Heavy and widespread on many lawn ornamentals in Wharton County. (George).

A NOCTUID MOTH (Safia bilineata) - TEXAS - Larvae heavy and feeding on Texas ebony trees near Corpus Christi, Nueces County. (Sublett).

A WEEVIL (Brachyrhinus cribricollis) - NEVADA - Adults heavy and causing heavy damage to privet in Las Vegas, Clark County. (Zoller).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - Severely discolored and dried foliage of Virginia-creepers in Helper and Price areas of Carbon County. Heavy and severely discolored Virginia-creeper at Moab, Grand County. (Knowlton).

FOREST AND SHADE TREES

ELM LEAF BEETLE (Pyrralta luteola) - TEXAS - Moderate to heavy on elm throughout Midland, Midland County. Trees in some areas 60-80 percent defoliated. Populations decreased in Upton County. (Green, Day). ARIZONA - Continues to damage elm trees in Graham and Maricopa Counties. Controls relatively ineffective generally. (Ariz. Coop. Sur.). UTAH - Many elm trees severely injured at Huntington and Green River, Emery County. (Knowlton). CALIFORNIA - Medium on elm trees in Cuyama, Santa Barbara County. (Cal. Coop. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - COLORADO - Taken on elm at Grand Junction, Mesa County. This new county record. (Quist, Thatcher, Aug. 11).

PALM LEAF SKELETONIZER (Homaledra sabalella) - FLORIDA - Damaging phoenix palms at nursery in Fort Myers, Lee County, (Walsh, Crews, Aug. 17), and at Lakeland, Polk County, (McLeod, Aug. 26).

FALL WEBWORM (Hyphantria cunea) - OHIO - Numbers and damage to foliage light on cherry, walnut and mulberry in Preble, Montgomery and Warren Counties. Feeding on elm in Franklin County, hawthorn and peach in Wayne County. (Campbell, Rose).

WALNUT CATERPILLAR (Datana integerrima) - WISCONSIN - Defoliation continues from trace to complete throughout southwest area. Larvae half to full grown; few full-grown larvae migrating from trees. (Wis. Ins. Sur.). OHIO - Numerous roadside walnut trees defoliated in Darke and Preble Counties. Predation by stink bug nymphs observed. (Rose).

AMERICAN DAGGER MOTH (Acronicta americana) - NEVADA - Generally light, late season larval populations causing light to medium damage to boxelder in Carson City, Ormsby County. (Bechtel, Martinelli).

WHITE-LINED SPHINX (Celerio lineata) - ARIZONA - Large populations migrating north of Scottsdale, Maricopa County. Numerous smaller populations reported throughout county. (Ariz. Coop. Sur.).

AN OLETHREUTID MOTH (Proteoteras aesculana) - CALIFORNIA - Larvae of this and omnivorous looper locally heavy in maple trees in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - UTAH - Severely damaged Colorado blue spruce and moderate on Engelmann spruce and light on pines at Bountiful, Davis County. (Knowlton, Ashdown). OHIO - Abundant on some hemlock in Wayne County. (Campbell).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - UTAH - Severe on some poplars and willows in Ashley Valley area, Uintah County. (Knowlton).

SAWFLIES - OHIO - Trichiocampus viminalis larvae infesting Lombardy poplars in windbreak in Wayne County. Severe damage limited to leaves on lower limbs. (Flessel). WASHINGTON - Pontania sp. severely damaging weeping willow at North Bonneville, Skamania County. (Retan, Adlard).

GALL WASPS - CALIFORNIA - Andricus californicus adults heavy in twigs of deciduous oak trees in San Carlos, San Mateo County. Neuroterus saltatorius locally heavy on oak trees in Lindsay, Tulare County. (Cal. Coop. Rpt.).

MAN AND ANIMALS

MOSQUITOES - UTAH - Mosquitoes low in Salt Lake County until August 10. Culex tarsalis and Aedes dorsalis building up; control generally good in Bountiful area, Davis County. (Collett, Knowlton). Annoying along creek at Castle Dale, Emery County; less numerous in higher area. Also annoying at nearby farms. (Knowlton). ARIZONA - Large populations of several species continue nuisance and public health hazard to residents and animals of Graham, Cochise, Santa Cruz and Yuma Counties. (Ariz. Coop. Sur.). TEXAS - During July, Psorophora confinnis most numerous mosquito in traps in Jefferson County at airport and Beaumont; P. ciliata almost rare, Culex salinarius common in southern part of county and C. pipiens quinquefasciatus common throughout county. Aedes sollicitans occurred only in small numbers in southern part of county; Anopheles crucians present except in north Beaumont. Uranotaenia lowii collected 1 time in Port Arthur area. (Jeff. Co. Mosq. Cont. Rpt.). FLORIDA - More than usual number of Anopheles albimanus

being taken in light traps in southern part of State. This species principal lowland vector of malaria in Central America and the West Indies. (Porter, Carpenter et al.). MICHIGAN - Larvae of Culex spp. and Aedes spp. in late stages in temporary pools in Shiawassee and Livingston Counties. (Dowdy). WISCONSIN - Mosquito activity increased, particularly in marshy areas. (Wis. Ins. Sur.). MINNESOTA - During week ending August 27, Metropolitan Mosquito Control District light traps collected 1,827 female mosquitoes. Aedes vexans most numerous; Culex tarsalis, Anopheles walkeri and Culiseta morsitans present. C. tarsalis well past peak. In 35 evening bite collections, 137 females taken with 129 A. vexans. In 89 daytime (5-minute) bite collections, 481, including 434 A. vexans, taken. (Minn. Ins. Rpt.).

FACE FLY (Musca autumnalis) - WASHINGTON - Recovered twice during past 3 weeks in Malaise trap at Pullman, Whitman County. (Dawson, James). IDAHO - Ranged 5-20 per animal on livestock in Southwick area, Latah County. This first record of insect in area. Troublesome in Potlatch and Rock Creek areas of Latah County. (Burns, Portman). UTAH - Still annoying to horses and cattle at Wellsville, Hyrum and Nibley, Cache County, and North Ogden, Weber County, and at Syracuse, Davis County. (Knowlton). NORTH DAKOTA - Adults 0-2 per animal on Hereford cows in Cass County. (Brandvik). OHIO - Populations high on dairy and beef cattle in Clark County; 15-120 per face. Solitary animals most annoyed with numerous flies on backs and flanks as well as in head region. (Rose). PENNSYLVANIA - Up to 30 per head on cattle in Westmoreland County. (Udine, Aug. 30).

HOUSE FLY (Musca domestica) - GEORGIA - Adults moderate and larvae very heavy in caged layer operations in Hall and Jackson Counties. (Nolan). WYOMING - Adults annoying to homeowners and restaurant owners throughout Lincoln, Teton and Sublette Counties; entering dwellings. (Marks). UTAH - Numerous and annoying about Green River, Castle Dale, Ferron and Emery, Emery County; Moab, Grand County; and Brigham City, Box Elder County. (Knowlton).

COMMON CATTLE GRUB (Hypoderma lineatum) - UTAH - Adults annoying cattle in Orangeville and Huntington areas, Emery County. (Knowlton).

HORN FLY (Haematobia irritans) - OHIO - Common on cattle in Clark County; 10-1,000 per animal. (Rose). OKLAHOMA - Ranged 800-1,200 per head on cattle in Payne, Noble and Choctaw Counties. Heavy in Mayes County, moderate in Cleveland County. (Okla. Coop. Sur.). UTAH - Numerous on beef cattle at Moore, Emery County. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Most important fly species on livestock. (Wis. Ins. Sur.). NORTH DAKOTA - Adults 5-12 per animal on pastured dairy cows in Cass County. (Brandvik). OKLAHOMA - Averaged 15 per head on cattle in Payne and Noble Counties. (Okla. Coop. Sur.).

TABANID FLIES - UTAH - Continue annoying horses and cattle at Emery, Emery County. (Knowlton).

GREATER WAX MOTH (Galleria mellonella) - KANSAS - Causing up to 5 percent mortality to honey bees in some areas of State. (Iselin).

STORED PRODUCTS

CADELLE (Tenebroides mauritanicus) - OKLAHOMA - Larvae and adults moderate near walls of bin of farm-stored oats in Mayes County. (Okla. Coop. Sur.).

LESSER MEALWORM (Alphitobius diaperinus) - OHIO - Large numbers of larvae and adults observed in poultry building in Wayne County. Population apparently built up on available poultry litter and feed. (Rose).

BENEFICIAL INSECTS

DAMSEL BUGS - MICHIGAN - Adults and nymphs up to 20 per 10 sweeps in Livingston County alfalfa. (Dowdy). OHIO - Dominant insect predators present in Miami and Darke Counties; 2 per sweep. (Rose). WYOMING - Nabis spp. adults 12-16 per 10 sweeps in alfalfa in Lincoln, Teton and Sublette Counties. (Marks). UTAH - Nabis alternatus moderate in alfalfa in San Juan County. (Knowlton).

ANTHOCORID BUGS (Orius spp.) - UTAH - O. tristicolor and O. insidiosus numerous in alfalfa at Blanding, San Juan County. (Knowlton). WYOMING - Orius spp. adults 10-12 per 10 sweeps in alfalfa in Lincoln, Teton and Sublette Counties. (Marks).

Beneficial Insects in Cotton - CALIFORNIA - Populations decreased sharply in Kern County. Big-eyed bugs virtually disappeared. Lacewings and Orius spp. still present in most fields but less numerous than in previous weeks. (Black, Aug. 29).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - IDAHO - Melanoplus bruneri 3-4 per square yard on sagebrush at Haynes Creek ridge, Lemhi County; prevalent only on higher ridges. (Brusven, Aug. 18). UTAH - Melanoplus bivittatus, M. sanguinipes and M. packardii dominant in home gardens and alfalfa fields in Emery and Huntington areas, Emery County. Grasshoppers still damaging alfalfa at Moore, Emery County. Survey indicates grasshoppers may be more serious in 1967 than in 1966. (Knowlton). ARIZONA - Schistocerca vaga and Melanoplus sp. causing light to occasionally moderate damage on new citrus growth on Yuma Mesa, Yuma County. (Ariz. Coop. Sur., Aug. 26). ARKANSAS - Grasshoppers 42 per square yard in field near Maysville, Benton County; 12-20 per square yard at 6 meadow or grassland locations. This continuation of infestation west of State line. (Frazier). KANSAS - Light damage to sorghum noted in few fields in north central and northwest areas. (Simpson). SOUTH DAKOTA - Adult survey indicates limited light to severe infestations in rangeland area. Threatening to severe infestations in cropland in southern half of Tripp County, southwestern Todd and Gregory Counties and most of Haakon County. Light to threatening in other cropland areas west of Missouri River, except Harding County. East of Missouri River, grasshoppers threatening to severe in most of Jerauld, Sanborn, Aurora, Davison, Hanson, Douglas, Hutchinson and southwestern Miner Counties. No infestations found in Potter, Sully, Roberts, Grant, Deuel, Hamlin, Clay and Union Counties. (Burge, Jones).

NORTH DAKOTA - Grasshoppers less than one to 8 on rangeland in Richland and Ransom Counties. M. femurrubrum, M. sanguinipes, M. bivittatus and Schistocerca lineata dominant. Development fourth instar to adult. (Stoltenow). MINNESOTA - Grasshoppers noneconomic to light in most southeast, south central and east central fields. Melanoplus femurrubrum dominant in all fields. (Minn. Ins. Rpt.). WISCONSIN - Numbers low in most areas. M. femurrubrum adults more noticeable; in sandy area of western Dane County, 50 percent still nymphs. About 10 percent mature females gravid August 31. Feeding damage along alfalfa and corn field margins due to M. sanguinipes and M. femurrubrum. (Wis. Ins. Sur.). MICHIGAN - Nymphs outnumber adults 2 to 1 in Livingston County alfalfa. (Dowdy).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Two weevils found in 75-acre field of cotton in El Paso, El Paso County. Pest previously eradicated from area. These first specimens found for 3 years. Field where specimens found being sprayed in attempt to again eradicate pest from area. (Dickson).

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - Beetle collections for 1966 lowest since 1958. No beetles trapped this year from Saginaw County, none taken from Grand Rapids area of Kent County and only 1 beetle trapped in Berrien County. (Turner). OHIO - High adult population feeding on soybean foliage in Lucas County. Approximately 5 acres affected; leaf damage 1 percent. (Jones). ARKANSAS - Surveys negative this season; traps removed. Not known to occur in State. (Frazier).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Adults light in soybeans in Peach and Houston Counties; controlled by corn earworm treatments. (French et al.). ALABAMA - Adults heavy, 1-3 per soybean plant in Chunchula area, Mobile County. (Kilpatrick). ARKANSAS - New infestation found at Brice on U. S. Highway 79 about 4 miles south of Lehi, Crittenden County. (Frazier).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Total of 92 males taken in 60 traps in Bucks, Carbon, Luzerne, Monroe, Northampton, Pike and Wayne Counties. (Eckess, Aug. 31). MICHIGAN - No collections of male moths made since August 8. Seasonal catch, 15 moths taken in 8 traps. All collections in Clarence Township, Calhoun County. (Turner).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Sharp increase in number of moths trapped this period. Increase may indicate new generation emerging. Detection this season: Imperial County - Bard Valley 421 moths, 9 larvae; Imperial Valley 547 moths, 28 larvae. Riverside County - Palo Verde Valley 1,110 moths, 14 larvae. (Cal. Coop. Rpt.). ARIZONA - Heavy in field southeast of Solomon, Graham County; new infestations found in Phoenix and Tucson areas week ending August 26. Four larvae found near Godsdan and 14 larvae found in field in north Gila Valley, Yuma County. Several fields found infested in Parker area; boll infestations averaged more than 10 percent. These first larval finds in Yuma County this year. Infestations heavy in Pima and Solomon area, Graham County; most fields in county with light infestations. (Ariz. Coop. Sur.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Heavy in Carmichael, Sacramento County. Infestation found on approximately 40 residential properties in 8-10 city block area. This eradication pest in State. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae collected from bell peppers at Miami, Dade County. This new host record. (Daigle, Swanson, Aug. 9). Few larvae collected from cattley guavas at Vero Beach, Indian River County, and at Sebring, Highlands County. (Kendrick, Womble, Aug. 8). Few larvae found in rotten spot of avocado at Miami. (Hickman, Aug. 10). Fifty flies reared from 1 mango collected in Miami. (Swanson, Brewton, June 27).

SCREW-WORM (Cochliomyia hominivorax) - Total of 27 cases reported in U. S. August 28 - September 3 as follows: TEXAS - Frio 2. ARIZONA - Mohave 2, Yavapai 10, Maricopa 2, Gila 4, Cochise 5. NEW MEXICO - Grant 1, Eddy 1. Total of 264 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 36, Baja California 1, Sonora 114, Chihuahua 94, Coahuila 1, Nuevo Leon 8, Tamaulipas 10. Total of 312 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations carried out to prevent establishment of self-sustaining screw-worm populations in U. S. Sterile screw-worm flies released: Texas 2,326,250, New Mexico 5,980,000, Arizona 21,860,000, California 1,600,000, Mexico 106,588,000. (Anim. Health Div.).

INSECT DETECTION

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Two adults taken in El Paso, El Paso County. First weevils found in area since September 23, 1963. (p. 887).

New County Records

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Caused severe browning of honeylocust in Cass County. OHIO - Isolated occurrence reported in Summit County. (p. 884).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - COLORADO - Taken on elm at Grand Junction, Mesa County. (p. 885).

Estimates of Damage by the European Corn Borer
to Grain Corn in the United States in 1965

Compiled in Survey and Detection Operations, PPC, ARS

The loss to grain corn, attributed to the European corn borer (*Ostrinia nubilalis*) in 1965 is estimated to be approximately 54,318,100 bushels in 16 corn-producing States. In these States, the loss was 1.43 percent of the production. This loss is approximately 1.24 percent of the total national crop estimated at 4,171,100,000 bushels. 1/ The value of the loss, based on the season average prices received by farmers for corn 2/, is \$59,374,160. These loss estimates are only for the States shown in Table 1, and are based on the counties or districts surveyed during the fall of 1965 within these States. 3/

Table 1 is a composite of State and Federal estimates. These estimates were prepared by using production data 1/, and prices received 2/, released by the Statistical Reporting Service. The basis for the loss estimates was determined by the survey of European corn borer populations during the fall of 1965. 3/ The index of 3 percent loss per borer per plant was used to compute the loss in bushels.

Estimated loss to grain corn for the past 14 years in States where the fall abundance survey was conducted are as follows:

1965	54,318,100 Bushels	\$ 59,374,160
1964	87,116,000 "	97,478,000
1963	120,648,000 "	127,838,000
1962	88,245,000 "	93,695,000
1961	65,044,000 "	68,998,000
1960	102,991,000 "	96,085,000
1959	67,763,000 "	71,979,000
1958	100,699,000 "	98,434,000
1957	180,897,000 "	158,841,000
1956	97,971,000 "	119,535,000
1955	155,355,000 "	182,579,000
1954	191,614,000 "	261,415,000
1953	90,000,000 "	125,466,000
1952	53,270,000 "	77,205,000

1/ Crop Production, 1965 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 20, 1965

2/ Crop Values, Season Average Prices Received by Farmers and Value of Production - 1964 and 1965 - By States, Crop Reporting Board, Statistical Reporting Service, USDA, December 20, 1965.

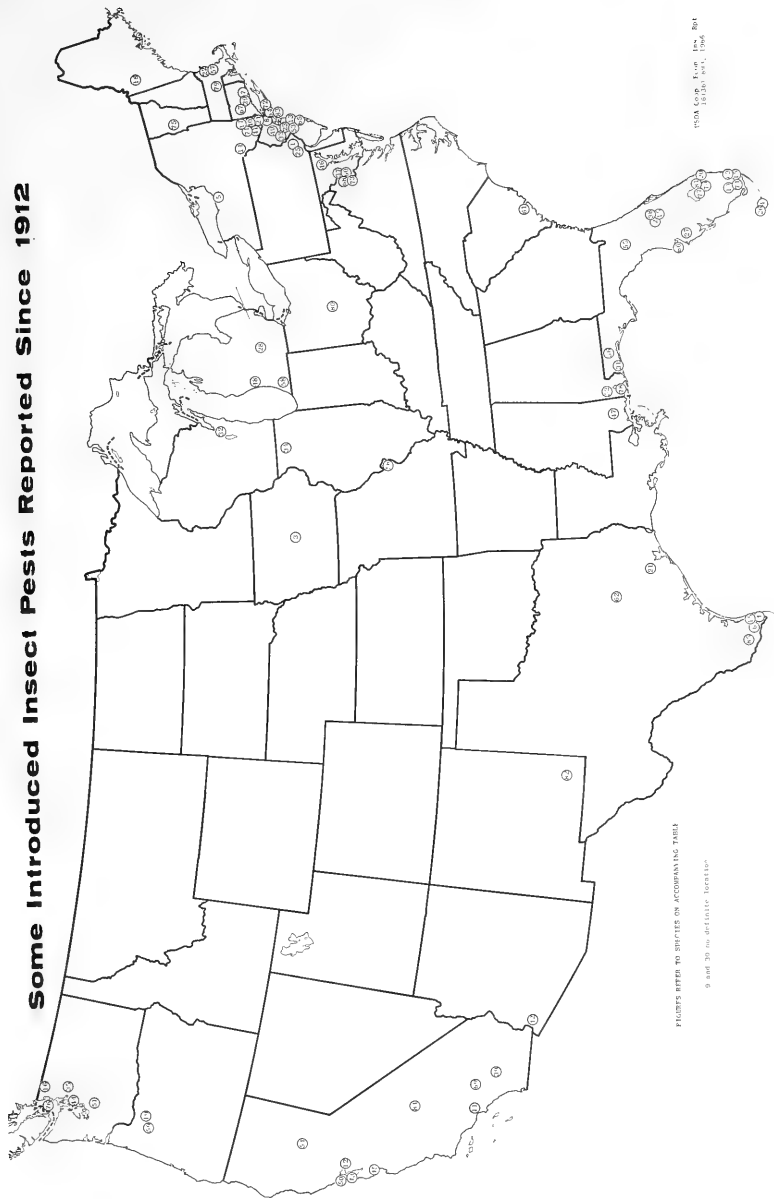
3/ Cooperative Economic Insect Report 16(2):21-27

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1965

State	Number	1,000 Bu.	Estimated Data			
			Dollars	\$1,000	1,000 Bu.	\$1,000
Arkansas	4	3,811	1.27	4,840	26	33
Delaware	1	13,223	1.18	15,603	884	1,043
Illinois	7	891,664	1.07	954,080	12,081	12,927
Indiana	12	467,556	1.02	476,907	4,837	4,934
Iowa	12	754,908	1.07	807,752	12,899	13,802
Kansas	3	62,127	1.16	72,067	908	1,053
Maryland	3	37,074	1.19	44,118	1,263	1,503
Michigan	1	98,766	1.09	107,666	492	536
Minnesota	7	270,108	.92	248,499	1,537	1,414
Missouri	8	223,488	1.16	259,246	11,605	13,462
Nebraska	7	259,558	1.14	295,896	5,241	5,975
North Dakota	1	7,252	1.06	7,687	163	173
Ohio	5	219,825	1.06	233,015	527	559
South Dakota	6	92,040	1.05	96,642	1,604	1,684
Vermont	1	67	1.60	107	0.10	0.16
Wisconsin	9	124,412	1.10	136,853	251	276
Totals		3,525,879		3,760,978	54,318.10	59,374.16

1/ Cooperative Economic Insect Report 16(2):21-27

Some Introduced Insect Pests Reported Since 1912



Some of the More Important Insects Reported in the United States Since 1912 1/

Insect	Probable Origin	First U.S. Report	Date	Insect	Probable Origin	First U.S. Report	Date
1 <i>Acantholyda erythrocephala</i> (pine false webworm)	Europe	Pa.	1925	13 <i>Bruchus brachialis</i> (vetch bruchid)	Europe	N. J.	1931
2 <i>Aculus pelekassi</i> (a rust mite)	Europe	Fla.	1962	14 <i>Calomycterus setarius</i> (a weevil)	Japan	N. Y.	1929
3 <i>Adelphocoris lineolatus</i> (alfalfa plant bug)	Europe	Iowa	1929	15 <i>Ceratitis capitata</i> (Mediterranean fruit fly)	Europe	Fla.	1929 ^{2/} 1956 ^{2/} 1962 ^{2/} 1963 ^{2/}
4 <i>Aleurocanthus woglumi</i> (citrus blackfly)	Mexico	Fla. ^{2/} Texas	1934 1955	16 <i>Ceutorhynchus assimilis</i> (cabbage seedpod weevil)	Central America	Texas	1966 ^{3/}
5 <i>Amphimallon majalis</i> (European chafer)	Europe	N. Y.	1940	17 <i>Ceutorhynchus erysimi</i> (a crucifer weevil)	Europe	Wash.	1935
6 <i>Anastrepha ludens</i> (Mexican fruit fly)	Mexico	Texas	1927	18 <i>Choristoneura conflictana</i> (large aspen tortrix)	Europe	N. Y.	1927
7 <i>Anomala orientalis</i> (oriental beetle)	P. I.	Conn.	1920	19 <i>Cnephasia longana</i> (omnivorous leaf tier)	Canada	Maine	1931
8 <i>Anthophila pariana</i> (apple-and-thorn skeletonizer)	?	N. Y.	1917	20 <i>Coccus viridis</i> (green scale)	?	Fla.	1942
9 <i>Anuraphis helichrysi</i> (an aphid)	Europe	West Coast	1920	21 <i>Coptotermes formosanus</i> (Formosan subterranean termite)	Asia	Texas	1965
10 <i>Aspidiotus destructor</i> (coconut scale)	Orient	Fla.	1921	22 <i>Cryptococcus fagi</i> (beech scale)	Europe	Mass.	1929
11 <i>Brachyrhinus cribricollis</i> (a weevil)	Europe	Calif.	1929	23 <i>Cyrtopistomus castaneus</i> (Asiatic oak weevil)	Japan	N. J.	1933
12 <i>Brachyrhinus meridionalis</i> (a weevil)	Europe	Calif.	1931	24 <i>Dendrothrips ornatus</i> (privet thrips)	Europe	N. Y.	1929

1/ Does not include Hawaii and Alaska.

2/ Eradicated.

3/ Under eradication.

<u>Insect</u>	<u>Probable Origin</u>	<u>First U.S. Report</u>	<u>Date</u>	<u>Insect</u>	<u>Probable Origin</u>	<u>First U.S. Report</u>	<u>Date</u>
25 <i>Dialeurodes chittendeni</i> (rhododendron whitefly)	Asia	Pa.	1932	40 <i>Hoplocampa brevis</i> (pear sawfly)	Europe	N. Y.	1966
26 <i>Dialeurodes kirkaldyi</i> (a whitefly)	South America	Fla.	1963	41 <i>Hoplocampa testudinea</i> (European apple sawfly)	Europe	N. Y.	1942
27 <i>Diaphania indica</i> (pumpkin caterpillar)	Jamaica	Fla.	1959	42 <i>Hypera brunneipennis</i> (Egyptian alfalfa weevil)	Egypt or Sicily	Ariz.	1939
28 <i>Diarthronomyia chrysanthemii</i> (chrysanthemum gall midge)	Europe	Mich.	1915	43 <i>Lecanium cerasorum</i> (calico scale)	China?	Calif.	1912
29 <i>Diprion similis</i> (introduced pine sawfly)	Europe	Conn.	1914	44 <i>Lecanium coryli</i> (a scale insect)	Europe via Brit. Col.	Wash.	1924
30 <i>Elatobium abietinum</i> (spruce aphid)	England via Canada	West	1915	45 <i>Lecanium excrescens</i> (a scale insect)	China?	Calif.	1920
31 <i>Eumargarodes laingi</i> (a ground pearl)	Australia	Fla.	1951	46 <i>Lepidosaphes pini</i> (a scale insect)	China or Japan	Md.	1952
32 <i>Evergestis pallidata</i> (purple-backed cabbageworm)	?	Wisc.	1915	47 <i>Listroderes costirostris</i> obliquus (vegetable weevil)	Australia	Miss.	1922
33 <i>Furcaspis bififormis</i> (a scale insect)	Brazil	N. J.	1914	48 <i>Longitarsus waterhousei</i> (a mint flea beetle)	Europe	Mich.	1922
34 <i>Gasterophilus inermis</i> (a bot fly)	Europe	Ill.	1935	49 <i>Maladera castanea</i> (asiatic garden beetle)	Orient	N. J.	1921
35 <i>Gracillaria syringella</i> (lilac leaf miner)	Europe	Wash.	1921	50 <i>Merodon equestris</i> (narcissus bulb fly)	Europe	Calif.	1914
36 <i>Graphognathus leucoloma</i> fecundus (a white-fringed beetle)	South America	Fla.	1936	51 <i>Miccotrogus picirostris</i> (clover seed weevil)	Europe	Wash.	1929
37 <i>Grapholitha molesta</i> (oriental fruit moth)	Japan	D. C.	1913	52 <i>Microtheca ochroloma</i> (yellow-margined leaf beetle)	South America	Ala.	1947
38 <i>Haematopinus quadripertusus</i> (cattle tail louse)	Africa	Fla.	1945	53 <i>Neodiprion sertifer</i> (European pine sawfly)	Europe	N. J.	1925
39 <i>Haplothrips clarisetis</i> (a thrips)	Africa	Calif.	1959	54 <i>Nilotaspis halli</i> ^{2/} (Hall scale)	Middle East	Calif.	1934

<u>Insect</u>	<u>Probable Origin</u>	<u>First U.S. Report</u>	<u>Date</u>	<u>Insect</u>	<u>Probable Origin</u>	<u>First U.S. Report</u>	<u>Date</u>
55 <i>Odonaspis ruthae</i> (Ruth scale)	?	Fla.	1923	71 <i>Rhizococcus falcifer</i> (ground mealybug)	?	N. Y.	1937
56 <i>Ornithonyssus bacoti</i> (tropical rat mite)	?	Mo.	1916	72 <i>Rhyacionia buoliana</i> (European pine shoot moth)	Europe	N. Y.	1913
57 <i>Ostrinia nubilalis</i> (European corn borer)	Europe	Mass.	1917	73 <i>Saissetia nigra</i> (a scale insect)	?	D. C.	1912
58 <i>Oulema melanopus</i> (cereal leaf beetle)	Europe	Mich.	1962	74 <i>Sinoxylon conigerum</i> (a bostriichid)	Asia	Fla.	1959
59 <i>Panaphis juglandis</i> (a walnut aphid)	Europe	Oreg.	1928	75 <i>Sitona cylindricollis</i> (Sweetclover weevil)	Europe	Vt.	1931
60 <i>Parlatoria pyri</i> (a scale insect)	Asia	D. C.	1960	76 <i>Sitona lineata</i> (pea leaf weevil)	?	Wash.	1940
61 <i>Pcalius azaleae</i> (azalea whitefly)	Asia via Europe	S. C.	1923	77 <i>Sogata orizicola</i> (rice delphacid)	British Guiana	Fla.	1958
62 <i>Pectinophora gossypiella</i> (pink bollworm)	Egypt or India via Mexico	Texas	1917	78 <i>Solenopsis saevissima richteri</i> (imported fire ant)	South America	Ala.	1929
63 <i>Phyllophaga bruneri</i> (Cuban May beetle)	Cuba	Fla.	1959	79 <i>Stilpnotia salicis</i> (satin moth)	Europe and Asia	Mass.	1920
64 <i>Platyedra vilella</i> (cotton stem moth)	Eurasia	N. Y.	1952	80 <i>Taeniothrips simplex</i> (gladiolus thrips)	?	Ohio	1929
65 <i>Popillia japonica</i> (Japanese beetle)	Japan	N. J.	1916	81 <i>Tetraneura hirsuta</i> (a root aphid)	Asia and Africa	Fla.	1959
66 <i>Pseudaonidia clavigera</i> (a mining scale)	Asia	Fla.	1962	82 <i>Therioaphis maculata</i> (spotted alfalfa aphid)	East Medit.	N. Mex.	1954
67 <i>Pseudocnecorhinus bifasciatus</i> (a Japanese weevil)	Japan	Conn.	1923	83 <i>Trachyploceus bifoveolatus</i> (a weevil)	Europe	N. Y.	1917
68 <i>Pseudococcus comstocki</i> (Comstock mealybug)	Orient	D. C.	1914	84 <i>Trogoderma granarium</i> (Khapera beetle)	Asia	Calif.	1953
69 <i>Pseudococcus fragilis</i> (citrophilus mealybug)	?	Calif.	1913	85 <i>Zeadiatraea lineolata</i> (neotropical corn borer)	Mexico	Texas	1966
70 <i>Rhipicephalus evertsi</i> (red tick)	Africa	Fla.	1960				



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**ECONOMIC INSECT
REPORT**

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN EARWORM moth flights increased in Delaware, Maryland and Wisconsin, heavy in western Alabama and in Indiana; ear infestations heavy in field corn in Maryland; larval damage to soybeans could become heavy in South Carolina. EUROPEAN CORN BORER moth flights heavy in Maryland and Indiana; decreased in Wisconsin. (pp. 899, 900, 912).

BEAN LEAF BEETLE damaging soybeans in Maryland and Mississippi. GREEN CLOVERWORM widespread on soybeans in Iowa and increasing in many areas of South Carolina. (p. 902). MEXICAN BEAN BEETLE causing increased damage to soybeans in South Carolina and damaging lima beans in Delaware. (pp. 902, 905).

BOLL WEEVIL seriously damaging late cotton in southern Tennessee, and numbers and damage continue at record high level throughout northern Alabama; more weevils present in northeast Arkansas than any year since 1957. BOLLWORM outbreak this season in North Carolina most serious on record. Bollworms causing severe damage to late cotton in Tennessee; moth flights continue heavy in northern Alabama where larvae still damaging cotton; decline in percent of infested fields in Arkansas emphasizes low level of these pests in State this season. (p. 903). A WEEVIL (*Compsus suricephalus*) destroyed 700 acres of cotton in Fulton County, Kentucky, during summer months. (p. 904). PINK BOLLWORM situation remains severe in California; infestations moderate to heavy in New Mexico and new infestations reported in Arizona. (p. 910).

GREEN PEACH APHID of concern on peppers in Delaware and Maryland. (p. 905).

BARK BEETLES and COOLEY SPRUCE GALL APHID damaging fir and pine trees on National forests in California. (p. 907). FACE FLY continues serious problem on horses and cattle in Utah, and annoyance increased in Illinois. HORN FLY of concern on livestock in some areas. (p. 908). MOSQUITOES - Additional cases of encephalitis reported in Mobile County, Alabama. (p. 909).

Detection

New State records include two APHIDS in Utah (p. 906), an ARMORED SCALE in Ohio (p. 907) and WESTERN FLOWER THRIPS in Hawaii (p. 911).

For new county records see page 906.

Outlook

MEADOW SPITTLEBUG survey in Illinois indicates populations about same as in 1965. (p. 901).

CONTENTS

Special Insects of Regional Significance.....899

Insects Affecting

Corn, Sorghum, Sugarcane.....899	Cole Crops.....905
Turf, Pastures, Rangeland.....900	Cucurbits.....905
Forage Legumes.....901	General Vegetables.....905
Soybeans.....902	Deciduous Fruits and Nuts.....906
Peanuts.....903	Small Fruits.....907
Cotton.....903	Ornamentals.....907
Tobacco.....904	Forest and Shade Trees.....907
Potatoes, Tomatoes, Peppers.....905	Man and Animals.....908
Beans and Peas.....905	Households and Structures.....909

Insect Detection.....906

Corrections.....906

Beneficial Insects.....909

Federal and State Plant Protection Programs.....909

Hawaii Insect Reports.....911

Light Trap Collections.....912

WEATHER OF THE WEEK ENDING SEPTEMBER 12

HIGHLIGHTS: 1. Drought intensifies Great Basin, Midwest, and Northeast. 2. Sunny, pleasant most of Nation.

TEMPERATURE: Persistent high pressure dominated the weather over most of the Nation during the week. Skies were bright and sunny; winds, calm or light; morning temperatures, cool and invigorating; afternoon temperatures delightfully mild. This weather is typical at the end of summer and the beginning of autumn. Daily maximums ranged from the 60's and 70's from the Great Lakes and Northeast to near 90° along the gulf coast. Portions of the northern and central Great Plains registered 90° temperatures on several afternoons late in the week. Much of Montana averaged 10° warmer than normal. In contrast, most of the area south of a line from New Mexico to Lower Michigan averaged cooler than normal. Minimum temperatures ranged from frosty 30's over parts of the Great Basin, the northern and central Rocky Mountains and northern Appalachians to soothing 70's along the Mexican border and gulf coast. Bondurant, Wyoming, registered 23° on one morning, one of the coolest temperatures in the Nation.

PRECIPITATION: Little rain fell over most of the Nation. The drought intensified in the Great Basin, the Midwest, and Northeast. In western Nevada, the moisture deficit became the most serious in history. It was the driest week of the summer in Ohio. Many stations in Pennsylvania and the eastern slope of Appalachians from North Carolina to southern New England received no rain or only sparse precipitation. There were a few exceptions to the generally dry weather. The Far Northwest received light rains late in the week. General showers fell in Texas for the sixth consecutive week. Galveston's weekly total was 7.36 inches. Generous rains fell over the Florida Peninsula and weekend showers occurred from Arkansas to southern Indiana. (Summary supplied by Environmental Data Service, ESSA).

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - COLORADO - Larvae numerous in combined barley in San Luis Valley. No evidence of kernel damage. Most larvae full grown. (Jenkins, Sept. 1). MASSACHUSETTS - Eleven moths taken in light trap at East Wareham. (Tomlinson, Sept. 1).

CORN EARWORM (*Heliothis zea*) - MASSACHUSETTS - Single moth taken in light trap at East Wareham. (Tomlinson, Sept. 1). DELAWARE - Adults over 50 per night in blacklight traps in Sussex County; young larvae in lima beans. (Burbutis, Davis). MARYLAND - Moths 61 per night week ending August 30 in blacklight trap at Snow Hill. Ear infestations 20-92 percent on field corn in Queen Annes and Talbot Counties and some eggs found on soybeans in Wicomico County week ending September 2. Moths over 125 per night in blacklight trap at Snow Hill, Worcester County. Eggs and small larvae light on soybeans in Dorchester and Talbot Counties. (U. Md., Ent. Dept.). SOUTH CAROLINA - Damaging soybeans in many fields; damage could become heavy. Increasing in 15 counties in eastern half of State. (Nettles et al., Sept. 6). TENNESSEE - Moths moving to soybeans as most cotton and corn no longer attractive. Heavy in several fields. (Johnson, Sept. 2). GEORGIA - Moderate in peanuts in windrows in Early County. (Morgan). ALABAMA - Larvae damaging pods and seed of soybeans in Marengo County. Moth flights heavy in western section. (Bond et al.). MISSISSIPPI - Found for first time this season in Yazoo County soybeans. (Dinkins, Sept. 2). ARKANSAS - Infesting some late soybeans. (Boyer). MISSOURI - Very light in grain sorghum in southwest area; 1-8 larvae per 100 heads; 1-2 per yard of row in southeast area soybeans. (Munson). MICHIGAN - No adults taken in blacklight traps; few larvae in corn in southern counties. (Newman). INDIANA - Adults present throughout State. Catches heaviest August 26-September 1; 124 in Posey, 72 in Dubois and 74 in Jackson Counties. (Huber). WISCONSIN - Adult flight increased. Some corn treated. (Wis. Ins. Sur.). UTAH - Light to moderate in Davis County tomatoes. (Knowlton). ARIZONA - Damaging late sorghum in Maricopa County and in Yuma County; 10-40 per 100 plants. (Ariz. Coop. Sur.). OREGON - Infestation 5 percent in Linn County field corn. (Crowell).

CORN LEAF APHID (*Rhopalosiphum maidis*) - MICHIGAN - Few colonies remain on ear husks September 6 in Ingham and Shiawassee County fields. (Dowdy).

HORNWORMS (*Manduca* spp.) - MARYLAND - Moderate on large garden planting of tomatoes near Churchill, Queen Annes County. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Scattered infestations continue increase in alfalfa in Chandler and Mesa areas, Maricopa County. Moderate in Cochise County. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on alfalfa; increasing at Los Lunas, Valencia County. (N. M. Coop. Rpt., Sept. 2). KANSAS - Variable in southwest and south central areas. Ranged 125-700 per 10 sweeps in Harper and Barber Counties; 10-150 (averaged 75) per 10 sweeps in most other areas in these districts. Predator and parasite numbers low in most instances. (Simpson). WISCONSIN -- Little change noted; 1-20 per sweep in sandy-soiled alfalfa fields in Dane, Columbia, Sauk and Iowa Counties. Some parasitism evident. (Wis. Ins. Sur.). INDIANA - Increased from 2 to 20 per sweep past 2 weeks in southern Elkhart County. (White).

TOBACCO BUDWORM (*Heliothis virescens*) - CALIFORNIA - Damaging wide range of hosts; heavy on snapdragons in Fremont and on roses in Sacramento. (Cal. Coop. Rpt.). MARYLAND - Infesting few tobacco plants near Bowie, Prince Georges County. (U. Md., Ent. Dept.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MASSACHUSETTS - One moth collected in light trap at East Wareham. (Tomlinson, Sept. 1). DELAWARE - Adults averaged 38 per night in blacklight trap collections in western Sussex County. (Burbutis, Davis). MARYLAND - Moths flights continued very heavy in blacklight traps at

Centreville and Snow Hill. Stalk and ear infestations above normal in most areas. (U. Md., Ent. Dept.). ILLINOIS - Larvae 68 percent fifth instar, 16 percent fourth, 12 percent third, and 4 percent second instar in western section. (White). MICHIGAN - Midseason and late corn in Ingham and Shiawassee Counties 27 percent infested. Early corn in Shiawassee County only 5 percent ears infested. Larval stage percentages: First instar 17, second 24, third 36, fourth 7, and fifth 16. Adults decreasing slightly. (Dowdy). WISCONSIN - Flights decreased. Fairly high percentage of ear infestation in some sweet corn fields. (Wis. Ins. Sur.). NORTH DAKOTA - Very little pupation occurred; emergence of second-generation moths nearly complete. A few eggs have hatched and trace numbers of second-brood larvae evident in scattered Cass County locations. (Frye).

FALL ARMYWORM (*Spodoptera frugiperda*) - MARYLAND - Larvae infesting 20 percent of plants in late corn near Churchill, Queen Annes County. Heavy in 3 fields of silage corn in Frederick County. (U. Md., Ent. Dept., Sept. 2). GEORGIA - Heavy infestation on sorghum in Early County. (Morgan). MISSOURI - Very light in grain sorghum in southwestern area. Averaged 6 larvae per 100 heads in 3 fields checked. (Munson).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ALABAMA - Heavy and wide-spread in Fayette County. Cornstalks beginning to fall. Infestations and winter survival of larvae high in this county in 1965. (Pitts, Sept. 2).

CORN ROOTWORMS (*Diabrotica* spp.) - DELAWARE - First specimens of *D. longicornis* taken this year collected in blacklight trap in New Castle County, August 14 and 19. (MacCreary, Davis, Sept. 2). MICHIGAN - *D. longicornis* adults still actively feeding on silks; 10-25 per ear on heaviest infested silks in one Lenawee County field September 2; 725 adults collected week ending September 7 in Lenawee County blacklight trap. (Ruesink, Newman). WISCONSIN - *D. longicornis* adults seeking out and feeding on fresh corn silks and alfalfa in vicinity of corn. (Wis. Ins. Sur.). ILLINOIS - *D. longicornis* adults migrating from corn fields; abundant in clover, alfalfa and weeds bordering corn in western section. No *D. virgifera* found in Adams, Schuyler, Peoria or Fulton Counties. (White).

A JUNE BEETLE (*Cotinis texana*) - ARIZONA - Feeding on sorghum heads in Cochise County; 25 per 100 sweeps. (Ariz. Coop. Sur.).

SAP BEETLES - MICHIGAN - Adults of undetermined species still found in injured areas of corn plants in mid-State area but numbers low. (Dowdy). OREGON - Larvae abundant in sweet corn ears damaged by corn earworm in Hermiston area of Umatilla County. (Crowell).

SORGHUM MIDGE (*Contarinia sorghicola*) - CALIFORNIA - Medium populations occurring in Cana, Butte County. This first record for Butte County. (Cal. Coop. Rpt.).

STINK BUGS (*Chlorochroa* spp.) - NEW MEXICO - Controls in progress on grain sorghum in Quay County. (N. M. Coop. Rpt., Sept. 2).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MICHIGAN - Adults and nymphs still common on hay crops; also noted on ears of midseason and late corn. (Dowdy)

TURF, PASTURES, RANGELAND

SOD WEBWORMS (*Crambus* spp.) - MARYLAND - Larvae heavily damaged blue grass lawn at Bowie, Prince Georges County; moths heavy at lights in New Carrollton. (U. Md., Ent. Dept.).

SPITTLEBUGS - SOUTH CAROLINA - Present in most Coastal Bermuda grass pastures. No population buildup where close grazing or cutting occurred regularly. (Thomas).

WEBWORMS (Loxostege spp.) - KANSAS - Larvae per 10 sweeps in alfalfa by county: Gray 15-20, Haskell 0-2, Stanton 2-5, Harper 0-3. Adult populations decreased in southwest area. (Simpson).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - SOUTH DAKOTA - Heavy on alfalfa in localized areas in southern Sanborn County; 160 adults per 100 sweeps. (Jones). MICHIGAN - Adults numerous in 2 Lenawee County alfalfa fields September 2. (Rue-sink).

PALE-STRIPED FLEA BEETLE (Systema blanda) - MARYLAND - Adults moderate on 20 acres of alfalfa in Queen Annes County. (U. Md., Ent. Dept., Sept. 2).

BROADBEAN WEEVIL (Bruchus rufimanus) - CALIFORNIA - Medium in vetch and vetch seeds in 2-acre nursery seed plot in Pleasanton, Alameda County. (Cal. Coop. Rpt.).

SOYBEANS

GREEN CLOVERWORM (Plathypena scabra) - MARYLAND - Several light infestations noted on soybeans in Dorchester and Wicomico Counties. (U. Md., Ent. Dept., Sept. 2). SOUTH CAROLINA - Present on soybeans in all counties; increasing in 15 counties. (Nettles et al., Sept. 6). GEORGIA - Light to moderate on soybeans in southern section. (French). MISSOURI - No larvae found in fields checked in southwest area. (Munson). IOWA - Infestation in soybeans widespread over State, especially southeastern counties. (Iowa Ins. Inf., Aug. 30).

CABBAGE LOOPER (Trichoplusia ni) - SOUTH CAROLINA - Present in most soybeans; damage not heavy in any county. (Nettles et al., Sept. 6). MISSISSIPPI - Larvae moderate in most south "delta" fields. (Dinkins).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - SOUTH CAROLINA - Present on soybeans in most counties in Coastal and Savannah River Valley district areas. Increasing in 14 counties. (Nettles et al., Sept. 6).

ARMYWORMS - SOUTH CAROLINA - Small numbers present in many soybean fields, particularly in Savannah River Valley district. (Nettles et al., Sept. 6).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Moderate injury noted on soybeans near Cambridge, Dorchester County, week ending September 2. Adults currently causing conspicuous foliage injury to soybeans in Dorchester and Talbot Counties. (U. Md., Ent. Dept.). MISSISSIPPI - Heavy in all surveyed fields; 6-7 beetles per 3 feet of row in Yazoo County. (Dinkins).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Damage increasing on soybeans in Clarendon, Jasper, Florence, Lexington, Williamsburg, Edgefield and Lee Counties. (Nettles et al., Sept. 6).

STINK BUGS - NORTH CAROLINA - Several species increased from 1.9 to 3.8 per 25 row feet in 12 soybean fields in Johnston, Wayne, Washington and Beaufort Counties. (Mount). MISSISSIPPI - Acrosternum hilare nymphs 1 per 3 feet of row in many Yazoo County soybean fields; adults light. (Dinkins). KANSAS - A. hilare 1 per 2 feet of row of soybeans in Cowley County (Redding); 1 per 6 row feet in Stanton County field. (Simpson).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - MISSISSIPPI - Moderate in Yazoo and Sharkey County soybeans. Nymphs girdling stems and leaf petioles. (Dinkins).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - MARYLAND - Populations declined considerably on soybeans on lower Eastern Shore. (U. Md., Ent. Dept., Sept. 2).

PEANUTS

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - Heavy on peanuts in Bleckley County. (Lawson).

GRANULATE CUTWORM (Feltia subterranea) - GEORGIA - Infesting several Bleckley County peanut fields. (Lawson).

A BURROWING STINK BUG (Pangaesus sp.) - ALABAMA - Nymphs and adults damaging peanuts in isolated fields in Houston, Coffee, Dale and other southeast counties. (Bond et al.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Plentiful in fields where control ceased. (Cott. Ltr., Sept. 5). GEORGIA - Ranged up to 75 percent punctured squares in Bleckley County. Damage to small bolls heavy where insecticide applications discontinued. (Womack, Lawson). ALABAMA - Numbers and damage continue at record high throughout northern section. (McQueen). MISSISSIPPI - Heavy emergence of young weevils in Tunica County; range light to heavy. Percent punctured squares 3-20 in Coahoma, Tallahatchie and Panola Counties week ending September 2. Weevil damage remains moderate throughout "delta" region. Damage 8-14 percent in Yazoo County. (Dinkins). TENNESSEE - Seriously damaging late cotton in southern counties. Damage increasing in counties not infested before migration. Damage to small bolls expected as squares become scarce. Controls recommended on late cotton. (Locke). ARKANSAS - Present in 90 percent of fields scouted; 30 percent with infestations above recommended treatment level. More weevils present in extreme northeast area than any year since 1957. (Boyer, Barnes). LOUISIANA - Infestations increasing in young cotton as weevils move from older fields. Weevil problems will continue for remainder of season. (Tynes, Sept. 6).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Damage to maturing bolls reduced; most serious outbreak on record occurred this season. (Cott. Ltr., Sept. 5). GEORGIA - Eggs 0-21 and larvae 0-11 per 100 terminals in Bleckley County (Lawson); percent square infestation in late cotton 11 and 30 at 2 Spalding County locations; 689 moths taken in light trap week ending September 5, compared with 82 previous week. (Beckham). ALABAMA - Moth flights continue high throughout State; heaviest in west and north. Larvae continue to damage cotton in many northern counties. (McQueen). MISSISSIPPI - H. zea and H. virescens damage light to moderate throughout south "delta" region. Yazoo County damaged square count ranged 2-6 percent with 5-10 eggs per 100 terminals. (Dinkins). TENNESSEE - H. zea severely damaging late cotton. All larval stages found throughout cotton-growing area. Controls recommended in late cotton. (Locke). ARKANSAS - Present in 50 percent of fields scouted, compared to 62 percent last period. Decline emphasized low level of pests this season. (Boyer, Barnes). LOUISIANA - Larval increase noted in north-west and northeast areas. Expected to continue for another 7-14 days. (Tynes, Sept. 6). NEW MEXICO - H. zea boll and square damage remains light in Eddy, Chaves and Dona Ana Counties due to heavy beneficial insect activity. (Campbell). ARIZONA - Scattered, heavy infestations of H. zea continue in areas of Pima, Pinal and Maricopa Counties. Damage as high as 50 percent. Populations lighter in Cochise and Graham Counties. (Ariz. Coop. Sur.). CALIFORNIA - Populations continue high in many Kern County fields; eggs abundant. Dominant pests in San Joaquin Valley; 4-125 per 100 plants. (Black, Leigh, Sept. 2).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Infestations isolated; natural virus destroyed most. Some isolated infestations still present in Morgan County. (McQueen). MISSISSIPPI - Caused some severe damage to cotton in "delta" areas; however, populations being decimated by virus. (Dinkins). ARKANSAS - Eggs and larval numbers increased on cotton; still noneconomic. (Boyer, Barnes). ARIZONA - Increasing rapidly in cotton in Pima, Pinal and Maricopa Counties; 25-30 per 100 plants. (Ariz. Coop. Sur.). CALIFORNIA - Infestations previously severe throughout west side of San Joaquin Valley decreasing. (Leigh, Sept. 2).

LOOPERS - SOUTH CAROLINA - Continue to build up steadily; many diseased loopers noted. (Cott. Ltr. Sept. 5). LOUISIANA - Infestations reported from northeast area. Damage doubtful at this late date. (Tynes, Sept. 6).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Heavy in cotton in Gadsden area, Yuma County. Light infestations becoming more numerous in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Abundant in Tulare Lake basin cotton; caused some severe defoliation. (Leigh, Sept. 2).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Light in cotton in areas of Pima, Pinal and Maricopa Counties. Economic damage occurred in few fields in Pinal County. (Ariz. Coop. Sur.).

A WEEVIL (Compsus auricephalus) - KENTUCKY - Destroyed 700 acres of cotton in 10-square-mile area of Fulton County during June, July and August. Det. by R. E. Warner. (Owens).

APHIDS - TENNESSEE - Present in late cotton; cool weather could cause build up. (Locke).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Counts continue high in San Joaquin Valley and Kern County cotton. (Black, Leigh, Sept. 2).

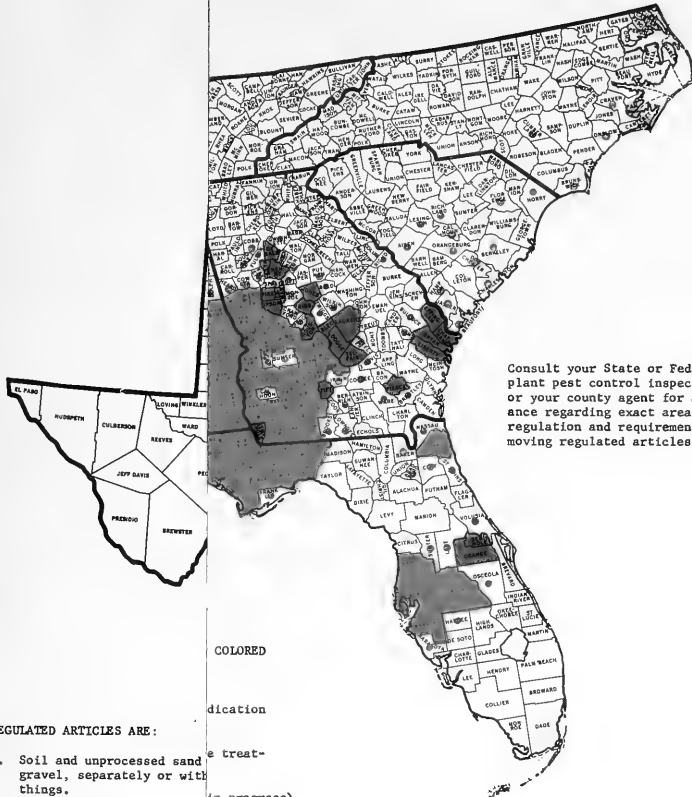
STINK BUGS (Chlorochroa spp.) - NEW MEXICO - C. ligata and C. sayi damaging bolls in Pecos Valley in Eddy and Chaves Counties, and in Mesilla Valley, Dona Ana County. (Campbell, Sept. 2).

SPIDER MITES (Tetranychus spp.) - CALIFORNIA - Evident in most San Joaquin Valley cotton fields; causing "reddening" of plants. (Leigh, Sept. 2). MISSISSIPPI - T. urticae control still being used in some fields in northern Leflore and Tallahatchie Counties. (Dinkins, Sept. 2).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults 15 per plant on mature tobacco near Bowie, Prince Georges County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Heavy on tobacco near Bowie, Prince Georges County. (U. Md., Ent. Dept.).



COLORED
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REGULATED ARTICLES ARE:

1. Soil and unprocessed sand and gravel, separately or with things.
2. Forest, field or nursery-g woody or herbaceous plants soil attached.
3. Grass sod.
4. Unmanufactured forest prod such as stump wood or timb if soil is attached.

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Consult your State or Federal plant pest control inspector or your county agent for assistance regarding exact areas under regulation and requirements for moving regulated articles.

U. S. Department of Agriculture
 Agricultural Research Service
 Plant Pest Control Division
 Cooperating with affected States
 Revised July 15, 1966

OREGON - Second-generation adults abundant and damaging vegetable crops in Willamette Valley. (Crowell).

EUROPEAN EARWIG (*Forficula auricularia*) - OREGON - Damaging garden plantings and heavy in yards in Grants Pass, Josephine County. (McLoughlin).

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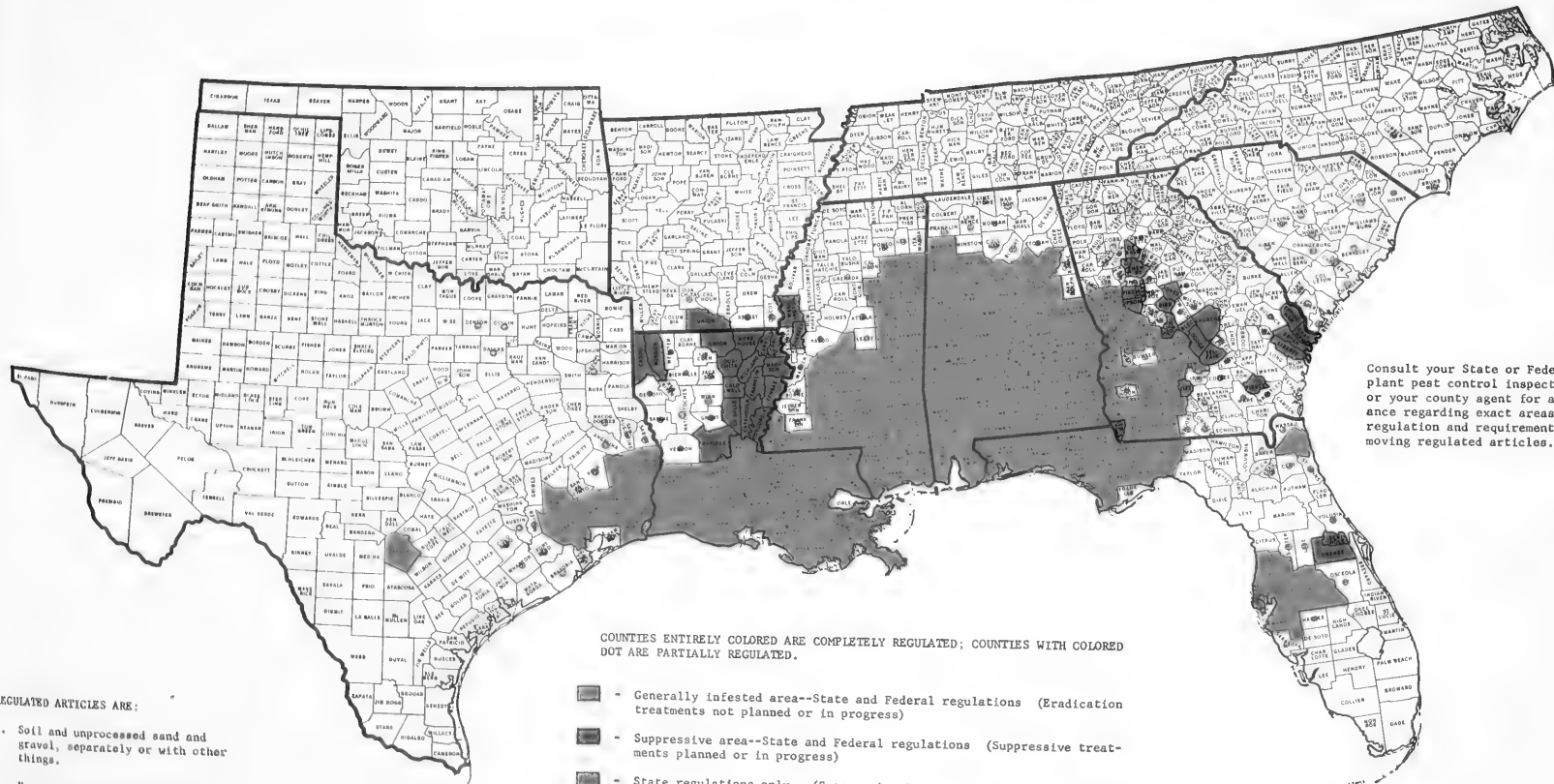
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IMPORTED FIRE ANT QUARANTINE



Consult your State or Federal Plant Pest Control Inspector or your county agent for assistance regarding exact areas under regulation and requirements for moving regulated articles.

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED; COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

-  - Generally infested area--State and Federal regulations (Eradication treatments not planned or in progress)
-  - Suppressive area--State and Federal regulations (Suppressive treatments planned or in progress)
-  - State regulations only. (Suppressive treatments planned or in progress)

Restrictions are imposed on movement of regulated articles from a regulated area as follows:

1. From red into or through green, blue, or white.
2. From green into or through white or blue.
3. From blue into any other area.*

*If required by the appropriate State quarantine or by an authorized inspector.

REGULATED ARTICLES ARE:

1. Soil and unprocessed sand and gravel, separately or with other things.
2. Forest, field or nursery-grown woody or herbaceous plants with soil attached.
3. Grass sod.
4. Unmanufactured forest products such as stump wood or timbers if soil is attached.

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POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Very numerous on some Sussex County pepper plantings. (MacCreary, Davis, Sept. 2). MARYLAND - Moderate and causing injury in 30-acre pepper field near Sudlersville, Queen Annes County. Light on tomatoes near Cambridge, Dorchester County. (U. Md., Ent. Dept., Sept. 2). COLORADO - Increasing rapidly in some fields of late-planted potatoes in Weld County. (Titensor, Urano, Sept. 1). UTAH - Moderate in Salt Lake County potato fields. (Knowlton).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Heavy adult and larval numbers causing heavy injury to potatoes in Sussex County field. (MacCreary, Davis, Sept. 2).

BLACK CUTWORM (Agrotis ipsilon) - DELAWARE - Larvae general on potatoes throughout State. (Burbutis, Davis).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Larvae common in some Sussex County sweet peppers. (Burbutis, Davis).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestris) - RHODE ISLAND - Adults still found on bean vines in Kingston and North Smithfield. (Mathewson, King, Sept. 2). DELAWARE - Adults and larvae damaging lima beans in 10-acre Sussex County field. (MacCreary, Davis, Sept. 2).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Present in lima bean vines in Kent County. (Burbutis, Davis).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Heavy on southern peas in Meriwether County. (Godowns).

TARNISHED PLANT BUG (Lygus lineolaris) - MARYLAND - Adults common on late beans in Queen Annes County. (U. Md., Ent. Dept., Sept. 2).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - OREGON - Larvae abundant, control continues difficult, in most broccoli and cauliflower fields in north Willamette Valley. (Stephenson). NORTH DAKOTA - Larvae moderate on cauliflower at Carrington, Foster County. (Frye).

IMPORTED CABBAGEWORM (Pieris rapae) - NORTH DAKOTA - Larvae abundant on cauliflower at Carrington, Foster County. (Frye).

CUCURBITS

SQUASH BUG (Anasa tristis) - OHIO - Infesting pumpkins in Meigs County; 30 adults and nymphs per fruit. (Flessel).

GENERAL VEGETABLES

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) - OREGON - Second-generation adults abundant and damaging vegetable crops in Willamette Valley. (Crowell).

EUROPEAN EARWIG (Forficula auricularia) - OREGON - Damaging garden plantings and heavy in yards in Grants Pass, Josephine County. (McLoughlin).

DECIDUOUS FRUITS AND NUTS

SPIDER MITES - WASHINGTON - Tetranychus mcdanieli seriously damaging 30 acres of peaches at Rock Island, Douglas County. (Anthon, Aug. 26). OREGON - T. urticae heavy in cherry orchards of Yamhill County, causing early defoliation. (Stephenson). DELAWARE - Panonychus ulmi populations greatly reduced in most apple orchards. (MacCreary, Davis, Sept. 2).

APPLE MAGGOT (Rhagoletis pomonella) - WISCONSIN - Adults continue active; 16 collected on 8 sticky boards in Door County. (Wis. Ins. Sur.). MICHIGAN - Few adults observed on hawthorn shrubs in Shiawassee County September 6; rare on abandoned apple trees nearby. Common September 7 on ornamental crab apple trees in Ingham County. (Dowdy).

CODLING MOTH (Carpocapsa pomonella) - WISCONSIN - Adult flight continues in Madison area. (Wis. Ins. Sur.).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Adult emergence and egg laying expected soon. (McQueen).

A SAP BEETLE (Stelidota geminata) - MICHIGAN - Infesting peaches and pears in southwest area. (Woolley, Gertz).

FALL WEBWORM (Hyphantria cunea) - CALIFORNIA - Defoliating English walnut trees in San Luis Obispo County. (Cal. Coop. Rpt.). GEORGIA - Light in Screven County pecans. (Livingston).

MAY BEETLES (Phyllopagea spp.) - ALABAMA - Adults defoliated young pecan orchard in Monroe County for second time in 2 years. (Lemons, Harper).

INSECT DETECTION

New State Records

APHIDS - UTAH - Aphis ramona infesting horsemint at Willard Peak and Willard Basin, Box Elder County, July 5, 1966. Pemphigus junctisensoriata galls numerous on cottonwood trees near Ogden, Weber County, during June and July 1966. Det. by D. Hille Ris Lambers. (Knowlton).

AN ARMORED SCALE (Hemiberlesia cyanophylli) - OHIO - Infested pachysandra in Lake County. (p. 907).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - HAWAII - Collected from carnation buds on Kauai and Maui in July 1966. Det. by K. O'Neill. (p. 911).

New County Records

SORGHUM MIDGE (Contarinia sorghicola) - CALIFORNIA - Medium in Butte County. (p. 900).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WASHINGTON - Damaging elm in Walla Walla County. (p. 908)

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Severe on honeylocust in Henry and Hancock Counties. (p. 908).

CORRECTIONS

CEIR 16(35):857 - FALL ARMYWORM (Spodoptera frugiperda) - ARKANSAS - Should read: "Heavy population feeding in whorls of sorghum in Jefferson County..."

SMALL FRUITS

CRANBERRY FRUITWORM (Acrobasis vaccinii) - MASSACHUSETTS - Moths continue more active than usual for so late in season. (Tomlinson, Sept. 1).

GRAPE BERRY MOTH (Paralobesia viteana) - OHIO - Larvae forming cocoons in Lake County. (Still).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Depositing overwintering eggs on grape cane nodes in Ashtabula County. (Still)

ORNAMENTALS

PUSS CATERPILLAR (Megalopyge opercularis) - MARYLAND - Heavily damaged holly plantings at Clariborne, Talbot County. (U. Md., Ent. Dept.)

BEEF ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae damaging buds and flowers in 4 acres of roses in Hamilton City, Glenn County. (Cal. Coop. Rpt.)

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - More widely distributed and causing more injury than for many years. Many deciduous trees as well as evergreens infested. (MacCreary, Davis, Sept. 2). MARYLAND - Severe, but in pupal stage on arborvitae at Kent Island, Queen Annes County. (U. Md., Ent. Dept., Sept. 2).

FULLER ROSE BEETLE (Pantomorus godmani) - CALIFORNIA - Adults heavy on garden shrubs in National City, San Diego County. (Cal. Coop. Rpt.).

AN ARMORED SCALE (Hemiberlesia cyanophylli) - OHIO - Infesting pachysandra in Lake County. Plants in question remained outside during past winter and scale species overwintered with them. This new State record. (Walker, Sept. 2).

BROWN GARDEN SNAIL (Helix aspersa) - MICHIGAN - Specimens found in shipment of euonymus and pyracantha plants from out-of-State nursery. (Lovitt, Moore).

A SNAIL (Otala lactea) - CALIFORNIA - Medium to heavy on native plants and weeds at Escondido, San Diego County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

BARK BEETLES (Dendroctonus spp.) - CALIFORNIA - D. pseudotsugae infesting Douglas-fir trees in Cade Mountain area of Klamath National Forest. Trees fading over entire district. (Younkin, Holland). D. ponderosae damaging Jeffrey pines in 10,000-acre stand in Sierra National Forest. (Snyder et al.). D. brevicornis severely damaging 1,900 acres of ponderosa and Jeffrey pines in Lassen National Forest. (Renton).

PANDORA MOTH (Coloradia pandora) - CALIFORNIA - Adults emerging in Cannel Meadow area, Sequoia National Forest. (Probasco)

AN OLETHREUTID MOTH (Laspeyresia piperana) - CALIFORNIA - Infesting ponderosa pine seed cones in Tahoe Mountain Forest. (Parks)

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - CALIFORNIA - Heavy in 100-acre stand of Douglas-fir in Cade Mountain, Thompson Creek areas, Klamath National Forest. Young trees nearly snow-white; possibly 10,000 trees affected. (Alden).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MICHIGAN - Egg deposition expected in late September in Ionia County. (Wallner).

FALL WEBWORM (Hyphantria cunea) - MISSISSIPPI - Increasing on several shade tree species in Choctaw and Yazoo Counties. (Dinkins, Sept. 2). INDIANA - Heavy in Washington, Warrick and Gibson Counties. (White, Sept. 2). ILLINOIS - Nests light to moderate in western section. (White).

OAK SKELETONIZER (Bucculatrix ainliella) - DELAWARE - Feeding on oak in New Castle County. (McCreary, Davis, Sept. 2). MARYLAND - Heavily damaged foliage of white oaks near Edgewood, Harford County. (U. Md., Ent. Dept., Sept. 2).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - RHODE ISLAND - Isolated infestations observed in Exeter. (Mathewson, Colodney).

NOTODONTID MOTHS (Datana spp.) - FLORIDA - D. contracta larvae destroying leaves of oak trees in yard plantings at Winter Haven, Polk County. Det. by D. H. Habeck. (Denmark, Aug. 23). WISCONSIN - D. integerrima defoliating walnuts in Kenosha County. (Wis. Ins. Sur.).

MIMOSA WEBWORM (Homodaula albizziae) - OHIO - Continues damaging honeylocust over State. (Rings). ILLINOIS - Webbing and browning of leaves severe on honeylocust trees in central and western sections. Henry and Hancock Counties new records. (White). MISSOURI - Light on mimosa in Jasper and Lawrence Counties; heavy on mimosa and honeylocust in Greene County. (Munson)

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Locally heavy in Zelkova serrata in Sacramento, Sacramento County. Collected by G. P. Robinson, August 5, 1966. Det. by T. N. Seenoo, confirmed by D. M. Anderson. Host det. by T. Fuller. (Cal. Coop. Rpt., Aug. 19). WASHINGTON - Damaging elm in Walla Walla County. New county record, second State record. (Locati, Sept. 7).

SYCAMORE LACE BUG (Corythucha ciliata) - MARYLAND - Severe on numerous sycamore trees in Prince Georges and Queen Annes Counties. (U. Md., Ent. Dept., Sept. 2). MICHIGAN - Adults and nymphs still numerous in Ingham County. (Dowdy).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MARYLAND - Moderate on maple at Pasadena, Ann Arundel County. (U. Md., Ent. Dept., Sept. 2)

MAN AND ANIMALS

FACE FLY (Musca autumnalis) - MARYLAND - Generally low in central areas; 3 per head on untreated dairy cattle in Frederick County. (U. Md., Ent. Dept., Sept 2). INDIANA - Averaged 5-10 per animal in southern counties week ending September 2. Ranged 0-15 per animal on pastured cattle in north central region. (White). ILLINOIS - Increased annoyance in western section. Two herds averaged 8 and 16.2 flies per face. (White). UTAH - Annoyance still serious for horses and cattle in Cache, Box Elder, Weber and Davis Counties. (Knowlton).

HORN FLY (Haematobia irritans) - MARYLAND - Averaged 100 per animal in Frederick County dairy herd. (U. Md., Ent. Dept., Sept. 2). MISSISSIPPI - Increasing rapidly on untreated cattle. Also annoying treated cattle. Estimated counts on 12 untreated cows in Oktibbeha County indicated 2,000+ per cow; 200 per head on treated cows. (Dinkins). ARKANSAS - Numbers increased in recent weeks. (Simco). ILLINOIS - Averaged 20 and 200 respectively on two herds of Angus cattle in western section. (White). SOUTH DAKOTA - Heavy on cattle in Davison, Sanborn, and Miner Counties. More than 200 per side on calves and cows; 1,000+ per side on bulls. (Jones). NORTH DAKOTA - Populations increased in most areas and causing considerable annoyance to range animals. Several thousand per animal observed on range bulls in Dunn County. (Brandvik).

HOUSE FLY (Musca domestica) - ARKANSAS - Numbers higher than in several years. (Simco). UTAH - Annoyance about homes and other buildings increased past 2 weeks due to cooler weather. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Averaged 8 and 15 per animal in two dairy herds in Frederick County. (U. Md., Ent. Dept., Sept. 2). ALABAMA - Very annoying to fishermen and others in recreational areas in Tallapoosa County. (McQueen).

A SOLDIER FLY (Stratiomyia laticeps) - ARKANSAS - Larvae very high in droppings in poultry houses in northwest and southwest areas; causing droppings to liquefy. (Simco, Roberts).

MOSQUITOES - MARYLAND - Culex spp. larvae very heavy in Antietam Creek near Funkstown, Washington County. (U. Md., Ent. Dept., Sept. 2). WISCONSIN - Adult activity and biting increased in northern areas. (Wis. Ins. Sur.). KANSAS - At Manhattan, Aedes vexans most numerous in light trap September 5 and 7; 20 Culex tarsalis taken September 5. (Simpson). ALABAMA - Additional cases of encephalitis reported in two areas of southern Mobile County where health authorities engaged in general control effort against mosquitoes suspected of transmitting disease. Total of 18 cases reported with additional suspected cases noted. Mosquitoes apparently Culex spp. (McQueen).

AN ASSASSIN BUG (Rasahus thoracicus) - CALIFORNIA - Light in several locations. Several persons bitten in last 2 weeks. Apparently more prevalent this season than in past 3 years. (Cal. Coop. Rpt.).

BED BUG (Cimex lectularius) - IOWA - Infesting poultry houses at Buffalo Center. (Iowa Ins. Inf., Aug. 30).

HOUSEHOLDS AND STRUCTURES

CRICKETS (Gryllus spp.) - DELAWARE - Infestations in houses reported in various parts of State for past 3 weeks. (MacCreary, Davis, Sept. 2). MARYLAND - Adults entering numerous homes in Prince Georges County. (U. Md., Ent. Dept., Sept. 2). WISCONSIN - Entering houses in several counties. (Wis. Ins. Sur.).

A WEEVIL (Brachyrhinus rugosostriatus) - DELAWARE - Adults entering houses in New Castle County. (MacCreary, Davis, Sept. 2).

WESTERN SUBTERRANEAN TERMITES (Reticulitermes hesperus) - UTAH - Infesting another home at Logan, Cache County. (Knowlton).

BENEFICIAL INSECTS

LADY BEETLES - MARYLAND - Hippodamia convergens adults heavy on tobacco infested with green peach aphid near Bowie, Prince Georges County. (U. Md., Ent. Dept.). MICHIGAN - Coleomegilla maculata adults and larvae common in corn fields; dominant predator of corn leaf aphid this season. (Dowdy).

DAMSEL BUGS - MICHIGAN - Common on corn in central area. (Dowdy). MISSISSIPPI - Nabis spp., Chrysopa spp. and Geocoris spp. building up in soybeans. (Dinkins).

A EULOPHID WASP (Euplectrus plathypenae) - MISSOURI - Probably this species observed on fall armyworm from southwest area. Det. by B. Puttler. (Munson).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - INDIANA - Mostly Melanoplus spp. adults and nymphs 2 per sweep in southern counties. (White, Sept. 2). NORTH DAKOTA - Grasshopper populations decreased from last year in some southwestern, central and northern counties but increased in south central and northwestern counties. Infestation noneconomic to moderate, mostly light. (Brandvik). COLORADO - Grasshoppers moving into

margins of alfalfa and other green crops in Yuma County. Melanoplus femurrubrum moving into border of alfalfa in Larimer County field. (Hantsbarger, Welliso, LaQuey, Sept. 1). NEW MEXICO - Grasshoppers 10-25 per 25 sweeps on alfalfa in Valencia County. (Heninger).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Moderate to heavy infestations noted in cotton boll surveys in southern Dona Ana and Eddy Counties. Lighter infestations noted further north in the valleys. (N. M. Coop. Rpt., Sept. 2). ARIZONA - One larva found in field in Dome Valley, Yuma County. Infestations found in area near the Pima and Pinal County line. Infestations also found near Coolidge, Pinal County. One infestation reported in western Pima County. New infestations found in both Maricopa and Graham Counties. (Ariz. Coop. Sur.). CALIFORNIA - Situation remains severe in Riverside, Imperial and San Bernardino Counties; additional larvae and adults collected. Control treatment scheduled for one property within next 7 days; spot treatment to follow progressively by end of September. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - All traps used for 1966 trapping program removed by September 2. No additional moths taken. (Moore).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Adults still found on favored host plants. (Mathewson, Sept. 2). MICHIGAN - In Battle Creek area of Calhoun and Kalamazoo Counties, 5 additional beetles found during final check of traps. In Metropolitan Detroit, 7 new finds and 3 repeats (found in traps where earlier collections made) taken. Two new finds made in Monroe, Monroe County. (Moore).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - FLORIDA - Some adults and numerous larvae infesting sweetpotatoes at Brandon, Hillsborough County. (Simmons).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adults continue to be taken in traps in Manatee and Pinellas Counties on northwest fringe of species range. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ARKANSAS - Specimens taken August 8 in Strong, Union County, from light infestation in previously general infested area. (Frazier).

SCREW-WORM (Cochliomyia hominivorax) - Total of 19 cases reported in U. S. September 4-10 as follows: TEXAS - El Paso 1, Presidio 1, Uvalde 1. ARIZONA - Mohave 2, Yavapai 4, Gila 2, Greenlee 1, Pima 2, Cochise 2, Santa Cruz 1. NEW MEXICO - Grant 1, Otero 1. Total of 287 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 1, Sonora 195, Chihuahua 75, Coahuila 1, Nuevo Leon 5, Tamaulipas 10. Total of 560 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released: Texas 166,250, New Mexico 5,808,000, Arizona 19,916,000, Mexico 101,948,000. (Anim. Health Div.).

HAWAII INSECT REPORTS

Insects of Regional Significance - Two adult VAGRANT GRASSHOPPER (Schistocerca vaga) females found in recently bulldozed 6-acre area in Ewa Sugar Plantation, Oahu; formerly in weeds and surrounded by cane fields. No additional grasshoppers found or damage to cane leaves noted. (Au).

Pastures - All stages of a BILLBUG (Sphenophorus venatus vestitus) severe on Pennisetum clandestinum (Kikuyu grass, an important forage species) in small area in North Kohala, Hawaii Island, at 3,200 feet. Threatening cattle pastureland in immediate vicinity. Believed first incidence of species infesting Kikuyu grass. (Garcia, La Plante).

General Vegetables - BEET ARMYWORM (Spodoptera exigua) larvae heavy on green onions at Koko Head, Oahu. Leaves 90-100 percent damaged; 1-6 larvae per leaf. BARNACLE SCALE (Ceroplastes cirripediformis) nymphs and adults light on parsley at Koko Head. No previous record of this scale on parsley in State. (Haw. Ins. Rpt.).

Fruits and Nuts - CHINESE ROSE BEETLE (Adoretus sinicus) adults severely damaged foliage of newly planted citrus, mango, persimmon, avocado and other fruit trees in orchard at Kipahulu, Maui. (Takishita). Larvae of an OLETHREUTID MOTH (Cryptophlebia sp.) active on macadamia nuts for first time in Laupahoehoe, Hawaii Island. (Yoshioka).

Man and Animals - HORN FLY (Haematobia irritans) heavy on ranches in Lihue and Koloa districts, Kauai. (Au). HOUSE FLY (Musca domestica) populations increased in Kukuila-Poipu areas on Kauai. Chemical controls necessary. (Au).

Beneficial Insects - Adults of a SCIOMYZID FLY (Sepedon macropus) medium in taro patches in Kahakuloa, Maui. This predacious species introduced in 1958 to aid in control of a freshwater snail, Lymnaea ollula, intermediate host of cattle liver-fluke. Nearest fly release in Waihee, about 5 miles away. (Miyahira).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) populations very dense throughout Hana and Kahakuloa, Maui. As many as 12 snails per square yard in banana patches and wild areas. (Miyahira). (Week ending Sept. 2).

New State of Hawaii Insect Record - WESTERN FLOWER THRIPS (Frankliniella occidentalis) collected from carnation buds in Waimea, Kauai, and Kula, Maui, in July 1966. Det. by K. O'Neill. (Chong).

Insects of Regional Significance - MELON FLY (Dacus cucurbitae) larvae and adults very light throughout Lawai, Lihue, Wailua and Kapaa on Kauai. Untreated tomato and cucumber fields with less than 10 percent damage. Larvae and adults light in tomato and cucurbit-growing areas in Waianae, Kahuku and Waimanalo on Oahu. (Au, Fujimoto). Larval damage of LEAF MINER FLIES (Liriomyza spp.) very light on tomatoes in Kihei, Maui, on radish at Koko Head, Oahu; medium to heavy in cantaloup and watermelon fields in Kahuku on Oahu. (Miyahira, Sato, Sumida).

General Vegetables - All stages of WEST INDIAN SWEETPOTATO WEEVIL (Euscepes postfasciatus) heavy in backyard sweetpotato plantings at Huleia, Kauai, causing over 50 percent damage to tubers. (Au).

Citrus - FLORIDA RED SCALE (Chrysomphalus aonidum) generally light in planting of 100 citrus trees in Waianae, Oahu. Few trees heavily infested. Adults 38 per leaf and more than 1,500 per fruit on heavily infested pomelo trees. Nymphs and adults light to heavy on 8 acres of roses at Koko Head; 0-15 adults per leaf. Stems half-inch in diameter with 2-35 adults per inch. (Haw. Ins. Rpt.). (Week ending Sept. 9).

LIGHT TRAP COLLECTIONS

State	County	Date	Time of Day	Trap Type	Number of Traps	Number of Insects	Number of Spiders	Number of Beetles	Number of Diptera	Number of Hymenoptera	Number of Lepidoptera	Number of Coleoptera	Number of Neuroptera	Number of Arachnida	Number of Chilopoda	Number of Diplopoda	Number of Mollusca	Number of Nematoda	Number of Plantae	Number of Fungi	Number of Other	Total	
ARKANSAS	Fayetteville	9/1-7		BL	3	29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	79	
GEORGIA	Tifton	9/1-7	0.6	BL	2	487	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	22	
KANSAS	Marquette	8/31, 9/7			5	39	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	129	22
ILLINOIS (County)	Champaign	9/2-8	trace		52	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	69	
INDIANA (Counties)	Possey	8/26-9/1		BL	25	124	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	42	
	Hamilton	8/26-9/1		BL	18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	32	
	St. Joseph	8/26-9/1		BL	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	34	
MARYLAND	Centreville	8/31-9/6			54	166	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	26	
	Snow Hill	8/31-9/6			46	754	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	71	
MICHIGAN (Counties)	Jackson	8/30-9/5		BL	20																	32	
	Ionia	8/30-9/5		BL	31																	41	
	Newaygo	8/30-9/5		BL	20																	32	
MISSISSIPPI	Senoville	9/2-8	0.18	2BL	30	23	10	237	23	10	237	23	10	237	23	10	237	23	10	237	23	138	
MISSOURI	Portageville	9/3-9		BL	10	3	386	3	386	3	386	3	386	3	386	3	386	3	386	3	386	38	
NORTH DAKOTA	Fargo	9/9			2																		12
OHIO	Willard	8/31-9/6			13																	20	
	Weslar	9/1-6			6																	19	
SOUTH CAROLINA	Charleston	8/29-9/4			2	2	1	49	2	1	49	2	1	49	2	1	49	2	1	49	2	13	
TENNESSEE (Counties)	Mary	8/30-9/5			24	256	8	21	8	21	256	8	21	8	21	256	8	21	8	21	256	240	
	Cumberland	8/30-9/5				80	1	19	1	19	80	1	19	1	19	80	1	19	1	19	80	32	
TEXAS	Brownsville	8/27-9/2	trace	2BL	9	10	13	13	10	13	13	10	13	13	10	13	13	10	13	13	10	9	
	Waco	9/3-9		BL	9	75	23	99	75	23	99	75	23	99	75	23	99	75	23	99	75	27	
WISCONSIN	Madison	8/31-9/6		BL	18	2																	43



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN EARWORM increasing on soybeans in South Carolina, heavy in Alabama, also active in other areas on soybeans, peanuts, and sorghum. (p. 915). SPOTTED ALFALFA APHID may cause serious damage on newly seeded alfalfa in Colorado and Idaho; counts high in some other States. (p. 915, 916). MEXICAN BEAN BEETLE damaging soybeans in Virginia, North Carolina, and Alabama. (p. 918). GREEN STINK BUG high in few soybean fields in Mississippi and Kansas. (p. 918). A BURROWING STINK BUG causing damage to peanuts and downgrading by buyers in Alabama (p. 918).

BOLLWORMS continue heavy on cotton in South Carolina, Florida, Alabama, Arizona, and California. (p. 919).

CABBAGE LOOPER becoming a problem on cole crops in Maryland; increasing on lettuce in Colorado. (p. 921). POTATO TUBERWORM causing extensive damage to potatoes on Eastern Shore of Virginia. (p. 920).

SPIDER MITES AND BLACK PECAN APHID expected to cause significant loss in uncontrolled pecan orchards in southern Alabama counties. (p. 922). STRAWBERRY ROOT WEEVILS problem on strawberries in Marion County, Oregon. (p. 923).

ENGRAVER BEETLE situation worst in 10 years in areas of North Carolina. (p. 925).

Status of screw-worm eradication program. (p. 926). Pink bollworm moth catches continue to increase in southeastern California, fall treatment planned. Populations increasing rapidly in Arizona. (p. 927). Boll weevil diapause control program underway on Texas High Plains, populations lighter than previous years. (p. 927). Gypsy moth trapping report from northeastern Pennsylvania. (p. 927).

Detection

New State records include a Grasshopper in Hawaii (p. 929). and a Carpet Moth in Delaware (p. 926).

For new county records see page 928.

Special Reports

Distribution of Western Corn Rootworm (p. 931).

Reports in this issue are for week ending September 16 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	915
Insects Affecting	
Corn, Sorghum, Sugarcane.....	916
Turf, Pastures, Rangeland.....	917
Forage Legumes.....	917
Soybeans.....	918
Peanuts.....	919
Cotton.....	919
Miscellaneous Field Crops.....	920
Potatoes, Tomatoes, Peppers.....	920
Beans and Peas.....	921
Cole Crops.....	921
Cucurbits.....	921
General Vegetables.....	921
Deciduous Fruits and Nuts.....	922
Citrus.....	923
Small Fruits.....	923
Ornamentals.....	923
Forest and Shade Trees.....	924
Man and Animals.....	925
Stored Products.....	926
Beneficial Insects.....	926
Federal and State Plant Protection Programs.....	927
Insect Detection.....	928
Corrections.....	929
Hawaii Insect Report.....	929
Light Trap Collections.....	930
Distribution of Western Corn Rootworm.....	931

WEATHER BUREAU'S 30-DAY OUTLOOK
MID-SEPTEMBER TO MID-OCTOBER

The Weather Bureau's 30-day outlook for mid-September to mid-October calls for temperatures to average below seasonal normals over the eastern third of the Nation and also in the Southern Plains. Above normal temperatures are indicated from the Northern and Central Plains westward across the Rockies to the North and Central Pacific Coast as well as along the South Pacific Coast. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Southwest, the Central Plains and along the middle and north Atlantic Coast. Sub-normal precipitation is called for from the Gulf Coast region northward across the Ohio Valley to the Great Lakes region. In unspecified regions near normal precipitation is indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 928.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - MASSACHUSETTS - Three moths taken in blacklight trap at East Wareham. (Tomlinson, Sept. 9). DELAWARE - Adults abundant throughout Kent and Sussex Counties. (Burbutis). MARYLAND - Moths averaged 55 per night in blacklight trap in Worcester County. Larvae heavy in ears of field corn in Queen Annes County. (U. Md., Ent. Dept.). VIRGINIA - Infesting soybeans in Greensville, Southampton, Nansemond, Isle of Wight, Surry, Sussex and Dinwiddie Counties. All larval stages present; ranged 10-20 larvae per 10 row feet. Larvae severely damaged corn in Rockingham County. (Amos, Craun). NORTH CAROLINA - Damage very low in 17 of 20 soybean fields checked in Currituck, Camden, Pasquotank and Perquimans Counties. (Mount). SOUTH CAROLINA - Increased on soybeans in Allendale, Marlboro, Anderson, Marion, Colleton, and McCormick Counties. (Nettles et al., Sept. 13). ALABAMA - Egg laying heavier in soybeans in Mobile, Baldwin, and Escambia Counties, than in several years. Larvae, light to heavy in many fields. Successful control efforts occurring throughout much of soybean area. Egg laying extremely heavy on false morning-glory (*Jacquemontia tamnifolia*) throughout central and south areas. (McQueen). MISSISSIPPI - Low to moderate in many soybean fields throughout "delta" region. Several fields treated during previous week. (Dinkins). TENNESSEE - Some soybean fields very heavily infested. (Johnson, Sept. 9). OHIO - Generally a lesser problem on sweet corn this year. Infestations in fields checked in Washington County ranged 10-40 percent. Most larvae in late instars. Populations considerably higher in 1965. (Racer, Rose).

MICHIGAN - Four adult specimens, first of season, taken at blacklight traps during week. (Newman et al.). INDIANA - Adult trap collections heaviest in south central district; Jackson County, 284 and Harrison County, 140. (Huber). MISSOURI - Infesting half of late planted soybean fields in extreme southeastern "delta" counties. Larvae range 0.5-3.0 and averaged 2.0 per yard of row; range first to fourth instar. Larval counts on alfalfa range 1-6 and averaged 3.4 per 10 sweeps in same area. (Munson). NEBRASKA - Light populations present in eastern area corn, September 9. Infesting 5-10 percent of field corn in southeastern area. (Rhine). KANSAS - Low in alfalfa fields in eastern third of State. Damaging soybean pods in Crawford County. (Redding, Simpson). OKLAHOMA - Averaged 32 per 100 terminals in peanuts in Payne County. Moderate in grain sorghum in Kingfisher and Cleveland Counties, week ending September 10. Ranged 0-2 per 10 sweeps on alfalfa in northwest area. Ranged 1-4 per head in 56 percent of grain sorghum in Harper County and 1-3 per head in 14 percent of sorghum in Woodward County. Heavy on sorghum in Bryan County and moderate in Beckham County. (Okla. Coop. Sur.). TEXAS - Causing moderate damage to late-planted grain sorghum in Motley County. (Pallmeyer, Boring). Light, 6-8 larvae per 100 plants on soybeans in Delta County. (Ford). ARIZONA - Continues damaging sorghum in Wellton area, Yuma County. (Ariz. Coop. Sur.). COLORADO - This and fall armyworm infesting 5-60 percent of ears in corn fields checked in Arkansas Valley. Controls not satisfactory. (Schweissing, Sept. 8). Larvae seriously damaged many corn fields in southeastern area. One field in Kit Carson County averaged two larvae per ear. (Hantsbarger). Light trap collections increased at Two Buttes, Baca County. (Campbell). IDAHO - Light to heavy damage occurring generally in late maturing sweet corn fields in Payette County; 65 percent of ears infested in 1 field. (Homan).

ARMYWORM (*Pseudaletia unipuncta*) - MASSACHUSETTS - Seven moths taken in blacklight trap at East Wareham. (Tomlinson, Sept. 9). TEXAS - Larvae light on young pasture grasses in Rusk County. (Burton).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - MICHIGAN - Averaged 32 per 10 sweeps in St. Joseph and Cass County alfalfa. (Dowdy). INDIANA - Range 22-116 per sweep in scattered alfalfa fields in southwest district. (Huber). ILLINOIS - Ranged 60-3,320 and averaged 1,150 per 100 sweeps in southeast area. (White). WISCONSIN - Populations unchanged, ranged 1-20 per sweep in most locations; parasitism

nearly 50 percent in some instances. (Wis. Ins. Sur.). KANSAS - Averaged 30-90 per 10 sweeps in Kingman County alfalfa, predator counts very high. (Martinez). Up to 1,000 per 10 sweeps in some fields in Sedgwick County. Ranged 50-700 per 10 sweeps in Harvey County. (Redding). OKLAHOMA - Ranged 6-45 per 10 sweeps on alfalfa in northwest counties. (Okla. Coop. Sur.). NEW MEXICO - Continues light on alfalfa in Valencia and Bernalillo Counties. (Heninger). COLORADO - Ranged 20-10,000 per 100 sweeps in Arkansas Valley. Newly planted alfalfa may be seriously damaged. In Briston area, Prowers County, counts very low this year. (Schweissing, Sept. 8). Remains light, 10-30, per 100 sweeps in Mesa, Delta, and Montrose County alfalfa. (Bulla). WYOMING - Slight increase in Goshen and Platte County alfalfa. Winged and wingless averaged 15-25 per 10 sweeps. (Marks, Sept. 9). IDAHO - Populations building up to economic levels on alfalfa in Elmore County. New-seeding alfalfa fields show higher populations than older plantings. (Edwards).

CORN LEAF APHID (*Rhopalosiphum maidis*) - OHIO - Remains in most corn fields. (Rose). ARIZONA - Light to moderate on late sorghum in Yuma and Maricopa Counties. (Ariz. Coop. Sur.). WYOMING - Decreasing in corn fields of Park, Big Horn and Washakie Counties; averaged 60-80 per tassel. (Marks).

BEEF LEAFHOPPER (*Circulifer tenellus*) - WYOMING - Counts in beet fields of Washakie and southern Big Horn Counties affected by curly top disease indicate an average of 12 percent of plants infected. Ranged 0-35 of 100 plants infected in 25 fields. Fields with poorest beet stands most severely affected. Slight reduction in yield anticipated. (Marks).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - Adults and nymphs abundant in some areas on late lima beans. (Burbutis). WISCONSIN - Nymphs still common in most alfalfa fields, little damage evident. Up to 50 per sweep in margins, most fields range 1-5 per sweep. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - Adults abundant in Sussex County. (Burbutis). VIRGINIA - Lowest infestation observed in Rockbridge County in nearly 20 years. (Woodside). MICHIGAN - Some Cass County corn 30 percent infested; larvae 3rd to 5th instars. Blacklight collections show decrease in adult flight. (Dowdy). OHIO - Damaged corn in central and southeast. (Rose). INDIANA - Adult trap collections heavy in Posey County. Larval infestations spotty throughout southwest district corn. (Huber). NEBRASKA - Over 90 percent infestation with 6-8 larvae per stalk in some Saunders County fields. (Rhine).

FALL ARMYWORM (*Spodoptera frugiperda*) - MARYLAND - Larvae moderate to heavy in mature field corn at Fairland, Montgomery County. (U. Md., Ent. Dept.). VIRGINIA - Light trap catches increased sharply on Eastern Shore. (Hofmaster). ALABAMA - Severely damaged 2 large fields of grain sorghum in pretassel stage in Baldwin County. Considerable pupation occurring and later infestations expected to occur in other crops. (McQueen). OKLAHOMA - Moderate in terminals of forage sorghum in Woods County. Ranged 4-12 per 100 heads in grain sorghum in Woodward County. (Okla. Coop. Sur.). NEBRASKA - Larvae light on corn in eastern area. (Rhine, Sept. 9). CALIFORNIA - Medium on corn stalks and leaves at Carpinteria, Santa Barbara County; heavy in milo at Brawley, Imperial County. (Cal. Coop. Rpt.).

CORN ROOTWORMS (*Diabrotica* spp.) - WISCONSIN - *D. longicornis* adults still common on silks of late corn; field in Dunn County planted to corn for fourth consecutive year, 90 percent lodged. (Wis. Ins. Sur.). NEBRASKA - *D. virgifera* egg laying well underway in eastern area. Traps in Lincoln County producing up to 250 adults per plant. (Pruess, Munson). COLORADO - *D. virgifera* adults still abundant in many fields, but corn past damaging stage. Adults feeding on kernels already damaged by corn earworm. (Hantsbarger).

CONCHUELA (*Chlorochroa ligata*) - NEW MEXICO - Problem in sorghum fields in Clovis area, Curry County. Many growers have treated. (Crystal, Mathews).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Severe on Coastal Bermuda grass in Autauga County. (Kirkpatrick). TEXAS - Light on Coastal Bermuda grass near Waller, Waller County. (Texas Coop. Rpt.).

SOD WEBWORMS (*Crambus* spp.) - NEBRASKA - Caused heavy damage to many lawns in Lincoln, Lancaster County. (Rhine).

A BILLBUG (*Sphenophorus venatus vestitus*) - KANSAS - Several lawns in Johnson County infested and showing severe damage. (Stouse).

CHINCH BUGS (*Blissus* spp.) - ARKANSAS - *B. leucopterus* heavy and widespread in St. Augustine grass lawns in Little Rock. Many lawns treated. (Boyer). TEXAS - *B. insularis* economic on St. Augustine grass in Orange and Delta Counties. (Kachtik, Ford).

A LACE BUG (*Gargaphia opacula*) - UTAH - Extremely numerous and damaging bitter brush on rangelands northeast of Kanab, Kane County, June 20. Det. by R. C. Froeschner. (Knowlton, Lindsay).

FORAGE LEGUMES

PEA APHID (*Acyrtosiphum pisum*) - MICHIGAN - Adults and nymphs 308 per 10 sweeps in St. Joseph and Cass County alfalfa. (Dowdy). WISCONSIN - Populations increased slightly; ranged 20-50 per sweep in Sauk, Dane, Columbia and Iowa Counties. *Nabis ferus* continues most common predator; some evidence of parasitism. (Wis. Ins. Sur.). NORTH DAKOTA - Up to 2,000 per 100 sweeps on alfalfa in Richland County; lady beetles and nabids present, 30 per 100 sweeps, in some fields. (Brandvik). WYOMING - Adults and nymphs averaged 80-120 per 10 sweeps in Goshen and Platte County alfalfa week ending September 9. Remains light in alfalfa in Park, Big Horn and Washakie Counties; averaged 30-55 per 10 sweeps. (Marks). COLORADO - Decreasing in Arkansas Valley, range 0-1,500 per 100 sweeps. (Schweissing). Moderate in Larimer County, 500-1,000 per 100 sweeps. (Sower, McLaughlin, Sept. 8). Ranged 50-150 per 100 sweeps in Mesa, Delta, and Montrose Counties. (Bulla). UTAH - Increasing in some Weber County alfalfa fields. (Knowlton). NEW MEXICO - Light on alfalfa in Rio Arriba, De Baca, Valencia, Bernilillo, Sandoval and Chaves Counties. (Kloepfer, Mathews, Heninger). OKLAHOMA - Occasionally found in alfalfa in Major and Ellis Counties. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - OKLAHOMA - Averaged 2.5 per 10 sweeps on alfalfa in Grady County; light in northwest area. (Okla. Coop. Sur.). KANSAS - Ranged 2-10 per 10 sweeps in northeastern alfalfa. Lower, 0-2 per 10 sweeps, in east central area. (Simpson). COLORADO - Damage occurring in some areas of Arkansas Valley. Range 0-1,000 per 100 sweeps in Arkansas Valley, 20 per 100 sweeps in Larimer County. (Schweissing, Sower, McLaughlin, Sept. 8). NEW MEXICO - Heavy on alfalfa in Dona Ana County. Lighter in Chaves County week ending September 9. Adults light, larvae range 2-140 per 25 sweeps in Valencia County. Averaged 10-12 larvae per 25 sweeps in De Baca County. (Mathews et al.).

WEBWORMS (*Loxostege* spp.) - INDIANA - Larvae destroyed 60-80 acres of newly planted alfalfa near Evansville. Averaged 9 per sweep in one alfalfa field in Knox County, with 40 percent of plants infested. (Huber). KANSAS - Low in most northeast and east central areas; 0-5 per 10 sweeps. One field in Linn County had 35-40 per 10 sweeps and considerable webbing. (Simpson). OKLAHOMA - Ranged 15-25 per square foot on alfalfa in Washita County and 2-6 per square foot in Beckham County; moderate in Grady, Cleveland and Kingfisher Counties week ending September 10. Continue heavy in alfalfa in Mayes and Cotton Counties; light in Beckham County and northwest area. (Okla. Coop. Sur.).

BEET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Heavy populations requiring controls in seed alfalfa fields in Wellton area, Yuma County. (Ariz. Coop. Sur.).

STRIPED CUTWORM (Euxoa tessellata) - ARIZONA - Causing damage to seed alfalfa fields in Wellton area, Yuma County. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - INDIANA - Averaged 7 per sweep in one Knox County alfalfa field. (Huber). MISSOURI - First and second instar larvae averaged 1.4 per sweep on alfalfa in extreme southeastern "delta" counties. (Munson).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - KANSAS - Low, 10 per 10 sweeps in most alfalfa fields in northeast. (Simpson). OKLAHOMA - Averaged 4 per 10 sweeps in alfalfa in Grady County. Light in northwest area. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Adults light in Hanover County alfalfa. (Innes). WYOMING - Adults averaged 2-8 per 10 sweeps and larvae 4-5 per 10 sweeps in alfalfa fields of Park, Big Horn and Washakie Counties. (Marks). COLORADO - Adults active following diapause. Ranged 16-20 per 100 sweeps in Larimer County; larvae 0-1 per 100 sweeps. (Sower, McLaughlin, Sept. 8).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - NEW MEXICO - Averaged 2-5 adults per 25 sweeps in De Baca County alfalfa, and 0-6 adults per 25 sweeps in Valencia and Bernalillo Counties. (Heninger, Mathews).

TARNISHED PLANT BUG (Lygus lineolaris) - KANSAS - Averaged 10 per 10 sweeps in alfalfa in Harvey County. Averaged 5-10 per 10 sweeps in alfalfa in Nemaha and Brown Counties. (Simpson, Redding).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Light to very heavy in Nansemond County; 50 larvae and adults per foot of row in 3 fields. (Isakson). NORTH CAROLINA - Destroyed 50 percent of top third foliage in 10-acre field of soybeans in Pasquotank County; not a problem in most fields. (Mount). ALABAMA - Larvae and adults completely defoliated a 20-acre field of soybeans in Baldwin County. Light to medium in soybeans throughout central and south sections. (Vickery et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - High numbers in Yazoo and Sharkey Counties. Heaviest damage in young soybeans. (Dinkins).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - ALABAMA - These and D. undecimpunctata howardi numerous on soybeans in Baldwin, Mobile and Escambia Counties. (McQueen).

GREEN CLOVERWORM (Plathypena scabra) - VIRGINIA - Light in all fields checked. (Isakson). ALABAMA - Larvae light on soybeans in southwest area. (Dekle et al.). MISSOURI - Larval counts decreased on soybeans in extreme southeastern "delta" counties. Very few mature larvae, many pupae; heavy moth flight now underway. (Munson).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - SOUTH CAROLINA - Increased in Allendale, Marlboro, Anderson, Marion, and Colleton County soybeans. (Nettles et al., Sept. 13). ALABAMA - Larvae infesting several isolated young soybean fields in Baldwin County. (Dekle, Turner et al.).

GREEN STINK BUG (Acrosternum hilare) - MISSISSIPPI - Adults and nymphs high in young soybeans in Sharkey County, 2-6 nymphs per 3 feet of row in 3 fields surveyed; fields treated after survey. (Dinkins). OKLAHOMA - Adults averaged 8 per 10 row feet on soybeans in Payne County. (Okla. Coop. Sur., Sept. 10). KANSAS - Up to 25 per soybean plant in Montgomery County. Much lower in other areas of southeast; ranged 0-2 per plant. (Redding). MISSOURI - Light on soybeans in extreme southeastern "delta" counties. (Munson).

STINK BUGS - ALABAMA - *Nezara viridula* and *Euschistus servus* nymphs numerous on soybeans in Baldwin, Mobile and Escambia Counties. (McQueen).

AN ALYDID BUG (*Alydus eurinus*) - MARYLAND - Adults and nymphs caused noticeable injury to pods of soybeans near Preston, Caroline County. (U. Md., Ent. Dept.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ALABAMA - Adults light to medium in all soybean fields throughout central and south sections. Some lodging occurring to maturing bean stalks. (McQueen). MISSISSIPPI - Nymphs and adults heavy on soybeans in Yazoo County. Moderate damage due to girdling of stems and leaves on young beans. (Dinkins).

PEANUTS

A BURROWING STINK BUG (*Pangaeus* sp.) - ALABAMA - Nymphs and adults damaging peanuts in isolated fields in Houston, Coffee, Dale and other southeast counties. Feeding on nuts prior to maturity and harvest, caused nuts to be bumpy, offcolor and off-flavor, resulting in downgrading by buyers. One lot of peanuts in Dale County downgraded from approximately 210 dollars per ton to 70 dollars; lot in Coffee County downgraded to 80 dollars per ton due entirely to damage by this pest. These bugs widespread throughout State, but more plentiful in southern area, especially in coastal soils in 9-county peanut-growing area. (Bond et al., Sept. 9).

A LEAF ROLLER MOTH (*Platynota stultana*) - CALIFORNIA - Larvae medium in 40 acres of peanuts in Fresno County. (Cal. Coop. Rpt.).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Averaged 8 per 100 terminals on peanuts in Payne County. (Okla. Coop. Sur., Sept. 10).

FALL ARMYWORM (*Spodoptera frugiperda*) - OKLAHOMA - Averaged 4 per 100 terminals in Payne County peanuts. (Okla. Coop. Sur., Sept. 10).

COTTON

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Increased during last month. Worst ever seen in some fields. (Nettles et al., Sept. 13). FLORIDA - Heavy, more than 5 eggs or larvae per 100 terminals in 75-acre cotton field near Jay, Santa Rosa County. (Strayer, Sept. 7). ALABAMA - Heavy in Lauderdale, Morgan and Fayette Counties. (McQueen). MISSISSIPPI - Infestations of *H. zea* and *H. virescens* moderate in green cotton. Recent "hatchout" occurred in Yazoo County; first and second instar larvae moderate, average 16 per 100 terminals. (Dinkins). OKLAHOMA - Egg counts averaged 60 percent in Grady County; 10-20 percent of larvae collected *H. virescens*. *H. zea* egg counts averaged 44 percent in Major County and ranged 3-100 percent in Beckham County. Larvae moderate to heavy in south central area, average 15 per 100 plants in Washita County. (Okla. Coop. Sur.). TEXAS - Egg laying increased in most area after general rains; however, populations still light in most south plains counties. Spotted heavy infestations present in some areas of Floyd, Dickens and Kent Counties. Local bollworm outbreaks are likely to occur in September if normal temperatures prevail. (Rummel, Sept. 6). NEW MEXICO - Light populations noted in most Dona Ana County cotton. (Hare, Campbell). ARIZONA - Heavy infestations continue in areas of Pima, Pinal and Maricopa Counties. Populations increasing in Yuma, Cochise and Graham Counties. (Ariz. Coop. Sur.). CALIFORNIA - Abundant throughout San Joaquin Valley, continue to cause boll loss. Counts declined in some areas, egg laying and increase in small larvae evident in other areas. (Leigh, Sept. 13).

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Migration failed to materialize in most areas; only scattered locations out of hand. (Nettles et al., Sept. 13). ALABAMA - Continue heavy in northern section, especially late cotton. (McQueen). MISSISSIPPI - Infestations remain moderate in blooming cotton.

Punctured square counts in Yazoo County range 8-20 percent in green cotton. Most fields terminated growth and defoliants applied in some areas. (Dinkins). OKLA-HOMA - Averaged 65 percent damaged squares where uncontrolled in Grady County; ranged 3-30 percent in Beckham County, averaged 32 percent in Major County. Ranged 1-5 adults per bloom in Marshall County. Heavy in Bryan, Cotton, and Caddo Counties. (Okla. Coop. Sur.). For Boll Weevil in Texas High Plains, see page 927.

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - NEW MEXICO - Moderate to heavy on cotton in southern Dona Ana County. (Campbell, Eyer, Sept. 9).

ALFALFA WEBWORM (Loxostege commitalis) - TEXAS - Spotted, heavy infestations defoliating cotton near Brady, McCulloch County. (Langford).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Light to moderate in northern Pima County, southern Maricopa County and throughout Pinal County cotton. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARKANSAS - Adults very numerous in most cotton fields in southeast area. Larval feeding noneconomic. (Boyer). ARIZONA - Heavy but scattered on cotton in areas of Pinal and Maricopa Counties. (Ariz. Coop. Sur.). CALIFORNIA - Low abundance at present; egg laying increasing in west side of San Joaquin Valley as result of new moth flight. (Leigh, Sept. 13).

COTTON APHID (Aphis gossypii) - NEW MEXICO - Light to medium on cotton in Dona Ana County. Some fields beginning to show honeydew. (Hare, Campbell). Building up in many cotton fields in southern Dona Ana County. (Elson, Campbell).

LYGUS BUGS - CALIFORNIA - Abundant in some fields in San Joaquin Valley causing severe boll damage, particularly where treatments not used in recent weeks. (Leigh, Sept. 13).

STINK BUGS (Chlorochroa spp.) - NEW MEXICO - Damage to cotton bolls very evident in Dona Ana, Chaves and Eddy Counties. (Hare, Campbell).

SPIDER MITES - CALIFORNIA - Abundant in some fields throughout San Joaquin Valley. (Leigh, Sept. 13).

MISCELLANEOUS FIELD CROPS

BANDED SUNFLOWER MOTH (Phalonia hospes) - NORTH DAKOTA - Larvae 3 per sunflower head in Pembina County; 80 percent of heads infested. (Brandvik).

IMPORTED CABBAGEWORM (Pieris rapae) - NORTH DAKOTA - Larvae, 60 per 100 sweeps, on volunteer mustard in Pembina County. (Brandvik).

SOUTHERN GREEN STINK BUG (Nezara viridula) - TEXAS - Up to 25 nymphs and adults per plant infesting guar in Goliad County. (Stehle).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Common to numerous on peppers in areas of Sussex County. (Burbutis).

POTATO PSYLLID (Paratrioza cockerelli) - WYOMING - Adult counts remain low in Goshen County potatoes. Averaged less than 1 per 100 sweeps. (Marks, Sept. 9).

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Causing extensive damage to fall potatoes on Eastern Shore. (HoImaster).

BEANS AND PEAS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - NEW MEXICO - Heavy damage to some home gardens in Bernalillo County. (Heninger). COLORADO - In Pueblo County beans, adults 0-5 and larvae 0-10 per plant. (Schweissing, Sept. 8).

WEBWORMS (*Loxostege* spp.) - OKLAHOMA - Moderate on mung beans in Kingfisher County. (Okla. Coop. Sur., Sept. 10).

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - COLORADO - Larvae causing 20 percent damage to dry beans in field near Hudson, Adams County. (Lesser, Jenkins, Sept. 8). Caused 20 percent loss in windrowed pinto bean field in Adams County. (Hantsbarger).

THRIPS - VIRGINIA - Heavy on snap beans on Eastern Shore. (Hofmaster).

TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) - OHIO - Scattered in several fields of pole beans in Washington County. About 1-3 percent of leaves badly spotted; range 1-200 per leaf. All stages present. (Rose).

COLE CROPS

CABBAGE LOOPER (*Trichoplusia ni*) - SOUTH CAROLINA - Heavy damage to collards in all parts of State. (Nettles et al., Sept. 13). VIRGINIA - Populations in Painter area dropped off sharply during past week; however increase expected. (Hofmaster). MARYLAND - Larvae becoming problem on broccoli, cabbage and other cole crops on lower Eastern Shore. (U. Md., Ent. Dept.). WISCONSIN - Difficult to control in commercial cabbage plantings in Kenosha County. (Wis. Ins. Sur.). OREGON - Laying eggs on cole crops in Multnomah County. Control continues difficult. (Gray).

CABBAGE APHID (*Brevicoryne brassicae*) - OREGON - Heavily infesting 300 acres of Brussels sprouts in St. Paul area of Marion County. Control operations unsuccessful. (Crowell).

FALSE CHINCH BUG (*Nysius ericae*) - OREGON - Adults severely damaging stems and leaves of late planted cauliflower in Woodburn area of Marion County. (Crowell).

CUCURBITS

MELON APHID (*Aphis gossypii*) - NEW MEXICO - Light to very heavy on cantaloup in Bernalillo County. Light to heavy on melons and cantaloup in commercial truck farms and home gardens in Sandoval, Valencia and Bernalillo Counties. (Heninger).

SQUASH BUG (*Anasa tristis*) - OKLAHOMA - Moderate on squash in Washita and Cleveland Counties. (Okla. Coop. Sur., Sept. 10).

GENERAL VEGETABLES

CABBAGE LOOPER (*Trichoplusia ni*) - COLORADO - Increasing in Arkansas Valley lettuce, larva 0-4 and eggs 0-8 per 10 plants. (Schweissing, Sept. 8). OKLAHOMA - Heavy on radish leaves and moderate on turnip leaves in Mayes County. (Okla. Coop. Sur., Sept. 10).

BET ARMYWORM (*Spodoptera exigua*) - CALIFORNIA - Medium on green onions in Clovis, Fresno County. (Cal. Coop. Rpt.).

SOUTHERN ARMYWORM (*Prodenia eridania*) - FLORIDA - All stages present and larvae defoliating half of leaf surface of sweetpotatoes in half-acre field at Gainesville, Alachua County, despite weekly application of recommended insecticide. Det. by D. H. Habeck. (Waites, Habeck).

DECIDUOUS FRUITS AND NUTS

- SPIDER MITES (Tetranychus spp.) - ALABAMA - Severely defoliating pecans in uncontrolled orchards in Mobile, Baldwin, Escambia and other southern counties. Defoliation aided by presence of aphids, scab, and dry weather. Considerable loss expected in 50-60 percent of orchards in area. (Bagby et al.). NEVADA - Medium on pear trees in nurseries in Washoe County. (Hilbig). COLORADO - Injury apparent on foliage in many orchards, most heavy populations under control September 8. T. telarius light to moderate in most apple orchards in Mesa and Delta Counties with reddish overwintering forms appearing. Range 1-20 per leaf. (Bulla). CALIFORNIA - T. pacificus locally heavy on plum and peach trees in Reedley, Fresno County. (Cal. Coop. Rpt.).
- EUROPEAN RED MITE (Panonychus ulmi) - DELAWARE - Winter eggs now present on apple twigs in areas of Kent County. (MacCreary).
- CODLING MOTH (Carpocapsa pomonella) - COLORADO - Attractant traps show reduction in moth numbers, 2-3 per trap taken during week. Few "stings" noted in pear harvest or on apples to date. (Bulla, Sept. 8).
- PEACH TWIG BORER (Anarsia lineatella) - COLORADO - More abundant this year due to limited control. (Bulla, Sept. 8).
- APPLE MAGGOT (Rhagoletis pomonella) - WISCONSIN - Adults active in Door County; total of 5 caught on 8 sticky board traps September 6-12. (Wis. Ins. Sur.). MICHIGAN - Adults still active in southwest area. (Carpenter, Earl).
- PEAR-SLUG (Caliroa cerasi) - COLORADO - Damaging cherries in Fort Collins area. (Wellso). NEVADA - Light infestation and damage to cherry and pear tree nursery stock in Washoe County. (Hilbig).
- A CERAMBYCID BEETLE (Oberaea ocellata) - TEXAS - Larvae damaged plum trees in Erath County. (Gary).
- WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - All stages severe on 20 percent of 4,000 peach trees in nursery in Altoona, Lake County. (Fatic, Aug. 30). All stages severe on 90 percent of 28 peach trees in nursery in Jacksonville, Duval County. (King, Sept. 7).
- BLACK PECAN APHID (Myzocallis caryaefoliae) - SOUTH CAROLINA - Causing concern on pecans in Greenville area. (Nettles et al.). GEORGIA - Light on Emanuel County pecans. (McGlohon). ALABAMA - Increasing in uncontrolled pecan orchards and contributing to early defoliation of pecan trees throughout central and south sections. Honeydew caused sooty mold on leaves. (Vickery, et al.). TEXAS - Moderate on pecan trees near Del Rio of Val Verde County. Heavy and defoliating several trees in Milam County. (Tatum, Moore).
- HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Heavy pupation and emergence of adults in uncontrolled pecan orchards in central section; egg laying beginning. (Bagby, et al.).
- RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Medium on walnut trees in Concord, Contra Costa County. (Cal. Coop. Rpt.).
- PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Continue to emerge in moderate to heavy numbers in Tulsa County as rains continue. (Okla. Coop. Sur., Sept. 10). TEXAS - Light to moderate in Cook County pecan grove. (Turney).
- WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Injury to black walnuts increasing at Ogden, Weber County. (Knowlton, Sept. 9).
- SPITTLEBUGS - GEORGIA - Heavy infestation on Emanuel County pecans. (McGlohon).

CITRUS

SPIREA APHID (Aphis spiraeicola) - FLORIDA - Infesting 80 percent of 850 sweet orange trees inspected in nursery at Bartow, Polk County. (Schmidt, Aug. 24).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Moderate to severe on 50-100 percent of orange nursery stock inspected at 2 nurseries in Sanford, Seminole County. (Kipp, Aug. 26).

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

LEAF-FOOTED BUG (Leptoglossus phyllopus) - FLORIDA - Migrating from leguminous cover crop to Robinson and Orlando tangelo trees and moderate on maturing fruit at grove in Marion County. Det. by J. E. Brogdon. (Brogdon).

CITRUS WHITEFLY (Dialeurodes citri) - TEXAS - Heavy on Satsuma orange near Weimar, Colorado County. (Beken).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - Infesting 3 new commercial lemon groves in Yuma County. (Ariz. Coop. Sur.).

PACIFIC SPIDER MITE (Tetranychus pacificus) - CALIFORNIA - Medium on citrus nursery stock in Glen, Glenn County. (Cal. Coop. Rpt.).

SMALL FRUITS

A LEAF ROLLER MOTH (Sparganothis sulfurana) - MASSACHUSETTS - Moths common on many cranberry bogs in Plymouth and Barnstable Counties. (Tomlinson, Sept. 9).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Infesting grape, at Monticello, Jefferson County. (Van Duyn, Sept. 8).

A VINEGAR FLY (Drosophila melanogaster) - CALIFORNIA - These and Haptoncus luteolus medium on grapes in Fresno County. (Cal. Coop. Rpt.).

A WEEVIL (Sciopithes obscurus) - OREGON - Adults abundant in some fields of red raspberries in Clackamas and Multnomah Counties. (Rosensteil).

STRAWBERRY ROOT WEEVILS (Brachyrhinus spp.) - OREGON - B. sulcatus, B. rugosotriatus, and B. ovatus moving from grass to strawberry fields and causing significant damage in Marion County. About 60 percent are B. sulcatus. (Every).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - CALIFORNIA - Infesting strawberry fields in Fieldbrook, Humboldt County. (Cal. Coop. Rpt.).

ORNAMENTALS

ARMORED SCALES - SOUTH CAROLINA - Fiorinia theae damaging holly and camellia in all parts of State. (Nettles et al., Sept 13). FLORIDA - All stages of F. theae moderate to severe on 34 camellia and 30 Burford holly in Melbourne, Brevard County. (Levan, Aug. 23). All stages of Chrysomphalus ficus moderate to severe on 100 conitoe plants at nursery in Sanford, Seminole County. (Kipp, Aug. 25). OKLAHOMA - Fourth-generation Unaspis euonymi crawlers active on euonymus in Payne County, September 10, up to 500 per leaf. Heavy flight of males occurring in Payne County. Scale heavy on euonymus plants in many areas of State. (Okla. Coop. Sur.).

AZALEA CATERPILLAR (Datana major) - VIRGINIA - Larvae severe, stripping leaves from azalea at Smithfield, Isle of Wight County. (Isakson, Jones).

LARGER CANNA LEAF ROLLER (Calpodex ethlius) - FLORIDA - Larvae defoliated 1,000 canna lilies at nursery in Avon Park, Highlands County. (Barker).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae heavy; damaging rose nursery stock in Oroville, Butte County. (Cal. Coop. Rpt.).

A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) - VIRGINIA - Adults feeding on azalea and camellia shrubs at Virginia Beach. (Smith).

ENGRAVER BEETLES (Ips spp.) - SOUTH CAROLINA - Heavily infesting ornamental pines in Richland County. (Nettles et. al., Sept. 13).

A LEAF BEETLE (Lema simulans) - KANSAS - Causing severe damage to day flower (Commelina erecta) grown as ground-cover in Riley County. (Thompson).

A SHOT HOLE BORER (Anisandrus dispar) - OREGON - Heavy on weigela shrubs at Salem, Marion County. (Larson).

SPITTLEBUGS - SOUTH CAROLINA - Seriously damaging ornamentals in Richland County. (Nettles et al., Sept. 13).

AZALEA LACE BUG (Stephanitis pyrioides) - PENNSYLVANIA - Very heavy on azalea in Westmoreland County. (Udine).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - Severely discolored Virginia-creeper foliage about many homes at Murray, Salt Lake County, and Hyde Park, Cache County. (Knowlton, Sept. 12).

FOREST AND SHADE TREES

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Infesting shade trees in Gloucester County. (Innes). MICHIGAN - Webs and larval feeding injury widespread in St. Joseph and Cass Counties. Trees commonly infested include wild cherry, abandoned apple, hickory and walnut. (Worthington). OKLAHOMA - Moderate to heavy infestations continue to damage trees in central and eastern areas of State. (Okla. Coop. Sur.). COLORADO - Abundant in poplar, cottonwood and other shade trees in Grand Junction area; mature caterpillars seeking overwintering places around homes and trees. (Bulla, Sept. 8). NEW MEXICO - Medium on shade trees in Espanola, Rio Arriba County. (Kloepfer).

WALNUT CATERPILLAR (Datana integerrima) - OHIO - Numerous roadside walnut trees nearly or completely defoliated by larvae in Franklin and Madison Counties. Damage to foliage more common than usual this year. (Rose).

CATALPA SPHINX (Ceratonia catalpae) - OHIO - Complete defoliation of row of catalpa trees in Hocking County and partial to complete defoliation of numerous roadside catalpa trees from western Franklin County into Madison County. (Rose).

A NOCTUID MOTH (Litoprosopus coachella) - CALIFORNIA - Larvae heavy on palm in Ocean Beach, San Diego County. (Cal. Coop. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Larvae, pupae and adults found in elm in Elko, Elko County. This new County record. (Bechtel, Earnist, Martinelli). CALIFORNIA - Adults medium infesting Chinese elm trees in Escondido, San Diego County. (Cal. Coop. Rpt.). OREGON - Infesting Chinese elm in Hermiston, Umatilla County. This New County Record. (Every).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Heavy on elm trees in Albuquerque, Bernalillo County. (Heninger). TEXAS - Heavy on Chinese elms in Upton County. (Day).

LOCUST BORER (Megacyllene robiniae) - OHIO - Adults emerging from black locust in strip-mined areas of Perry County and probably elsewhere in strip-mined reforestation areas through southeastern, central and east central areas. (Rose).

LACE BUGS (Corythucha spp.) - PENNSYLVANIA - C. ciliata heavily infesting sycamores in Wyoming County. (Gesell). OHIO - Large populations discoloring white oak in Vinton and Athens Counties. All stages present. (Rose).

BEECH BLIGHT APHID (Prociphilus imbricator) - DELAWARE - Very heavy infestations on many beech trees in one area of New Castle County. (MacCreary).

A SAWFLY (Caliroa lineata) - PENNSYLVANIA - Severely skeletonized leaves of ornamental pin oak in Susquehanna County. (Udine).

AN ENGRAVER BEETLE (Ips avulsus) - NORTH CAROLINA - Dominant species in epidemic affecting most of Piedmont and some adjacent mountain counties. Situation began mid-July and is worst in State in 10 years. Counties hardest hit are from Warren west to Alleghany and south to Wake, Randolph, Richmond, Anson, Montgomery, Stanly and Cabarrus Counties. Many counties have more than 100 spots each ranging in size from few trees to 5 acres. Many infested areas in young pine plantations. (For. Pest Newsltr., Sept. 10).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Does not appear to have increased as much expected this summer. Outbreak in Warren, Vance and Granville Counties still exists, but appears to be secondary to Ips infestation. However, Davidson, Davie, Iredell, Rowan, Yadkin and Forsyth Counties still have serious infestations. (For. Pest Newsltr., Sept. 10).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - PENNSYLVANIA - Infesting 30 acres of 1 and 3 year old Scotch pine in Bradford County. Eggs present on 15 percent of trees and egg laying underway. (Gesell).

INTRODUCED PINE SAWFLY (Diprion similis) - WISCONSIN - Larvae feeding lightly on white pine in Vilas County. Defoliation of shelterbelt trees observed in Jackson County. (Wis. Ins. Sur.).

AN APHID (Eulachnus agilis) - OHIO - Scattered infestations on Scotch pine in Lake and Wayne Counties. (Campbell).

MAN AND ANIMALS

MOSQUITOES - NORTH CAROLINA - Culex pipiens quinquefasciatus troublesome to residents in Johnston County. (Ashton). WISCONSIN - Not serious problem; large numbers of Psorophora sp. active at Madison during day. Aedes vexans still a nuisance during evening in several areas. (Wis. Ins. Sur.). MINNESOTA - A. vexans continues dominant in light traps, evening and day time bite collections and larval collections. Anopheles walkeri, and Culex restuans also high. (Minn. Ins. Rpt., Sept. 12). UTAH - Troublesome at Young Ward, Benson and Lewiston in Cache County. (Knowlton, Sept. 9).

HORN FLY (Haematobia irritans) - OKLAHOMA - Moderate over State, ranged 500-1600 per head on cattle in Payne, Blaine and Major Counties. (Okla. Coop. Sur., Sept. 10). NORTH DAKOTA - Ranged 25 to over 1,000 (averaged 500) per animal in Richland and Ransom Counties. (Brandvik). WYOMING - Counts remain 80-130 per side on cattle in Goshen and Platte Counties. (Marks, Sept. 9).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Continues main source of irritation to cattle; biting humans in Madison area. (Wis. Ins. Sur.). WYOMING - Adults averaged 8-12 flies per animal in corrals and feedlots of Goshen and Platte Counties. (Marks, Sept. 9).

FACE FLY (Musca autumnalis) - NORTH DAKOTA - Counts on pastured cows up to 12 per animal in Richland County. (Brandvik).

HORSE FLIES - GEORGIA - Large numbers congregating in buildings in northern section of State because of cool, wet weather. (Nolan). OKLAHOMA - Tabanus atratus, T. sulcifrons, and T. lineola complex averaged 1 per head in areas of Payne County. (Okla. Coop. Sur., Sept. 10). TEXAS - T. abactor annoying cattle near Seguin, Guadalupe County. (New).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - INDIANA - Adults and nymphs collected in a cabin in Jackson County. Adults recorded biting a man on the hand May 21, and again on July 10, with resulting painful swelling and urticaria. Negative for Chagas disease. (Misselhorn, Favinger, Osmun, Anderson). This note previously carried in part in CEIR 16(33):816. (PPC).

CHIGGERS - WISCONSIN - Numerous in tall grasses near Delafield, Waukesha County. (Wis. Ins. Sur.). OKLAHOMA - Eutrombicula spp. increasing and annoying people in eastern areas of State. (Okla. Coop. Sur., Sept. 10).

SCREW-WORM (Cochliomyia hominivorax) - Total of 32 cases reported in U. S. September 11-17 as follows: TEXAS - Jeff Davis 4, Presidio 4, Terrell 1, Frio 1. ARIZONA - Mohave 1, Yavapai 9, Gila 1, Cochise 2. NEW MEXICO - Hidalgo 1, Luna 1, Sierra 2, Eddy 3. CALIFORNIA - San Diego 1, Imperial 1. Total of 220 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 41, Sonora 113, Chihuahua 52, Coahuila 2, Nuevo Leon 3, Tamaulipas 9. Total of 433 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released: Texas 4,946,250, New Mexico 4,156,000, Arizona 16,236,000, Mexico 94,856,000. (Anim. Health Div.).

STORED PRODUCTS

CARPET MOTH (Trichophaga tapetzella) - DELAWARE - Found infesting stored goose feathers in New Castle County. This new State record; coll. D. MacCreary, det. D. F. Bray, adults reared, June 10, 1966. (Burbutis).

CIGARETTE BEETLE (Lasioderma serricorne) - SOUTH CAROLINA - Infesting cereal at Seneca. Noticeable increase in reports of damage by this insect in stored products this year. (Nettles et al., Sept. 13).

BENEFICIAL INSECTS

DAMSEL BUGS - WYOMING - Nabis sp. continue numerous in alfalfa and potatoes in Goshen and Platte Counties. (Marks, Sept. 9). ILLINOIS - Range 40-100 and average 75 per 100 sweeps in southeast area alfalfa. (White).

FLOWER BUGS (Orius spp.) - WYOMING - Continue numerous in alfalfa and potatoes in Goshen and Platte Counties. (Marks, Sept. 9). MISSISSIPPI - O. insidiosus numerous on cotton blooms in Yazoo County. (Dinkins).

GREEN LACEWINGS - CALIFORNIA - Adults and larvae abundant in cotton in San Joaquin Valley. (Leigh, Sept. 13).

LADY BEETLES - WYOMING - Several species continue numerous in alfalfa and potatoes in Goshen and Platte Counties. (Marks, Sept. 9).

AN ACARID MITE - OKLAHOMA - Thyreophagus entomophagus moderate to heavy on euonymus scale infested euonymus plants. Over 90 percent of scales checked showed signs of mite feedings on eggs. (Okla. Coop. Sur., Sept. 10).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - MARYLAND - Nymphs of *Melanoplus* spp. caused moderate injury to soybeans near Wye Mills, Queen Annes County. (U. Md., Ent. Dept.). ILLINOIS - Annual fall survey shows population lowest in many years. (White). WISCONSIN - Adults becoming common; more than 95 percent mature. Females with eggs range 40-70 percent. (Wis. Ins. Sur.). SOUTH DAKOTA - Adult survey indicates increase in both cropland and rangeland. Heaviest crop infestations in southeastern and south central areas and Haakon County in western section. (Burge). NEBRASKA - *M. differentialis* caused heavy damage to many lawns in Lincoln, Lancaster County. (Rhine). Range 10-20 per square yard, average 17, in rangeland in northern Sheridan County. Dominant species *Phibostroma quadrimaculatum*, *Encoptolophus sordidus costalis*, *Ageneotettix deorum* and *M. sanguinipes*. (Hagen). KANSAS - Annual fall adult survey completed in eastern two thirds of State. Many small isolated infestations. Ranged 8-14 per square yard in Edwards and Kiowa Counties. Light in Sherman, Logan, Wallace, Norton and Phillips Counties and small area in Barber County. Dominant species *M. femurrubrum*, *M. angustipennis*, *M. differentialis*, *M. bivittatus*, *Ageneotettix deorum* and *Hesperotettix speciosus*. (Bell, Honholz). OKLAHOMA - *M. differentialis* damaging ornamental yucca plants in Pryor, Mayes County. (Okla. Coop. Sur., Sept. 10). COLORADO - *M. femurrubrum*, *M. bivittatus*, and *M. lakinus*, continue increase in alfalfa as border weeds dry up. (McLaughlin). UTAH - Still numerous in small areas of Salt Lake and Weber Counties. (Knowlton, Sept. 9). NEW MEXICO - Severely damaging egg plant, tomato, black-eyed peas, potato and sweet corn plantings in truck farm and home gardens in Bernalillo and Sandoval Counties. (N. M. Coop. Rpt.).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Large numbers of moths continue being collected in traps in desert cotton areas. Preparations underway for fall treatment. Emergency treatment applied to one "hot spot." Total collected so far this season: Imperial County; Bard Valley 440 moths, 27 larvae; Imperial Valley 623 moths, 38 larvae. Riverside County; Palo Verde Valley 1829 moths, 149 larvae. San Bernardino County; 22 moths, 1 larva. (Cal. Coop. Rpt.). ARIZONA - New infestations continue to be found in Yuma and Pinal Counties. Populations increasing rapidly in nearly all infested areas of State. (Ariz. Coop. Sur.). NEW MEXICO - Occasional larva found in cotton fields south of Roswell, Chaves County. Heavier in southern Eddy, Dona Ana and Luna Counties. Growers concerned about spread in Luna County. (N. M. Coop. Rpt.).

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Spraying operations for the 1966 diapause control program started September 5, nearly 50,000 acres sprayed during first day. Populations much lighter now than during past few years. Infestations above the Cap Rock very light compared to last year. (Rummel, Sept. 6).

GYPSY MOTH (*Porthetria dispar*) - PENNSYLVANIA - The 1966 trapping program resulted in collection of adult male moths at 60 locations in Bucks, Carbon, Luzerne, Monroe, Northampton, Pike, and Wayne Counties in northeast area. (Jeffery).

JAPANESE BEETLE (*Popillia japonica*) - MICHIGAN - Trap removal completed in Jackson area with 2 additional beetles found; total of 4 taken in area this season. In metropolitan Detroit 2 new finds brought total to 67 beetles from 42 traps. (Moore).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Two adults caught in McPhail trap in a grapefruit tree at residence on Davis Island, Tampa, Hillsborough County, September 13. This new county record. Other adults submitted from McPhail traps in Pinellas and Sarasota Counties and from sticky board trap at Bradenton, Manatee County. Small numbers of larvae collected from common guava in Monroe and Sarasota Counties and at St. Petersburg. Few larvae collected in calamondin, at St. Petersburg. (Fla. Coop. Sur.).

INSECT DETECTION

New State Records

A GRASSHOPPER (*Trimerotropis pallidipennis*) - HAWAII - Collected from irrigation ditch and roadsides bordering sugar plantation at Ewa, Oahu, September 7, 1966. Det by A. B. Gurney, (p. 929).

CARPET MOTH (*Trichophaga tapetzella*) - DELAWARE - Infesting goose feathers in New Castle County. Adults reared June 10, 1966. Det. by D. F. Bray. (p. 926).

New County Records

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - NEVADA - Infesting elm in Elko County. OREGON - Infesting chinese elm in Umatilla County. (p. 924).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Two adults collected in grapefruit tree, Hillsborough County. (p. 927).

WEATHER OF THE WEEK ENDING SEPTEMBER 19

HIGHLIGHTS: (1) Cool most of Nation. (2) Beneficial rains in several drought areas.

TEMPERATURE: Temperatures averaged below normal over most of the Nation. Some large areas in western Nevada, the central Great Plains, the southern Appalachians, and along the middle Atlantic coast averaged 6° or more below normal. A cold front moved southward across the central and eastern portions of the Country bringing a quick change to cooler weather. Temperatures dropped to below freezing at scattered localities from the western edge of the northern Great Plains eastward to New England. In the central cranberry bogs of Wisconsin the temperature fell to 19°. Scattered frost occurred in many low spots, but caused little damage to crops. In contrast to the cool weather prevailing over most of the Nation, two areas averaged warmer than normal. Temperatures averaged slightly above normal from northeastern Minnesota to Upper Michigan and 4° to 6° above normal over north-western Montana. The coldest temperatures of record for so early in the season occurred at scattered stations from the Great Lakes to New England on the 15th and 16th and the warmest temperatures of record for so late in the season were recorded in central Montana where, on Sunday, the mercury climbed to 90° or higher.

PRECIPITATION: Showers and thunderstorms occurred over widely scattered parts of the Nation early in the week. Southern Arizona received an inch or more of rain early in the week. Four to more than six inches fell on Monday and Tuesday from central Alabama to the Florida Panhandle with lesser amounts recorded in nearby areas. The weekend brought the first general rains in several months to Nevada and a few stations received more than 1 inch in 24 hours. For the 7th week, Texas reported general showers over the State. An east coast storm at midweek dropped uniformly heavy rains over the heart of the Northeast Drought Area. Rain started over the southern Appalachians on Tuesday and moved slowly northeastward on Wednesday and Thursday. Amounts totaled 3 to 8 inches over the area extending from the Virginia mountains to central New Jersey and more than 10 inches fell near Thurmont, Maryland. Rains were in the 1-to 2-inch range along the immediate coast while less than 1 inch fell northwest of the mountains. In central New Jersey this was the heaviest weekly rainfall since July 1965; South Mountain, Pennsylvania, reported the heaviest rainfall since November 1952. In Washington, D. C. the immediate threat of a water shortage ended abruptly. The rain fell steadily with little runoff and soil penetrations of 10 to 18 inches were reported. The first snow of the season fell in the northern mountains of Nevada and Utah. Snow also fell at elevations above 7,000 feet in Colorado and at the higher elevations in Montana and Wyoming. (Summary supplied by Environmental Data Service, ESSA).

HAWAII INSECT REPORT

New State of Hawaii Insect Record - A GRASSHOPPER (Trimerotropis pallidipennis) nymphs and adults taken from wild growth in irrigation ditch and road shoulder bordering sugar plantation at Ewa, Oahu, September 7. In follow-up survey, more nymphs and adults taken in area. This new State record. Det. A. B. Gurney. (Nakao).

Insects of Regional Significance - SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) nymphs and adults light to medium in macadamia nut orchard in Haiku, Maui. In Makaweli, Kauai, nymph and adult populations increasing. Parasites observed in area. (Takishita, Au).

Pastures - A BILLBUG (Sphenophorus venatus vestitus) All stages generally light in approximately 1000 acres of Kikuyu grass pasture at ranch in Kohala, Hawaii Island. (LaPlante, Lyman, Garcia).

Fruits - A MEALYBUG (Pseudococcus obscurus) None found during general survey in 200 acres of passion fruit in Kahului, Maui. Cryptolaemus montrouzieri (an introduced lady beetle) aided in controlling mealybug population. Insecticide spraying curtailed when lady beetles released in orchard in June, 1966. (Miyahira, Leon-Guerrero). GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) All stages very heavy on foliage of approximately 100 plum trees in Kula, Maui at 4,000 feet elevation. About 25 nymphs and 20 adults per leaf. (Miyahira, Funasaki, Hashimoto). FULLER ROSE BEETLE (Pantomorus godmani) numerous adults noted among leaves of apple trees in Kula, Maui at 3,000 feet elevation. Adults caused moderate foliar damage. (Funasaki).

Ornamentals - WESTERN FLOWER THRIPS (Frankliniella occidentalis) generally light in carnation growing areas in Kula, Maui at 3,000 to 4,000 feet elevation. Averaged 5 per blossom in older, neglected flowers. (Miyahira, Funasaki). Undetermined species of LEAFCUTTING BEE damaging ornamental roses at Waianae, and Lanikai, Oahu and Kula, Maui. (Funasaki).

Man and Animals - MOSQUITOES during August, 46 light trap stations on Oahu collected 339 Aedes vexans nocturnus and 4,774 Culex pipiens quinquefasciatus (Mosquito Cont. Branch, Dept. of Health).

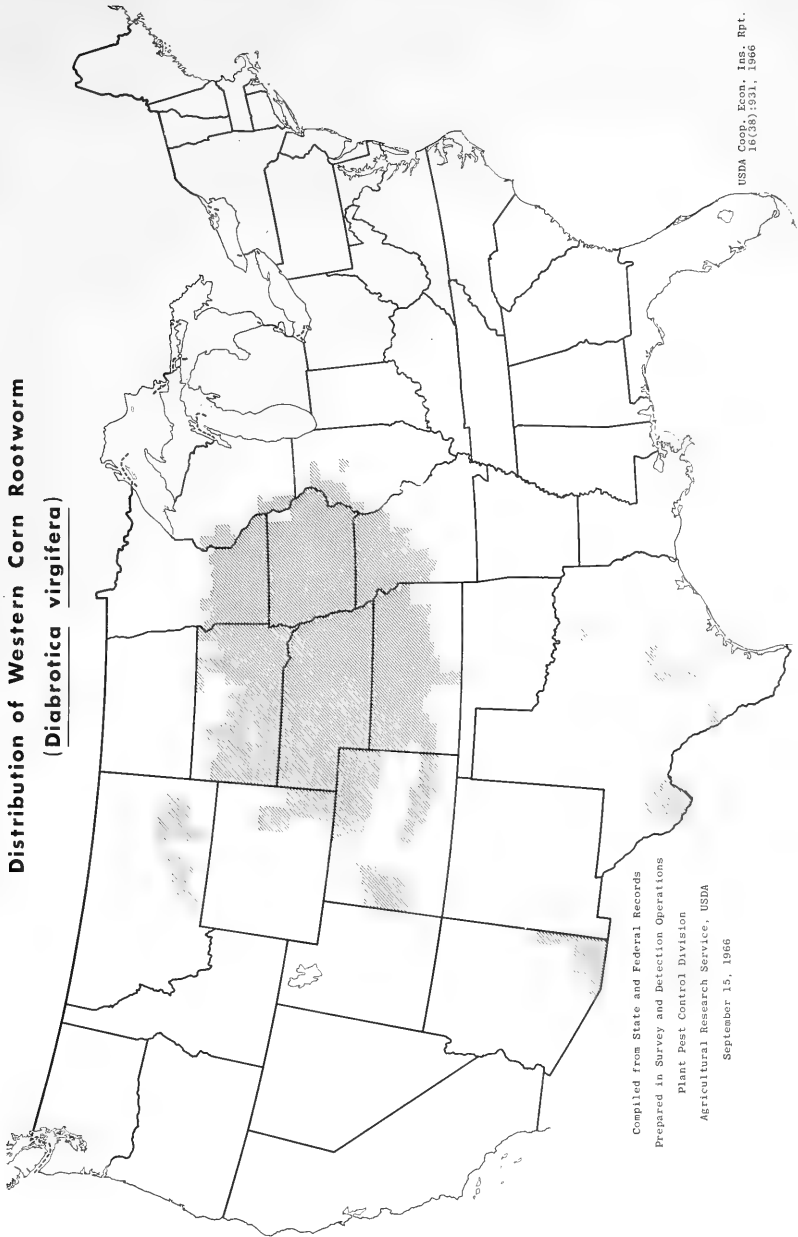
Household and Structures - FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus). Live termites found in Wailuku Post Office grounds on Maui. Infestations in wooden peg and pieces of wood lying on ground. Area spot-treated and bait staked. Post office on same property where species first discovered 3 years ago. To date, infestations found on Maui in Wailuku, Kahului, and Waikapu. (Miyahira). A CARPENTER BEE (Xylocopa sonorina) very active on Maui, infesting a government building in Wailuku and fence posts in Kipahulu. (Funasaki, Miyahira).

Beneficial Insects - A TORTRICID MOTH (Aptoforma sp.) larvae infesting approximately 1,000 acres of blackberry in the Waiakamoi Forest Reserve, Maui, elevation 4,200 feet; 80 percent of terminal leaves attacked. (Miyahira, Asam, Funasaki). A CERAMBYCID BEETLE (Plagiohammus spinipennis) heavy population of larvae, ranging in size from 6mm-25mm, in lantana plants at Kukui Paddock in Kau, Hawaii Island. (Harley). A LEAF MINING HISPID (Uroplata girardi) adults light on latana foliage at Kukui Paddock in Kau, Hawaii Island. Approximately 12 adults were observed in the area. Larval mines negligible. (Harley).

CORRECTIONS

CEIR 16(37):897 - A WEEVIL (Compsus suricephalus) should read auricephalus.

Distribution of Western Corn Rootworm
(*Diabrotica virgifera*)



Compiled from State and Federal Records
Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
September 15, 1966

USDA Coop. Econ. Ins. Rpt.
16(38):931, 1966



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

EUROPEAN CORN BORER infesting nearly 100 percent of corn in some eastern Nebraska fields. (p. 935). RED-NECKED PEANUTWORM heavy on peanuts in central Texas. (p. 937). BOLLWORMS continue economic in Alabama, Mississippi, Arkansas, Oklahoma, Arizona and California. Egg deposition heavy in Mississippi and Arkansas. (p. 938).

BLACK PECAN APHID increasing and causing damage to pecans in central and southern Alabama. Heavy on pecans in Houston, Hill, Erath and Val Verde Counties, Texas. (p. 940). Large populations of WHITE APPLE LEAFHOPPER damaging apples in Berrien and Kent Counties, Michigan. (p. 940).

HORN FLY heavy in Oklahoma and Texas. (p. 943).

New infestations of PINK BOLLWORM found in Yuma, Graham and Maricopa Counties, Arizona, and Coachella Valley in California. RANGE CATERPILLAR collected in Lincoln County, New Mexico; this new county record and farthest southern record in State. (p. 944). Treatment program completed for MEDITERRANEAN FRUIT FLY in Texas. (p. 945).

Detection

● EUROPEAN CRANE FLY reported from Blaine, Washington; first record for United States. (p. 946).

BERMUDAGRASS MITE reported for first time in Hawaii. (p. 948).

For new county records see page 946.

Special Reports

Background information of European Crane Fly. (p. 949).

Distribution of Northern Corn Rootworm. (p. 950).

Survey for Heliothis Moths in Arkansas. (p. 951).

CONTENTS

Special Insects of Regional Significance.....	935
Insects Affecting	
Corn, Sorghum, Sugarcane.....	935
Small Grains.....	936
Turf, Pastures, Rangeland.....	936
Forage Legumes.....	936
Soybeans.....	937
Peanuts.....	937
Cotton.....	938
Potatoes, Tomatoes, Peppers.....	938
Beans and Peas.....	938
Cole Crops.....	939
Cucurbits.....	939
General Vegetables.....	939
Deciduous Fruits and Nuts.....	940
Citrus.....	940
Other Trop. & Subtrop. Fruits.....	941
Small Fruits.....	941
Ornamentals.....	941
Forest and Shade Trees.....	942
Man and Animals.....	942
Households and Structures.....	943
Stored Products.....	943
Beneficial Insects.....	944
Federal and State Plant Protection Programs.....	944
Insect Detection.....	946
Corrections.....	946
Light Trap Collections.....	947
Hawaii Insect Report.....	948
European Crane Fly (<u>Tipula paludosa</u> Meigen).....	949
Distribution of Northern Corn Rootworm (Map).....	950
Survey for <u>Heliothis</u> Moths in Arkansas.....	951

WEATHER OF THE WEEK ENDING SEPTEMBER 26

HIGHLIGHTS: (1) More heavy rains East. (2) Third cool week East; third warm week, Montana area.

TEMPERATURE: Bright sunny skies prevailed over most of the western half of the United States. Temperatures climbed to the 90's over parts of Montana on several days, and much of the Great Basin warmed to 90° or higher on Thursday. Boise and Lewiston, Idaho, each registered 99°, a new record for so late in the season. Cooler air moved into the Northwest during the weekend. Cool weather continued over the East for the third consecutive week. Maximum temperatures ranged from the 50's and 60's along the eastern half of the Canadian border to the 80's along the gulf coast. Temperatures plunged to the upper 20's early Monday morning in parts of Wisconsin and Michigan. Lansing, Michigan, set a new September record, registering 27°. Weather continued on page 939.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - UTAH - Still severe in Delta, Sutherland and Hinckley areas of Millard County; alfalfa hay blackened. (Knowlton, Sept. 19). Light on alfalfa in Midvale area of Salt Lake County. (Knowlton). WYOMING - Continues very light, 2-5 per 10 sweeps on alfalfa in Laramie, Goshen and Platte Counties. Sexual forms present in Goshen County. (Marks). COLORADO - Decreased rapidly on alfalfa in Arkansas Valley; 0-1,000 per 100 sweeps. (Schweissing, Sept. 22). Populations low but well distributed on Western Slope, including Garfield County. (Bulla). NEBRASKA - Light in Custer County; however, heavy in one field near Anselmo, with over 70 aphids per sweep. Severe stunting and yellowing observed. (Manglitz). SOUTH DAKOTA - Low, 3-25 per 100 sweeps on alfalfa in north central and east central areas. Alates taken at Agar, Sully County; Firesteel, Dewey County; Mobridge, Corson County; and Wallace, Codrington County. These new county records. (Jones).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ALABAMA - Medium to heavy on grain sorghum in Baldwin County. (McQueen). INDIANA - Occasional colony present on late corn in northern third of State. (Huber). SOUTH DAKOTA - Common on green corn ears in north central and east central areas. Up to several hundred per ear. Lady beetle larvae, 1-2 per ear, feeding on aphids. (Jones).

CORN EARWORM (*Heliothis zea*) - MARYLAND - Moths decreased in blacklight traps at Snow Hill, Worcester County. Soybean pod infestations light on lower Eastern Shore. (U. Md., Ent. Dept.). SOUTH CAROLINA - Still causing pod damage in some counties. Increased in Greenville, Sumter, Lee, Marlboro, Orangeburg, Fairfield and Allendale Counties. (Thomas, Kissam, Sept. 20). FLORIDA - Heavy on sorghum at Live Oak, Suwannee County. Det. by D. H. Habeck. (Crews). TENNESSEE - Heavy on soybeans south and west of Jackson, Madison County. May infest late soybeans. (Johnson, Sept. 19). INDIANA - Adult trap catches heaviest this season in following counties: Posey 198; Harrison 421; Jackson 529. (Huber). OKLAHOMA - Ranged 2-9 (average 6) per 10 sweeps in alfalfa in Payne County. Moderate in sorghum in Cleveland County. (Okla. Coop. Sur.). COLORADO - Egg counts continue zero on tomatoes in Arkansas Valley, moth flights low. Harvest about complete. (Schweissing, Sept. 22).

ARMYWORM (*Pseudaletia unipuncta*) - TEXAS - Heavy in several pastures and lawns near Athens, Henderson County. Buildup expected to continue until frost. (Hoffman).

TOMATO HORNWORM (*Manduca quinquemaculata*) - WISCONSIN - Larvae continue low on late tobacco in Dane County. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - OHIO - Severe on sweet corn and Indian corn in central and southeastern areas; up to 100 percent stalks infested in Washington County. Highest field corn infestation, 30 percent in Pickaway County. (Rose, Sept. 16). MISSOURI - Average percent infestation and average number of borers per 100 plants, respectively by county: Pemiscot 48.0, 128.0; New Madrid 74.4, 245.6; Mississippi 64.0, 133.6; Scott 53.6, 198.4. (Munson). NEBRASKA - Infestations heavy in late corn. Some fields nearly 100 percent infested in eastern section; harvest losses will be significant. (Roselle).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - MISSOURI - Average percent girdled stalks by county: Pemiscot 25.6, New Madrid 36.0, Mississippi 34.4, Scott 13.6. Collected for first time in Bollinger County September 16. (Munson).

CORN ROOTWORMS (*Diabrotica* spp.) - WISCONSIN - *D. longicornis* adults still present in late corn and alfalfa in reduced numbers. (Wis. Ins. Sur.). NEBRASKA - *D. virgifera* adults decreasing in eastern area. Most females appear gravid. (Roselle).

FIELD CRICKETS (*Gryllus* spp.) - INDIANA - Adults extremely abundant in corn, soybeans, and roadside areas throughout northern half of State. Up to 20 per square foot in some areas. (Chandler, Huber).

SPIDER MITES (*Tetranychus* spp.) - UTAH - Severely discolored corn foliage in Brigham City and Tremonton area of Box Elder County. (Knowlton, Sept. 19). Damaging corn throughout Sevier County. (Knowlton, Rickenback).

SMALL GRAINS

GARDEN WEBWORM (*Loxostege similalis*) - TEXAS - Heavy in field of young wheat near Sunray, Sherman County; 50 of 320 acres destroyed. (Cross).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (*Spodoptera frugiperda*) - TEXAS - Buildup continues in eastern portion of State; moderate to heavy in Kaufman, Henderson, and Gillespie Counties on pastures, lawns, and small grains. Buildup expected to continue until frost. (Hoffman, Roberts).

WHITE-LINED SPHINX (*Celerio lineata*) - COLORADO - Larvae abundant along highways, ditches and field margins in southeastern area. (Hantsbarger, Sept. 15).

GREEN JUNE BEETLE (*Cotinis nitida*) - OKLAHOMA - Larvae heavy and damaging turf in small areas in Tulsa County. (Okla. Coop. Sur.).

GREENBUG (*Schizaphis graminum*) - TEXAS - Scarce on western wheatgrass in some panhandle counties during summer as follows: Armstrong in June, Swisher in July, Ochiltree in August. (Daniels).

FORAGE LEGUMES

ALFALFA CATERPILLAR (*Colias eurytheme*) - SOUTH DAKOTA - Up to 65 larvae per 100 sweeps on alfalfa in north central and east central areas. (Jones). COLORADO - Found in alfalfa in all areas of Arkansas Valley; 0-1,000 per 100 sweeps. Highest in some new stands. (Schweissing, Sept. 22). UTAH - Stripping fields of alfalfa in Saint George and Washington areas, Washington County. (Knowlton). ARIZONA - Larvae increasing and damaging alfalfa in Kansas Settlement area of Cochise County and Buckeye and Chandler areas of Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Larvae 8-10 per 25 sweeps in Chaves County alfalfa. Adults numerous in some fields. (Mathews).

GREEN CLOVERWORM (*Plathypena scabra*) - OKLAHOMA - Averaged 7 per 10 sweeps on alfalfa in Cotton County. Ranged 1-10 (average 4) per 10 sweeps in Payne County. (Okla. Coop. Sur.).

GARDEN WEBWORM (*Loxostege similalis*) - ARIZONA - Larvae 45 per 100 sweeps on alfalfa in Roll and Mohawk areas, Yuma County. (Ariz. Coop. Sur.).

PEA APHID (*Acyrtosiphon pisum*) - OHIO - Increased in alfalfa after long period of scarcity; 24-190 per sweep. (Rose). INDIANA - Ranged 8-26 per sweep on alfalfa in northern third of State. (Huber). SOUTH DAKOTA - Ranged 200-500 per 100 sweeps on alfalfa in north central and east central counties. (Jones). WYOMING - Increased slightly on alfalfa in Laramie, Goshen, Platte and Converse Counties. Adults and nymphs 225-250 per 10 sweeps. (Marks). COLORADO - Decreased in alfalfa in Arkansas Valley; 0-900 per 100 sweeps. (Schweissing, Sept. 22). NEW MEXICO - Light to moderate in some alfalfa in Roswell area, Chaves County. (Mathews). WASHINGTON - One per 15 sweeps at Prosser, Benton County; one per 5 sweeps at Pasco, Franklin County; one per 50 sweeps at Walla Walla, Walla Walla County. All alates on forage alfalfa. (Halfhill).

LYGUS BUGS (*Lygus* spp.) - WASHINGTON - Adults and nymphs 1 per 3 sweeps on alfalfa at Prosser, Pasco, and Walla Walla. (Halfhill). OHIO - *L. lineolaris* continues common plant bug on alfalfa; up to 3 per sweep. (Rose).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - NEW MEXICO - Adults 4-6 per 25 sweeps in alfalfa near Roswell, Chaves County. (Mathews). ARIZONA - Heavy populations appearing on alfalfa in Cochise area, Cochise County; lighter in other areas. (Ariz. Coop. Sur.).

SOYBEANS

GREEN CLOVERWORM (*Plathypena scabra*) - SOUTH CAROLINA - This species and loopers building up on soybeans in Colleton, Lee, Darlington, Marlboro, and Allendale Counties. (Thomas, Kissam, Sept. 20). TENNESSEE - Extremely low on soybeans; probably between generations. Several appear to have been killed by virus. (Johnson, Sept. 19).

CABBAGE LOOPER (*Trichoplusia ni*) - ALABAMA - Heavy, widespread populations feeding on soybean foliage throughout Geneva County. (Smith).

FALL ARMYWORM (*Spodoptera frugiperda*) - TEXAS - Damaging numbers observed on soybeans in extreme northeastern portion of State. Buildup expected to continue until frost. (Hoffman, Roberts).

BEAN LEAF ROLLER (*Urbanus proteus*) - FLORIDA - Moderate on 60-acre field of soybeans at Brooksville, Hernando County. (Strayer).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatilis*) - ALABAMA - Damaged 150 acres of soybeans in Geneva County; controls required. (Reynolds).

A NOCTUID MOTH (*Pseudoplusia includens*) - FLORIDA - Adults and larvae taken on soybeans at Gainesville, Alachua County. Presumably this species, heavy on soybeans north of Gainesville; controls applied. (Mead, Andrews). This and *Anticarsia gemmatilis* abundant on soybeans in western section, but now under natural control by fungus, probably *Spicaria rileyi*. (Strayer).

STINK BUGS - TENNESSEE - Increasing on soybeans. (Johnson, Sept. 19). NORTH CAROLINA - *Acrosternum hilare*, *Euschistus servus* and other species continue to increase on soybeans in Johnston, Wayne, Beaufort and Washington Counties. Averaged 8.25 per 25 feet of row in 12 fields compared to 6.3 last week and 3.8 two weeks ago. (Mount). SOUTH CAROLINA - Activity of unspecified species increased on soybeans in Allendale, Colleton, Greenville, Lee, Darlington, Marlboro, Williamsburg, and Bamberg Counties. (Thomas, Kissam, Sept. 20). FLORIDA - *Nezara viridula* and *E. servus* moderate to heavy in 120 acres of soybeans at Brooksville, Hernando County. (Strayer). MISSISSIPPI - *A. hilare* remains at high level in scattered soybean fields in south and central Delta area. (Dinkins).

PEANUTS

A BURROWING STINK BUG (*Pangaeus* sp.) - ALABAMA - Adults and nymphs continue medium and widespread in peanut fields in Geneva County. (Smith).

NEGRO BUG (*Corimelaena pulicaria*) - FLORIDA - Damage resulted in 3 percent dockage to value of harvested peanuts in Holmes County. (Strayer, Sept. 12).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - TEXAS - Numbers high in every peanut field checked in Hill, Erath, Comanche and Houston Counties. (Parker et al.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Destroying young fruit in unprotected fields. (Cott. Ltr., Sept. 19). ALABAMA - Continues heavy in many northern counties; controls still required. (Pitts et al.). MISSISSIPPI - Live weevils found in white blooms and young squares. Some movement to soft bolls; all punctures and feeding in concentrated areas in Tallahatchie, Leflore, Holmes, Washington, and Sharkey Counties. (Dinkins, Sept. 23). ARKANSAS - Heavier in extreme northeast area than in any year since 1957; controls continue. (Boyer). OKLAHOMA - Percent punctured squares averaged 70 in untreated cotton in Tillman County, 15 in treated cotton in Cotton County. Heavy in Jackson County, moderate in Cleveland County. (Okla. Coop. Sur.).

For Boll Weevil in Western States, see page 944.

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Damage to maturing bolls decreased slightly due to increased attraction to soybeans. (Cott. Ltr., Sept. 19). ALABAMA - Continue serious in cotton in some northern counties. (Robinson et al.). MISSISSIPPI - Small larvae of H. zea and H. virescens found in terminals of green cotton; 5 per 100 terminals. Eggs 30-40 per 100 terminals in green cotton. (Dinkins, Sept. 23). ARKANSAS - Large numbers of moths present in most fields. Egg deposition heavy, eggs appear fertile; however, few larvae developing. Of Heliothis larvae collected in Jefferson County in August, 3.26 percent H. virescens. (Boyer). OKLAHOMA - Averaged 7 per 100 terminals in cotton in Cotton County. (Okla. Coop. Sur.). ARIZONA - H. zea heavy throughout Maricopa, Pinal and Pima Counties; lighter in other counties. (Ariz. Coop. Sur.). CALIFORNIA - Continue economic problem in some Imperial County cotton. (Campbell, Sept. 16).

CABBAGE LOOPER (Trichoplusia ni) - ARKANSAS - Virus disease greatly reduced larval numbers; eggs very numerous past two weeks but larvae low. (Boyer).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Leaf damage heavy in Yuma, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). CALIFORNIA - Activity increased in Imperial County during August; presently decreasing. (Campbell, Sept. 16).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Light to moderate in most areas of Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

STINK BUGS - CALIFORNIA - Populations on cotton declined since mid-August in Imperial County. (Campbell, Sept. 16).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Considerable increase in damage reported in several northern counties, especially De Kalb County. (Robinson, Burton).

POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - CALIFORNIA - Heavy on potatoes in Escondido, San Diego County. (Cal. Coop. Rpt.). UTAH - Light on potatoes in Iron and Washington Counties; 1 larva per 100 pounds. (Knowlton, Hall, Sjoblom).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - WYOMING - Ranged 10-50 per 10 sweeps in Goshen County field beans. Most beans cut. (Marks).

AN APHID (Smynturodes betae) - NEW YORK - Seriously damaged one acre of beans in 8-acre field in Yates County September 19, 1965. Det. by M. D. Leonard. (Leonard).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Moderate to heavy on cabbage in Pecos County. Damage moderate to collard greens in several gardens in Groveton, Trinity County. (Lang, Neeb). NEW MEXICO - This species and imported cabbageworm light to heavy, damaging cabbage and cauliflower in Albuquerque area, Bernalillo County, and in Los Lunas area, Valencia County. (Heninger). OKLAHOMA - This and southern cabbageworm moderate on turnip foliage in Payne County. (Okla. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - OKLAHOMA - Heavy and damaging turnip foliage in Payne County. (Okla. Coop. Sur.).

HARLEQUIN BUG (Murgantia histrionica) - WYOMING - Adults and nymphs caused local heavy damage to leaves of radish and cabbage at Wheatland, Platte County. (Robb, Marks, Aug. 12). Other records include Laramie September 1 and Pine Bluffs September 9, 1960, and Laramie August 21, 1966. (Fronk).

FIELD CRICKETS (Gryllus spp.) - ARIZONA - Controls necessary on young lettuce in Yuma Valley. (Ariz. Coop. Sur.).

CABBAGE MAGGOT (Hylemya brassicae) - WISCONSIN - Serious on cole crops in Ashland County. (Wis. Ins. Sur.).

CUCURBITS

SQUASH BUG (Anasa tristis) - NEW MEXICO - Light to moderate on squash causing serious problem in truck gardens and home gardens in Albuquerque area, Bernalillo County. (Heninger).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - MICHIGAN - Total of 38 adults taken in black-light traps in Newaygo, Macomb, Lenawee and Gratiot Counties; heaviest counts of season. Collections from other counties insignificant. (Newman). COLORADO - Damaging lettuce in Otero County. Infestation 0-65 (average 27) percent. (Schweissing).

Weather continued from page 934.

PRECIPITATION: Heavy rains fell over the Southeast on Monday and over the Middle Atlantic States and Northeast on Tuesday and Wednesday. More than 5.5 inches fell at Central Park, New York City, on Wednesday; the heaviest rain at that location in 63 years. The rains drenched much of the Northeast and ended the agricultural drought in some areas. A cold front, stretching from the central Rocky Mountains eastward to the Atlantic Ocean, produced light rains from Wyoming to New York on Saturday and Sunday. Precipitation was of little consequence over other parts of the Nation. Light snow fell in northern New England late in the week, accumulating up to 2 inches on the higher mountains in New Hampshire. (Summary supplied by Environmental Data Service, ESSA).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - Heavily damaged apple and pear orchards in Bernalillo, Sandoval and Valencia Counties where sprays improperly timed or neglected. (Heninger).

PEACH TWIG BORER (Anarsia lineatella) - NEW MEXICO - Severely damaged terminals of young peach trees at Corrales, Sandoval County. (Heninger)

APPLE-AND-THORN SKELETONIZER (Anthophila pariana) - CALIFORNIA - Larvae medium on apple trees in Fortuna, Humboldt County. (Cal. Coop. Rpt.).

ORCHARD MITES - MICHIGAN - Panonychus ulmi adults and nymphs still abundant in many southwest area apple and plum orchards. Winter eggs common on twigs and on calyx of apples. (Wooley). Adults and nymphs of undetermined eriophyid mites common on overwintering buds of Montmorency cherries in some Grand Traverse County orchards; may be associated with dead branches. (Wooley, McManus, Kessner). OHIO - Numerous overwintering eggs of P. ulmi observed on apple branches in orchard in Licking County; expected over entire State. (Rose). NEW MEXICO - Tetranychus mcdanieli causing damage to apple foliage in Bernalillo and Lincoln Counties. (N. M. Coop. Rpt.). CALIFORNIA - Aculus cornutus medium on nectarine trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - MICHIGAN - Feeding injury by large populations of adults and nymphs caused leaf chlorosis on apples in Berrien and Kent County orchards. Honeydew and sooty fungus discolored fruit and foliage. (Wooley, Carpenter, Klackle).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Adults damaged ripe peaches, reducing grade from number 1 to number 2 in orchard in Clark County. (Shanks, Sept. 6).

BLACK PECAN APHID (Myzocallis caryaefoliae) - TEXAS - Heavy on many pecan trees in Houston, Hill, Erath and Val Verde Counties. Unusually heavy throughout pecan-growing areas of State. (Horne, Parker). ALABAMA - This and yellow species increasing and damaging pecans in central and southern areas. Shedding of leaves continues in Barbour, Covington, Bulter, Mobile, and other counties. (Walton et al.).

AN APHID (Monellia caryae) - MARYLAND - Light on black walnut at La Vale, Allegany County. (U. Md., Ent. Dept.).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Heavy on pecans in extreme southeast area. (Boyer).

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Heavy and defoliating pecan trees in Payne County. (Okla. Coop. Sur.). TEXAS - Light to moderate on pecans in Jefferson and Eastland Counties. (Weaver, Thomas).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Larvae emerging from nuts in Payne County; moderate in Mayes County. (Okla. Coop. Sur.). TEXAS - First adults noted week ending September 16 near Valley View, Cooke County. (Texas Coop. Rpt.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Larvae heavy in walnuts in Petalum, Sonoma County; populations variable in other walnut-growing areas. (Cal. Coop. Rpt.).

CITRUS

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Continues to damage citrus in nurseries in Yuma County. Consistent controls necessary to protect young citrus. (Ariz. Coop. Sur.).

FALSE SPIDER MITES (Brevipalpus spp.) - ARIZONA - B. lewisi increasing on Yuma Mesa citrus, Yuma County; controls applied. (Ariz. Coop. Sur.). FLORIDA - B. phoenicis moderate on 450 orange trees in Hillsborough County. (Simmons, Sept. 12).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Severe on 25 percent of 7,425 orange trees in nursery in Ferndale, Lake County. (Fatic).

OTHER TROP. & SUBTROP. FRUITS

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae damaging avocado tree nursery stock in Bonsall, San Diego County. Larvae feeding under grafting tape on budded trees. (Cal. Coop. Rpt.).

SMALL FRUITS

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Infesting grape in Gainesville, Alachua County. (Mead, Sept. 11). Troublesome on grape in Santa Rosa County. (Strayer).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - CALIFORNIA - Infesting strawberry plants in Highlands, San Bernardino County. (Cal. Coop. Rpt.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Heavy on wild blackberry thickets in Walnut Grove, Sacramento County. (Cal. Coop. Rpt.).

ORNAMENTALS

SALT-MARSH CATERPILLAR (Estigmene acrea) - FLORIDA - Moderate on 150 palms (Phoenix roebelenii) inspected in nursery in Davie, Broward County. Larvae cutting new growth out of tops of palms. (Shirah, Sept. 16).

GENISTA CATERPILLAR (Tholera reversalis) - CALIFORNIA - Larvae heavy on genista plants in Ventura, Ventura County. (Cal. Coop. Rpt.).

A SWALLOWTAIL BUTTERFLY (Papilio philenor) - ARIZONA - Larvae damaging flowers and lawns in Tucson area, Pima County. (Ariz. Coop. Sur.).

SCALE INSECTS - CALIFORNIA - Saissetia coffeae medium on fern nursery stock in South San Francisco, San Mateo County. (Cal. Coop. Rpt.). NEW MEXICO - Unaspis euonymi killing established plants in many areas of Albuquerque. Residents removing infested plants rather than continue unsuccessful controls. (Heninger). FLORIDA - Ceroplastes ceriferus moderate to severe on podocarpus at nursery in Fellowship, Marion County. (Holder, Sept. 15).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Heavy on Lantana camara nursery stock in nursery at Chula Vista, San Diego County. (Cal. Coop. Rpt.).

A CONIFER APHID (Cinara tujafilina) - NEVADA - Heavy on arborvitae with much honeydew present in Reno, Sparks area, Washoe County. (Hilbig).

A WEEVIL (Brachyrhinus cribricollis) - ARIZONA - Damaging roots of privet hedges in Tucson, Pima County. (Ariz. Coop. Sur.).

BOXELDER BUG (Leptocoris trivittatus) - TEXAS - Moderate to heavy on many shade trees and ornamental plants in southern portion of Hood County. (Hillman).

FOREST AND SHADE TREES

ELM LEAF BEETLE (*Pyrrhalta luteola*) - UTAH - Defoliated about 25 percent of elm trees at Kanab, Kane County. (Knowlton, Lindsay). NEW MEXICO - Serious on elm trees in Albuquerque area Bernalillo County. Damage more common on Chinese elm than other elms. Some homeowners removing Chinese elm trees because of this pest. (Heninger). TEXAS - Light on most Chinese elms in Upton County. (Day).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - MICHIGAN - Second-brood adults active in Lower Peninsula, causing twig drop. (Wallner). CALIFORNIA - Adults medium on evergreen elm in Riverside, Riverside County. (Cal. Coop. Rpt.).

LOCUST BORER (*Megacyllene robiniae*) - OHIO - First adults of season observed September 8 on goldenrod in black locust plots in Delaware County. (Wollerman).

CATALPA SPHINX (*Ceratomia catalpae*) - OHIO - Severely defoliating catalpa trees in areas of Franklin and Delaware Counties; widespread defoliation observed in several north central counties. (Rose, Galford).

PAINTED MAPLE APHID (*Drepanaphis acerifoliae*) - NEVADA - Light on maple in nurseries in Reno, Sparks area; light to medium and increasing in southern Washoe County. (Bechtel, Hilbig).

CICADAS (*Tibicen* spp.) - ALABAMA - Extremely heavy adult emergence noted in Mobile, Baldwin, and other coastal counties. (Turner et al.).

PIGEON TREMEX (*Tremex columba*) - MICHIGAN - Ovipositing females active on diseased and weakened elms in Mason, Kent, Wayne and Monroe Counties. (Wallner).

LARCH SAWFLY (*Pristiphora erichsonii*) - NEW JERSEY - Oviposition injury noted on Japanese larch (*Larix leptolepis*) on Rutgers University campus at New Brunswick. Defoliation very light. (Drooz, Aug. 30).

SPRUCE GALL APHIDS (*Adelges* spp.) - RHODE ISLAND - *A. cooleyi* and *A. abietis* appear more evident over entire State than in recent years. (Veilleux, Mathewson).

A FLATHEADED BORER (*Chrysobothris* sp.) - MICHIGAN - Larvae injured red pine and jack pine stands in Oscoda, Kalkaska, Crawford, Grand Traverse and Wexford Counties. Infestations light, not more than 5 percent of trees attacked in 2 years. (Wilson, Flink).

MAN AND ANIMALS

MOSQUITOES - FLORIDA - *Aedes aegypti* heavy on 10-15 percent of properties inspected in Gainesville, Alachua County. Eradication program underway in area. (Fla. Coop. Sur.). LOUISIANA - Larval collections in Jefferson Parish contained *A. triseriatus*, *Culex pipiens quinquefasciatus*, *C. salinarius*, *Psorophora ciliata*, *P. con-finnis*, *A. sollicitans*, *A. taeniorhynchus*, and *P. confinnis* increased throughout Parish. *Mansonia perturbans* population decreased sharply on west bank of Mississippi River. (Stokes). MINNESOTA - *A. vexans* continues dominant in light traps, larval collections and evening bite collections. In 1,059 larval collections, 680 were *A. vexans*, 184 *C. restuans*, 160 *C. pipiens*, 159 *C. territans*, 42 *C. salinarius* and 85 *Culiseta inornata*. (Minn. Ins. Rpt.). UTAH - Mosquitoes declined in Rich County areas. Still annoying in Cache Valley, Cache County. (Roberts, Knowlton). Population buildups occurred following recent flooding in Box Elder and Salt Lake Counties. (Knowlton, Sept. 19).

FACE FLY (*Musca autumnalis*) - UTAH - Annoying horses and cattle in Tremonton, Willard area of Box Elder County and Hyrum, Lewiston area of Cache County. (Knowlton, Sept. 19). Annoying horses in Midvale area of Salt Lake County; this new county record. (Knowlton, Sept. 23). WISCONSIN - Annoying Richland County cattle. (Wis. Ins. Sur.).

HOUSE FLY (Musca domestica) - WISCONSIN - Causing concern by seeking hibernation quarters in houses. (Wis. Ins. Sur.). ARKANSAS - Infestations continue heavy, especially in poultry-producing areas. (Roberts). OKLAHOMA - Ranged 15-20 per Scudder grid in untreated barns in Payne County. Continues to enter homes in many areas. (Okla. Coop. Sur.). UTAH - Troublesome about many homes and farms in Cache, Box Elder, Weber, Salt Lake, and Kane Counties. (Knowlton, Sept. 19).

HORN FLY (Haematobia irritans) - TEXAS - Heavy on cattle in Reagan, Crockett, Glasscock, and Van Zandt Counties. Populations exceptionally heavy due to unusually wet, late summer. (Neeb, Parker). OKLAHOMA - Ranged 750-1,000 per head on steers in Payne County. Moderate on cattle in Mayes County. (Okla. Coop. Sur.). WYOMING - Continues annoying cattle in Laramie, Goshen and Platte Counties; 75-100 per side. (Marks). UTAH - Still troublesome but numbers decreasing in central and northern areas. (Knowlton, Sept. 19).

SCREW-WORM (Cochliomyia hominivorax) - Total of 72 cases reported in U. S. September 18-24 as follows: TEXAS - 1 each in Hudspeth, Culberson, Crockett, Schleicher, Sutton, Real, Kendall, Hays, Medina, Frio, Webb, Duval, Hidalgo; Jeff Davis 2, Presidio 14, Brewster 4, Pecos 2, Terrell 3, Val Verde 3, Kinney 2, Bandera 3, Jim Hogg 2. NEW MEXICO - Eddy 1, Luna 3. ARIZONA - Graham 1, Cochise 4, Yavapai 3, Yuma 2, Mohave 4. CALIFORNIA - Riverside 1, San Diego 5. Total of 359 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 20, Sonora 195, Chihuahua 115, Coahuila 5, Nuevo Leon 8, Tamaulipas 16. Total of 464 reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining populations in U. S. Sterile screw-worm flies released: Texas 10,076,250, New Mexico 5,672,000, Arizona 21,684,000, California 600,000, Mexico 88,492,000. (Anim. Health Div.).

HORSE BOT FLY (Gasterophilus intestinalis) - OKLAHOMA - Adults heavy and annoying horses in Payne County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Larvae continue numerous, annoying cattle and people in southeast area. Nymphs and adults scarce. (Okla. Coop. Sur.).

TROPICAL RAT MITE (Ornithonyssus bacoti) - OKLAHOMA - Causing annoyance in several homes in Oklahoma County. (Okla. Coop. Sur.).

A BROWN SPIDER (Loxosceles reclusus) - OKLAHOMA - Increased activity reported in many areas of State. (Okla. Coop. Sur., Sept. 17).

HOUSEHOLDS AND STRUCTURES

A FALSE POWDER-POST BEETLE (Polycaon stouti) - CALIFORNIA - Larvae and pupae heavy in oak veneer in plywood company in Los Angeles, Los Angeles County. Probably this species in Japanese ash hardwood cabinets at residence in Newberry Park, Ventura County, and light in furniture at residence in Rohnert Park, Sonoma County. (Cal. Coop. Rpt.).

STORED PRODUCTS

WEBBING CLOTHES MOTH (Tineola bisselliella) - TEXAS - Moderate to heavy in many wool and mohair warehouses in western sheep and goat raising area. Larvae feeding inside stored bags of wool and mohair. (Gray).

CIGARETTE BEETLE (Lasioderma serricorne) - FLORIDA - Infesting stored food products in warehouse in Tampa, Hillsborough County. (Clay).

BEAN WEEVIL (Acanthoscelides obtectus) - CALIFORNIA - Medium in stored beans in Placerville, El Dorado County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

A PUNCTURE-VINE SEED WEEVIL (Microlarinus lareynii) - NEW MEXICO - Conditions ideal for growth of puncture-vine and development of weevil. High population of grubs in maturing seeds in Las Cruces area. (N. M. Coop. Rpt.).

A BRACONID (Apanteles sp.) - MISSOURI - Parasitizing 85 percent of webworms (Loxostege spp.) in alfalfa field in northwest area. Det. by B. Puttler. (Munson).

A SCOLIID WASP (Scolia dubia) - OKLAHOMA - This white grub parasite common in eastern areas for past 3 weeks, commonly seen flying over lawns. (Okla. Coop. Sur.).

Beneficial Insects in Cotton - CALIFORNIA - Lacewings, big-eyed bugs, spiders and assassin bugs dominant in Imperial County; Orius spp. and Collops spp. light. Spiders most abundant. (Campbell, Sept. 16).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - MONTANA - Adults moderate to heavy in south central, north central and southeastern counties. Melanoplus sanguinipes dominant. Ranged 15-20 per square yard in coulees and draws on Blackfoot Indian Reservation. (PPC West. Reg., Aug. Rpt.). SOUTH DAKOTA - Still active throughout State. In area east of Timber Lake, Corson County, counts per square yard 20-25 in borders of alfalfa 10-15 within fields; 8-10 in adjoining corn. Primarily Melanoplus femurrubrum, M. bivittatis and M. differentialis. (Jones). NEW MEXICO - Grasshoppers causing minor damage to alfalfa in Albuquerque area, Bernalillo County; 4-10 per 25 sweeps, much heavier along roads and ditch banks. (Heninger).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Light to moderate in 12 new areas in Yuma County. Also found in Maricopa, Stanfield, Coolidge, Sacaton, Florence and Casa Grande areas, Pinal County. New infestations found in Graham and Maricopa Counties. (Ariz. Coop. Sur.). CALIFORNIA - Situation continues to get worse. Moths trapped in lower Coachella Valley, Riverside County this period for first time. Treatments scheduled to start in Imperial Valley first of October. Detection this season 3,343 moths, 444 larvae, 1 pupa as follows: Imperial County - Bard Valley 469 adults, 44 larvae; Imperial Valley 841 adults, 60 larvae, no pupae. Riverside County - Palo Verde Valley 2,007 adults, 339 larvae; Coachella Valley 4 moths. San Bernardino County - Needles 22 months, 1 larva. (Cal. Coop. Rpt.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Larvae collected September 12 near Encinosa, Lincoln County; new county record and most southern record in State; almost 200 miles from known infestations in Colfax and Union Counties where control previously conducted. Infestation apparently light. (N. M. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Locally heavy on grapevines in Carmichael, Sacramento County. Eradication treatment has kept up with survey and detection in this infestation. (Cal. Coop. Rpt.).

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - Single beetle, only find of season in area, taken in trap at Grand Rapids, Kent County. (Moore).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ARKANSAS - Collected in a cemetery at Brinkley, Monroe County, week ending September 9, this new county record. New infested areas found in Crittenden, St. Francis and Craighead Counties. (Frazier).

BOLL WEEVIL (Anthonomus grandis) - Results of survey in CALIFORNIA and NEW MEXICO negative. (PPC West. Reg., Aug. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Cattley guavas at Auburndale, Polk County, believed infested since August 1; summer crop approximately 75 percent infested. (Simanton, Suit, Aug. 25). Few adult flies trapped in Miami area, Dade County, and at Venice, Sarasota County. (Fla. Coop. Sur., Sept. 13).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Surveys in Hidalgo and Zavala Counties negative. (PPC South. Reg., Aug. Rpt.). MEXICO - Chemical Control Zone - Inspection of 58,305 trees on 113 properties in States of Nuevo Leon, Tamaulipas and Sonora revealed 2 infestations in Municipio Hualahuises, Nuevo Leon. In Municipio Hualahuises, 4,255 trees sprayed; first application on 560 trees, second on 1,724, third on 1,971 trees. Spraying completed at Matamoros, Tamaulipas, with 11 trees on 10 properties receiving second and third applications and 226 trees on 98 properties receiving third treatment. Biological Control Zone - Inspection of 34,988 trees on 45 properties in 5 municipios in southern Tamaulipas revealed infestations on 941 trees on 32 properties in municipios Mainero, Villagran, Hidalgo, Guemez, and Padilla. Treatments applied to 2,229 trees in Municipio Mainero; initial application on 1,147 trees on 5 properties, 782 trees on 3 properties received second application and 1,082 trees on 5 properties sprayed for third time. (PPC. Mex. Reg., Aug. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - TEXAS - Last bait spray application completed September 22 in Brownsville area. First adult trapped June 13, last fly caught July 27. Eradication effort required 17 treatments made at 5 to 7-day intervals. Actual acreage treated averaged 13,000 each application; aggregate of approximately 220,000 acres treated. Area to be retained under quarantine until inspection negative for 3 generations. This will be about mid-November. Until that time certification of fruit will be made by fumigation in infested area, or by continued absence of flies in noninfested area of Cameron County. (PPC). MEXICO - Inspection of 1,298 traps located from Matamoros to Nuevo Laredo, Tamaulipas, negative. Inspection of host fruits negative. (PPC Mex. Reg., Aug. Rpt.).

A SLUG (Arion ater) - CALIFORNIA - Light in nursery at Perkins, Sacramento County. Controls applied in effort to eradicate pest as this only known occurrence in Sacramento County. (Cal. Coop. Rpt.).

INSECT DETECTION

New United States Record

A CRANE FLY (Tipula paludosa) - WASHINGTON - Single male taken in light trap operated by Plant Quarantine Division at Blaine, Whatcom County, September 14, 1966. Det. by S. Nakahara, confirmed by A. Stone. This first record of this pest of grasses in the United States. (Telford). Nearest known infestation at Vancouver, British Columbia, Canada, approximately 27 miles distant. (PPC). Additional male taken in same light trap at Blaine September 23. (PQ). For background information on this insect see page 949.

New State Record

BERMUDAGRASS MITE (Aceria neocynodonis) - HAWAII - Heavy on bermudagrass in Lihue, Kauai, and on University of Hawaii campus in Honolulu, Oahu. (p. 948).

New County Records

SPOTTED ALFALFA APHID (Therioaphis maculata) - SOUTH DAKOTA - Alates collected in Sully, Dewey, Corson and Codington Counties. (p. 935).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Collected in Bollinger County September 16. (p. 935).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ARKANSAS - Collected in Monroe County. (p. 944).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Larvae collected September 12 in Lincoln County. This farthest southern record in State. (p. 944).

CORRECTIONS

CEIR 16(36):894 - Under Aleurocanthus woglumi probable origin should read Cuba for Florida and Mexico for Texas. As citrus blackfly has been eradicated from Texas, add footnote 2.

CEIR 16(36):896 - Under Rhipicephalus evertsi, add footnote 2.

HAWAII INSECT REPORT

New State of Hawaii Record - All stages of BERMUDAGRASS MITE (Aceria neocynodonis) heavy on bermudagrass in Lihue, Kauai, and on University of Hawaii campus in Honolulu, Oahu. Det. by F. Haramoto. (Lyman et al.).

Insects of Regional Significance - Nymphs and adults of a PLATASPID BUG (Coptosoma xanthogramma) present in large numbers on an African tuliptree (Spathodea campanulata) in Kailua, Oahu. This first occurrence on plant in bignonia family. (Mitchell). MELON FLY (Dacus cucurbitae) larvae medium to heavy on immature tomatoes and cantaloups in unsprayed home gardens in Hilo, Hawaii Island. Cantaloups nearly 100 percent infested. Eggs and adults detected on injured fruits. (Yoshioka).

Pastures - A GRASSHOPPER (Trimerotropis pallidipennis) present on bermudagrass and weeds along road shoulders and irrigation ditches in scattered areas; considered light. Infested area approximately 1,280 acres. (Au et al.). A BILLBUG (Sphenophorus venatus vestitus) - All stages increased from light to light-medium in Kikuyu grass pasture at Kahua Ranch, North Kohala, Hawaii Island. Infesting approximately 3,000 acres at 2,200-3,500 feet elevation. (Yamayoshi, Oshiro).

General Vegetables - TOBACCO FLEA BEETLE (Epitrix hirtipennis) adults light to medium on foliage of eggplant, tomato, and poha plants (Physalis peruviana) in Lawai, Kalaheo and Kaunakani, Kauai. Substantial damage to small seedlings noted. (Au, Ikehara).

Ornamentals - All stages of NEW GUINEA SUGARCANE WEEVIL (Rhabdoscelus obscurus) severely damaged bird-of-paradise plants (Strelitzia sp.) in Lihue, Kauai. (Au, Ikehara).

Beneficial Insects - A WEEVIL (Apion antiquum) heavy on potted emex plants (Emex spinosa, a noxious weed) in insectary at Hilo, Hawaii Island. This leaf and stem feeder introduced in 1957 to aid control of emex. (Yoshioka). A CHRYSOMELID BEETLE (Ocotoma scabripennis) - Light adult feeding noted on mint plant (Mentha sp.) growing adjacent to lantana in Kealakekua, Hawaii Island. (Harley).

EUROPEAN CRANE FLY (Tipula paludosa Meigen)

Economic Importance - This tipulid, considered the most damaging of the crane flies of northern Europe, is a serious pest of grains and sod grasses. It also attacks many other crops. Larvae feed on roots and other tender plant parts. Heavy infestations may develop. An estimated 2.75 million larvae per acre have been found in lowland pastures in Scotland. An average of 24.8 larvae per square foot was found locally on lawn in Newfoundland. Infested grass areas become thin and yellowish. The stand in germinating grain fields may be severely affected. In Canada, where the European crane fly was identified for the first time in 1955, the species attacks lawns, grasses, and crucifers. Severe damage to lawns in North Surrey (a suburb of Vancouver), British Columbia, has been reported.

Distribution - Canada: Newfoundland, Nova Scotia, British Columbia. Denmark, France, Germany, Great Britain, Norway, Poland, Spain, Sweden, Switzerland, USSR (European).

United States: Washington (A single male taken in light trap at Blaine on September 14, 1966, additional male collected on September 23, 1966).

Hosts - Barley, oats, wheat, rye and other grasses; turnip, strawberry, peas, corn, tobacco.

Biology and Habits - Adults, which appear from the latter part of June through September, usually fly during the evening, but may be active also in the morning. Copulation occurs shortly after emergence and lasts for an hour or more. Females oviposit very soon after mating. The eggs are usually pushed into the soil; however, females have been observed ejecting eggs while suspended from plants. Egg laying may take place at several sites. Each female may deposit 250-500 eggs. Incubation takes two weeks. Young larvae normally feed on decomposed vegetable debris but readily turn to living plants when the soil is low in organic content. The length of larval stage may vary but usually lasts about 9 months. Overwintering takes place in or on the soil surface in which the larva makes irregular galleries. The larva is resistant to cold and becomes active when the temperature rises, but is extremely susceptible to drought and high temperatures. The older larvae migrate at night and feed heavily on host plants. Pupation takes place near the end of May and emergence occurs in about 3 weeks. In France, there is only one generation a year.

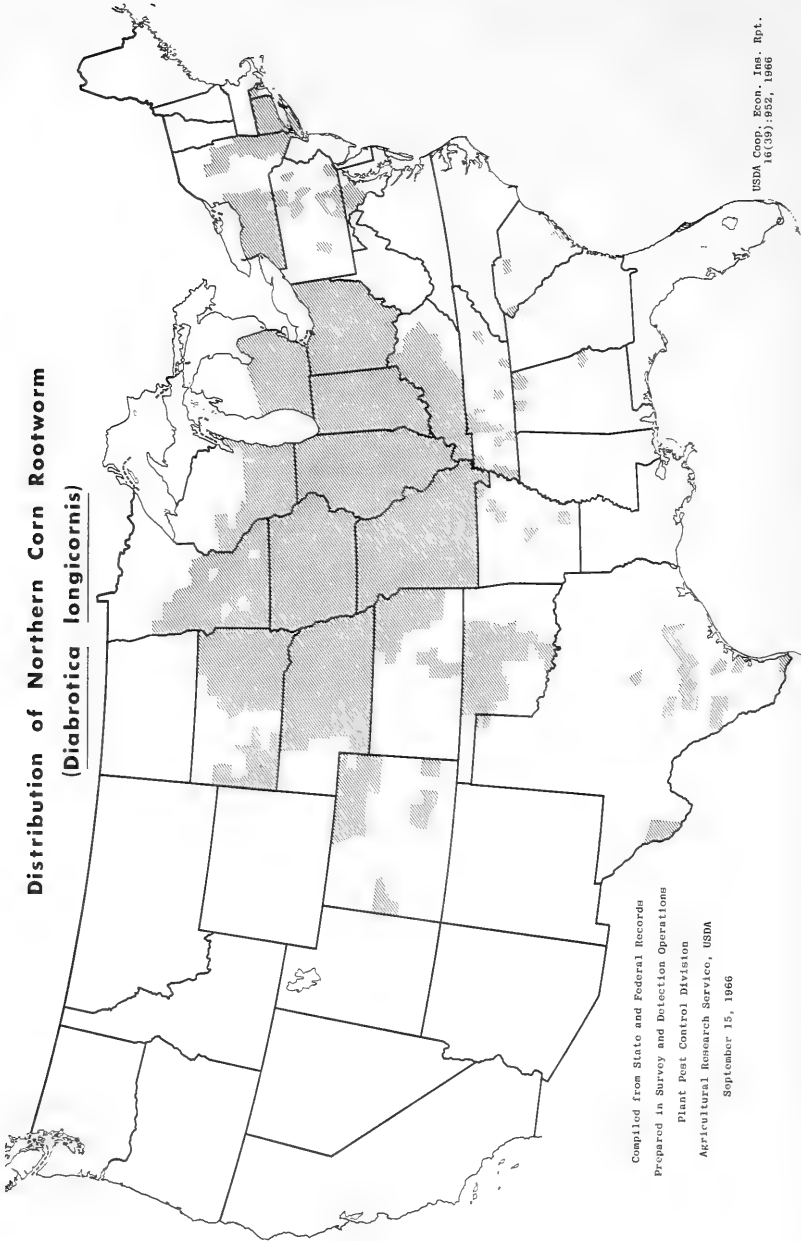
Description - Adult - Clear brownish. Head elongated in form of a snout, antenna brown, with 14-15 segments, the first two yellow. In some females the third and fourth segments also may be yellow. Sides of thorax, scutellum and postscutellum covered with a grayish frosting. Wings straight, elongated and have a milky tinge, brownish along length of anterior margin. Female with abdomen longer than wings. The species is difficult to distinguish from other tipulids, particularly females. Males may be identified by genitalia. Length of male 16-18 mm., female 19-25 mm.

Larva - Young larva pinkish white and thin with a rather large head. Length about 3 mm. Older larva cylindrical, grayish, with a black head, and two strong mandibles. Legless, posterior part of abdomen with 6 membranous protuberances between which are two large black and rounded breathing pores. Length 35-40 mm.

Selected References:

1. Balachowsky, A. and Mesnil, L. 1935. Les insectes nuisibles aux plantes cultivees. Vol. 1:862-866, Paris.
2. Canada Department of Agriculture. 1965. Canad. Ins. Pest Rev. 43(8):188.
3. Milne, A., Coggins, R. E. and Laughlin, R. 1958. J. Anim. Ecol. 27(1):125-145. (Survey method).
4. Rennie, J. 1916 and 1917. Ann. Appl. Biol. 2(4):235-240; 3(2/3):116-137. For data on T. oleracea L. see USDA Coop. Econ. Ins. Rpt. 8(9):161-162, 1958.

**Distribution of Northern Corn Rootworm
(*Diabrotica longicornis*)**



Compiled from State and Federal Records
Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA

September 15, 1966

USDA Coop. Econ. Inf. Rpt.
16(39)952, 1966

Surveys for Heliothis Moths in Arkansas^{1/}

W. P. Boyer, Charles Lincoln and J. R. Phillips

The use of sugar baits has been developed as a survey method to determine field populations of Heliothis moths in Arkansas. Light traps placed in forestry towers are being used to study possible migration of moths.

Sugar baits were used by Burdette (1932) and by Ditman and Cory (1933) to test the response of moths to sugar solutions. Ditman and Cory (1936) tested several insecticides as a control measure for moths. In early work some 30 years ago many moths were killed, but effective control was not obtained.

In Arkansas the possibilities of sugar baits for survey and control purposes are being reexamined. The survey aspect only is covered in this report.

Limited work in 1961 and 1962 showed that moths would respond to a sweet spray on cotton plants. In 1963 methods were developed and standardized. Survey by this method was expanded in 1964 and again in 1965. Crops sprayed have been cotton, corn, soybeans and combine-type grain sorghum.

Sugar spray is applied to each 50th row in a field. Row length determines the number of rows selected. Total row length sprayed generally amounts to one-half to one mile.

The sugar spray is applied around 6:00 p.m. using a compressed air sprayer at walking speed with one nozzle held six inches to one foot above the plants. Pressure is kept relatively low to give large droplets; however, droplets can be too large resulting in the spray running off the plants. After comparing sugar concentrations of 0.75, 1.5 and 3 pounds per gallon, 1.5 pounds per gallon was chosen as a standard.

Baited rows or "sugar lines" are checked soon after dark at slow walking speed, using a headlight.

An increase in the number of moths observed daily, Monday through Friday, has been rather significant. It is not known whether this may be due to sugar accumulation or possible "training" of the moths.

Numbers of Heliothis moths on sugar lines in the Jefferson Community, Desha County, were compared with numbers taken in a standard blacklight trap in the same area for 1964-65. See table on following page. Moths on sugar lines are expressed as numbers per 1,000 row feet while actual numbers taken in the trap are listed. Data show that the light trap is rather inefficient in estimating field populations of moths during June, July and part of August. During mid-to late August, relatively more moths were taken in the light trap than were observed on sugar lines. This is thought to be due to crops approaching maturity and becoming unattractive. Sugar line data along with light trap data provide a clearer picture of the seasonal occurrence of H. virescens moths.

During May 31 through July 2 from 3.3 to 24.3 percent Heliothis moths in the field were H. virescens. In the light trap H. zea moths were low during this period but no H. virescens were taken. After mid-August H. virescens were taken in the light trap while none were observed on sugar lines. Sugar line data show that peak moth populations in the field occurred at approximately five-week intervals in 1965.

Many workers over a long period of time have reported a 30-day life cycle in laboratory rearing at summer temperatures. The five-week peak has helped explain a puzzling problem in that outbreaks of bollworm have occurred in soybeans in late August approximately five weeks after July outbreaks in cotton.

^{1/} Published with the approval of the Director, Agricultural Experiment Station.

Moth peaks did not show up in light traps as distinctly as they did on sugar lines in 1965. Unpublished results of a previous study showed that peak moth numbers in light traps may appear about one week later than peaks of eggs on cotton. This would indicate that moths taken in light traps are older spent moths. It is known that moths of all ages are observed on sugar baits.

Factors other than populations have been studied in connection with this survey. Although the full significance of shades of color of the bollworm moth is not known, it has been determined that moths from pupae which were in diapause are light in color. To further study the color factor, moths are classed as light or dark and the data recorded seasonally and by host. Moths are collected and examined to determine the number of times females have mated. These data are recorded seasonally and by host. A study is also being made of the possible differences between hosts regarding the time of peak numbers and total numbers of moths during the season.

This method of survey apparently could be used for other species of insects. Data on other species were not collected; however, it was quite evident that moths of cabbage looper (*Trichoplusia ni*), armyworm (*Pseudaletia unipuncta*) and green cloverworm (*Plathypena scabra*) respond to the sugar spray.

Table. *Heliothis* moths on sugar lines and in light trap. Desha County, Arkansas. 1964 - 65.

1964		Number of Moths		1965	
Date	1000 Row Ft.	Light Trap	Date	1000 Row Ft.	Light Trap
6/1-5	8.2	2	5/31-6/3	29.83	5
6/8-12	34.9	0	6/7-10	9.70	1
6/15-19	14.7	2	6/14-18	15.07	7
6/22-25	7.0	0	6/21-25	5.17	1
6/30-7/3	5.8	1	6/28-7/2	11.76	0
7/6-10	22.3	5	7/7-9	41.27	4
7/13-17	48.9	26	7/12-16	23.20	11
7/20-24	6.5	13	7/19-23	2.17	14
7/27-31	2.2	4	7/26-30	0.81	9
8/3-7	1.7	41	8/2-5	1.53	12
8/10-14	6.3	242	8/9-13	29.96	4
8/15-19	X	85	8/16-18	12.22	8
8/20-24	X	XX	8/24-27	6.24	148
8/25-9/1	X	71	8/30-9/2	13.98	105
X Sugar lines not run					
XX Light trap out of order					

Literature Cited

Burdette, R. C. 1932. Attraction of certain insects to spray baits. *J. Econ. Ent.* 25(2):343-346.

Ditman, L. P. and Cory, E. N. 1933. The response of corn earworm moths to various sugar solutions. *J. Econ. Ent.* 26(1):109-115.

Ditman, L. P. and Cory, E. N. 1936. The corn earworm. *Md. Agr. Expt. Sta. Bul.* 399:77-90.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

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OFFICIAL BUSINESS

VOL. 16 No. 40

October 7, 1966

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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN EARWORM burrowing cornstalks in Utah; severely infesting corn in Canyon County, Idaho, up to 4 per ear. (p. 955). SOUTHWESTERN CORN BORER girdling cornstalks in Missouri and Alabama. (p. 956).

Two more adults of EUROPEAN CRANE FLY taken in light traps at Blaine, Washington. (p. 956).

PEA APHID increasing in Wyoming; heavy, 2,000-5,000 per 100 sweeps in South Dakota. (p. 957). WESTERN BEAN CUTWORM causing substantial dollar loss to beans in Idaho. (p. 960). CABBAGE LOOPER larvae heavy on broccoli in Marion and Multnomah Counties, Oregon. (p. 960).

WALNUT HUSK FLY heavy on walnut in several Oregon Counties. (p. 961).

Detection

Two more EUROPEAN CRANE FLY adults taken at Blaine, Washington. (p. 956).

For new county records see page 966.

Reports in this issue are for week ending September 30 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....955

Insects Affecting

Corn, Sorghum, Sugarcane.....955	Cole Crops.....960
Small Grains.....956	Cucurbits.....960
Turf, Pastures, Rangeland.....956	Deciduous Fruits and Nuts.....960
Forage Legumes.....957	Citrus.....961
Soybeans.....958	Small Fruits.....961
Peanuts.....959	Ornamentals.....962
Cotton.....959	Forest and Shade Trees.....962
Sugarbeets.....959	Man and Animals.....963
Potatoes, Tomatoes, Peppers.....959	Stored Products.....964
Beans and Peas.....960	

Beneficial Insects.....964

Federal and State Plant Protection Programs.....964

Insect Detection.....966

Corrections.....966

Hawaii Insect Report.....967

Light Trap Collections.....968

WEATHER BUREAU'S 30-DAY OUTLOOK

OCTOBER 1966

Weather Bureau's 30-day outlook for October calls for temperatures to average below seasonal normals over the eastern half of the Nation and in the Southern Plains. Above normal averages are expected west of the Divide as well as the Northern Plains while near normal temperatures are in prospect in unspecified areas. Precipitation is expected to exceed normal over the Gulf Coast Region and the South and Central Atlantic Coast States. Subnormal totals are indicated over the northern half of the Great Plains and the Mid-West as well as the western quarter of the Nation with the exception of near normal totals in the Northwest. Elsewhere near normal precipitation is expected.

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 the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - MICHIGAN - No specimens taken in blacklight traps during period. Seasonal catches lightest during recent years. (Newman).
DELAWARE - Adults averaged 9 per night in blacklight traps in Sussex County; down considerably from previous 2 weeks. (Burbutis).
VIRGINIA - Light, 1 per 40 feet of row in several soybean fields in Westmoreland, Richmond, Lancaster, King and Queen and Essex Counties; medium to heavy in Middlesex, Northumberland and Hanover Counties. (Isakson, Sept. 23).
SOUTH CAROLINA - Still causing damage to soybeans and increasing in Allendale, McCormick and Georgetown Counties. (Thomas, Sept. 23).
FLORIDA - This and *Trichoplusia ni* general to severe on 60 percent of 10,500 chrysanthemums at Apopka, Orange County; damaging young rooted cuttings and tipping-out buds. (Musgrove, Sept. 9).
MISSISSIPPI - Most soybeans past damaging stage; few scattered fields of young soybeans in delta area with light populations of larvae. (Dinkins).
TEXAS - Light on peanut foliage. (Parker et al., Sept. 23).
OKLAHOMA - Averaged 16 per 100 heads in grain sorghum checked in Payne County. Ranged 3-6 per 10 sweeps in alfalfa in Jackson, Grady, and Noble Counties. (Okla. Coop. Sur.).
UTAH - Taken from stalks of corn at Delta, Millard County, August 19. Det. by D. M. Weisman. (Knowlton).
IDAHO - Severely infesting seed corn in Canyon County. Some fields 100 percent infested; larvae up to 4 per ear. Loss expected to exceed 10 percent of seed crop. (Homan et al., Sept. 23).

ARMYWORM (*Pseudaletia unipuncta*) - TEXAS - Larvae light in several small grain fields near Quanah, Hardeman County. (Wills).

PICKLEWORM (*Diaphania nitidalis*) - FLORIDA - In experimental plot of unsprayed summer squash 35 percent of 395 fruits injured by larvae at Gainesville, Alachua County. (Habeck).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - VIRGINIA - Ranged 0-20 per sweep on alfalfa in Botetourt, Roanoke and Montgomery Counties. (Isakson).
MICHIGAN - Ranged 4-100 averaged 103 per 10 sweeps in Washtenaw and Jackson Counties. (Dowdy).
SOUTH DAKOTA - Light, 3-20 per 100 sweeps in alfalfa fields in northwestern area. Alates taken in Zieback, Harding, Lawrence and Butte Counties. New county records are Zieback, Harding and Butte Counties. (Jones).
KANSAS - Light 0-30 per 10 sweeps in Riley, Pottawatomie, Jackson and Brown County alfalfa. (Simpson).
OKLAHOMA - Averaged 32 per 10 sweeps in Noble County alfalfa. (Okla. Coop. Sur.).
ARKANSAS - Increased slightly in northwest area, 50-100 per 100 sweeps. Numbers lower than expected considering dry weather in area. (Ark. Ins. Sur.).
ARIZONA - Slight increase observed on alfalfa in Chandler and Buckeye areas of Maricopa County; damage light to moderate. (Ariz. Coop. Sur.).
UTAH - Damage to third-crop alfalfa still conspicuous on many farms in Millard County. (Knowlton, Sept. 26).

GREENBUG (*Schizaphis graminum*) - TEXAS - Few present on volunteer wheat in Deaf Smith, Hansford, and Randall Counties. (Daniels, Sept. 27).

BEEF LEAFHOPPER (*Circulifer tenellus*) - COLORADO - Curly top incidence light; ranging 1-3 percent on sugarbeets in Western Slope area. (Bulla).
WYOMING - Adults averaged 5-7 per 10 sweeps in sugarbeet fields of Washakie and southern Big Horn Counties. (Marks).

POTATO LEAFHOPPER (*Empoasca fabae*) - MICHIGAN - Adults and nymphs up to 24 and averaged 7.2 per 10 sweeps on alfalfa in Washtenaw and Jackson Counties. (Dowdy).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - SOUTH CAROLINA - Recent survey revealed infestations in 37 of 46 counties in State. Of 232 corn fields examined, 54 percent infested. Less than 10 percent infested plants in most fields. (DuRant, Sept. 26).
DELAWARE - Adults averaged less than 2 per night in blacklight trap collections in Sussex County. (Burbutis).
MICHIGAN - Second-brood larval

populations vary greatly in Washtenaw County. Ranged 16-336 borers per 100 plants. (Dowdy). MISSOURI - Average percent infestation and borers per 100 plants as follows: Cape Girardeau County 66.4, 167.2 and Stoddard County 88.0, 272.4. (Munson). KANSAS - Survey indicates populations higher than last year in Brown, Doniphan, Atchison and Jackson Counties. Relatively low in Clay, Riley and Pottawatomie Counties. (Eshbaugh et al.).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ALABAMA - Considerable lodging of cornstalks in Marion County due to girdling by larvae. (Price). MISSOURI - Average 6.4 percent girdled stalks in Cape Girardeau County and 17.6 in Stoddard County. Collected for first time in Perry and Madison Counties September 22. (Munson). KANSAS - Larvae observed in one corn field in Jackson County. (Eshbaugh, Simpson).

SUGARCANE BORER (*Diatraea saccharalis*) - TEXAS - Larvae moderate to heavy in many fields of late maturing grain sorghum in Wharton County; 1-2 in majority of stalks. (Smith et al.).

A PYRAUSTID MOTH (*Marasmia trapezalis*) - FLORIDA - Heavy on 76 acres of young sugarcane near Belle Glade, Palm Beach County. Det. by W. G. Genung. (Genung).

FALL ARMYWORM (*Spodoptera frugiperda*) - TEXAS - Damaging late grain sorghum in Tarrant, Kaufman, Denton, and Fannin Counties. (Turney, Graves).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - WISCONSIN - Adults still common and laying eggs in corn fields in southeast area. (Wis. Ins. Sur.).

SORGHUM MIDGE (*Contarinia sorghicola*) - TEXAS - Negative in late-maturing grain sorghum near Denton, Denton County; however, heads of similar late-maturing field near Caldwell, Burleson County almost completely destroyed, with total loss estimated at 95-98 percent. (Turney, Parker).

TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) - NEBRASKA - Heavy on corn in north-east area. Adults actively laying eggs. (Roselle).

SMALL GRAINS

FALL ARMYWORM (*Spodoptera frugiperda*) - TEXAS - Damaging small grains in Tarrant, Kaufman, Denton, and Fannin Counties. (Turney, Graves).

CUTWORMS - ALABAMA - Occurring in several small grain fields in Limestone, Morgan and Madison Counties. (Agee et al.).

TURF, PASTURES, RANGELAND

EUROPEAN CRANE FLY (*Tipula paludosa*) - WASHINGTON - Two more adults taken in light trap in Blaine area September 22 and 26. Survey of sod and grass in area negative. (Maehler).

FALL ARMYWORM (*Spodoptera frugiperda*) - TEXAS - Damaging grass pastures in Tarrant, Kaufman, Denton, and Fannin Counties. Range 6-10 larvae per square foot in spotted areas of Coastal Bermuda grass near Fort Worth, Tarrant County. (Turney, Graves). ALABAMA - Larvae damaging Coastal Bermuda grass and millet in Baldwin and Choctaw Counties. (Sexton, Turner).

WHITE GRUBS - FLORIDA - Probably *Cyclocephala borealis* averaged 20 per 6-inch square on Bahia grass near Belle Glade, Palm Beach County. Extensive areas of 320-acre pasture killed. Det. by W. G. Genung. (Genung). ALABAMA - *Phyllophaga* spp. larvae damaged root systems of grass sod at Madison County golf course; controls necessary. (Magnusson).

A GRASSWORM (Mocis latipes) - FLORIDA - Heavy on 600 acres of recently planted St. Augustine grass pasture at Belle Glade, Palm Beach County. Det. by W. G. Genung. (Genung).

A CHINCH BUG (Blissus insularis) - TEXAS - Heavily damaging St. Augustine grass in Cameron, Hidalgo and Webb Counties. Light in Denton County. (Deer, Turney).

A SPITTLEBUG (Prosapia bicincta) - FLORIDA - Adults and nymphs infesting several hundred acres of St. Augustine grass pasture at Belle Glade, Palm Beach County. Spittle masses contain up to 3-4 nymphs per mass; up to 25 masses per square foot. Adults killed newly planted St. Augustine grass in other pastures. Bermuda grass more severely affected than St. Augustine grass. Heavy rain hampered control efforts. (Genung).

A WHITEFLY (Aleurocybotus occiduus) - ARIZONA - Light infestations beginning to appear in Bermuda grass fields in Gila Valley, Yuma County. (Ariz. Coop. Sur.).

ERIOPHYID MITES (Aceria spp.) - OKLAHOMA - Infestation of A. neocynodonis found in Bermuda grass lawn at Bartlesville, Washington County. This new county record, and first for eastern section of State. (Okla. Coop. Sur.). TEXAS - A. tulipae light in several panhandle counties; heavy on western wheatgrass at one location in Oldham County and on volunteer wheat in Hansford County. (Daniels).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - VIRGINIA - Adults and nymphs 20-75 per sweep in Botetourt, Roanoke and Montgomery Counties. (Isakson). KANSAS - Negative in north-east area alfalfa this period. (Simpson). SOUTH DAKOTA - Heavy, 2,000-5,000 per 100 sweeps in irrigated alfalfa fields near Hot Springs, Fall River County; 1,000 per 100 sweeps noted in Butte County. Coccinellid larvae and adults 50 per 100 sweeps in Butte County. (Jones). WYOMING - Increasing on alfalfa; averaged 185-200 per 10 sweeps in Hot Springs and Washakie Counties, 225-250 per 10 sweeps in Big Horn and Park Counties. (Marks).

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - Averaged 1 adult, 8 larvae per 100 sweeps in Berkshire County. No signs of oviposition in alfalfa. (Miller). VIRGINIA - Adults averaged 2-5, larvae 4-15 per 10 sweeps in alfalfa in Botetourt, Roanoke and Montgomery Counties. (Isakson). OHIO - Over 2 larvae per sweep in Richland County indicating possible fall increase in north central area. (Rose, Sept. 23). SOUTH DAKOTA - Collected from alfalfa in Butte County. These first encountered since mid-July. Averaged 2 adults and 2 third-instar larvae per 100 sweeps. (Jones).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - VIRGINIA - Medium in alfalfa at Mechanicsville, Hanover County. (Innes).

A WHITE GRUB (Phyllophaga anxia) - NEBRASKA - Survey in Cherry County revealed average of 1.7 per square foot. Light damage noted in small localized areas. No serious problem expected next year. (Manglitz, Sept. 23).

A SCARAB (Pleurophorus caesus) - OREGON - Adults, probably this species, damaging roots of Lotus tenuis near Corvallis, Benton County. (Every).

CLOVER ROOT CURCULIO (Sitona hispidula) - OREGON - Adults abundant in many alfalfa and lotus fields in Willamette Valley. (Every).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - FLORIDA - Larvae heavy on hairy indigo at Gainesville, Alachua County. (Habeck).

ALFALFA CATERPILLAR (Colias eurytheme) - OKLAHOMA - Ranged 1-4 per 10 sweeps in alfalfa in Jackson, Noble and Payne Counties. (Okla. Coop. Sur.). TEXAS - Few present in Brazos and Burleson Counties. (Parker). WYOMING - Larvae averaged 2-5 per 10 sweeps on alfalfa in Hot Springs and Washakie Counties. (Marks).

GREEN CLOVERWORM (*Plathypena scabra*) - OKLAHOMA - Ranged 5-15 per 10 sweeps on alfalfa in Payne and Noble Counties. (Okla. Coop. Sur.). TEXAS - Few present in Brazos and Burleson Counties. (Parker).

FALL ARMYWORM (*Spodoptera frugiperda*) - OKLAHOMA - Heavy on alfalfa in Stephens County; ranged 8-10 per 10 sweeps in Noble and Payne Counties. (Okla. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - OKLAHOMA - Light on alfalfa in Jackson, Grady, Payne and Noble Counties; ranged 0.5-1.5 per 10 sweeps. (Okla. Coop. Sur.).

WEBWORMS (*Loxostege* spp.) - ARKANSAS - Small numbers of *L. similalis* still present in alfalfa in northwest area. (Boyer). ARIZONA - Larvae increasing in Gila Valley alfalfa, Yuma County. Range 40-120 per 100 sweeps. (Ariz. Coop. Sur.). TEXAS - *L. commixtalis* light in Brazos and Burleson Counties. (Parker).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - VIRGINIA - Adults, 14 per 10 sweeps in alfalfa in Botetourt, Roanoke and Montgomery Counties. (Isakson).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - TEXAS - Survey of alfalfa in Brazos and Burleson Counties indicated this only major pest present in economic numbers; 25-30 per sweep in most fields checked. (Tex. Coop. Sur.).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - KANSAS - Continues light, 0-5 per 10 sweeps on alfalfa in northeast area. (Simpson).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults averaged 8-12 per 10 sweeps in Hot Springs, Washakie, Big Horn and Park Counties. (Marks).

A SPIDER MITE (*Tetranychus* sp.) - CALIFORNIA - Probably *T. telarius*, heavy on 40 acres of cowpeas in Kingsburg and Selma, Fresno County. (Cal. Coop. Rpt.).

SOYBEANS

STINKBUGS - VIRGINIA - *Acrosternum hilare* light on soybeans in Middlesex and Hanover Counties. (Isakson). NORTH CAROLINA - *A. hilare*, *Euschistus servus* and other species did not increase in soybeans in Johnston, Wayne, Beaufort and Washington Counties. Previously, numbers increased each week. Twelve fields averaged 7.75 and ranged 3-14 per 25 feet of row. Percentage of adults in same fields increased from 16.2 last week to 31.5. (Mount). SOUTH CAROLINA - Unspecified species continue increase in several counties; probably greatest threat to soybeans from now until maturity. (Thomas, Sept. 23). ALABAMA - *Nezara viridula* light to medium on soybeans throughout Covington County. (Pike). TEXAS - *N. viridula* damaging soybean pods near Sivells Bend, Cooke County. (Turney). MISSOURI - *A. hilare* ranged 0.75-4 per yard of row in Vernon County soybeans. Damaged beans ranged 2-20 percent at elevators checked in Vernon, Barton, and Jasper Counties. (Munson).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - VIRGINIA - Light on soybeans in Northumberland and Lancaster Counties; medium, 25 per 10 feet of row, in field in Middlesex County. (Isakson, Sept. 23).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - VIRGINIA - Light in most soybean fields; 40 per 10 feet of row in 1 field in Northumberland County. (Isakson, Sept. 23). ALABAMA - Light to medium on soybeans throughout Covington County. (Pike).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Light on soybeans in Covington County. (Pike et al.).

GREEN CLOVERWORM (*Plathypena scabra*) - VIRGINIA - Light on soybeans in Middlesex County; all other fields checked, negative. (Isakson, Sept. 23). SOUTH CAROLINA - Few scattered infestations still present. (Thomas, Sept. 26).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - SOUTH CAROLINA - Few scattered infestations still present. (Thomas, Sept. 26).

PEANUTS

A BURROWING STINK BUG (Pangaeus sp.) - ALABAMA - Adults and nymphs continue damaging peanuts in southeast area. Entire crop from a farm in Geneva County marketed at \$85 per ton; normal price \$210 per ton. (Bond et al.).

A WIREWORM - SOUTH CAROLINA - Unidentified species causing serious damage to 20-acre field in Florence County. Damage ranges 20-30 percent of nuts. (Rogers, Parnell, Sept. 26).

COTTON

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Continues with no change in most areas. (Nettles et al., Sept. 26). MISSISSIPPI - Still active in cotton with young bolls and squares. (Dinkins). ARKANSAS - Infestations high in small plots of cotton on experiment station at Fayetteville, Washington County. (Boyer). OKLAHOMA - Up to 80 percent punctured squares in Jackson County cotton. Averaged 30 percent in Grady County. (Okla. Coop. Sur.). See also page 965.

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Continue numerous and difficult to control in most areas. (Nettles et al., Sept. 26). MISSISSIPPI - H. zea and H. virescens light in upper portions of plants, feeding on young bolls. Eggs still present in tender growing terminals in Tallahatchie, Leflore and Holmes Counties. (Dinkins). OKLAHOMA - Moth activity decreasing in Jackson and Grady Counties. Egg counts and small larvae less than 10 percent. Only 4-5 percent of larvae collected were H. virescens. (Okla. Coop. Sur.). ARIZONA - New H. zea infestations appearing on cotton after recent rains. Damage continues in Maricopa, Pinal and Pima Counties. Numerous first instar larvae appearing in Cochise and Graham Counties. Heavy in Yuma County. (Ariz. Coop. Sur.).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Larvae heavy and defoliating cotton near Mason, Mason County; 4-5 per leaf in several areas of field. (Garrett).

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light on cotton in areas of Graham and Maricopa Counties. Moderate in Pinal County. (Ariz. Coop. Sur.).

SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Maggot populations in Twin Falls County experimental sugarbeet fields over 12 per root in untreated plots. This first economic population (over 7 larvae per root) in many years. (Peay, Sept. 23).

POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - MARYLAND - Infesting stored potatoes on farm near Davidsonville, Anne Arundel County. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Larvae infesting some Monroe County pepper fields. (Janes).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Heavy on tomato plantings in Elmira and Dixon, Solano County. (Cal. Coop. Rpt.).

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) - IDAHO - Adults collected from injured potato foliage at Glenns Ferry. Tuber damage resulted in as much as 30

percent dockage, partially due to this pest. (Homan, Thornton, Sept. 23).

WIREWORMS - IDAHO - Melanotus oregonensis and Ctenicera pruinina collected in southern Payette County potato field, located in new irrigation pumping project area. (Homan, Thornton, Sept. 23). OREGON - Limonius spp. field counts in check plots at Ontario, Malheur County show maximum of 10 percent tubers with surface blemishes due to pest. (Morrison). CALIFORNIA - Conoderus falli adult taken in light traps in Indio, Riverside County. No larval infestations or commercial damage reported. (Cal. Coop. Rpt.).

FIELD CRICKETS (Gryllus spp.) - COLORADO - These and grasshoppers injuring tomatoes in commercial and garden plantings in Mesa County; harvest underway. (Bulla).

BEANS AND PEAS

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - IDAHO - Damaging up to 10 percent of harvested beans in Rupert, Minidoka County, commercial bean fields. Growers losing up to \$15 per acre due to this pest. Up to 3 percent damage in some Twin Falls seed fields. (Peay et al., Sept. 23).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Light in 20 acres of lima beans in Firebaugh, Fresno County and light on beans in King City, Monterey County. (Cal. Coop. Rpt.).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - OREGON - Larvae continue on broccoli in Marion and Multnomah Counties; processors having trouble washing larvae from tips of broccoli. (Morrison). TEXAS - Larvae moderate, infesting a 30-acre field of cabbage near Fort Stockton, Pecos County. (Garner). ARKANSAS - Heavy on cabbage in Drew County and greens crops in Poinsett, Mississippi and Crittenden Counties. (Roberts).

DIAMONDBACK MOTH (Plutella maculipennis) - CALIFORNIA - Heavy on cabbage plantings in Greenfield, Monterey County; damaging Brussels sprouts in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

FALSE CHINCH BUG (Nysius ericae) - OREGON - Adults continue infesting newly planted cole crops in Marion County; cabbage aphid numerous in some fields. (Morrison).

TURNIP APHID (Hyadaphis pseudobrassicae) - ALABAMA - Heavy on large commercial planting of turnips in Houston County. (White, Farrar).

CUCURBITS

SQUASH VINE BORER (Melittia cucurbitae) - FLORIDA - Damaging 25 percent of several hundred untreated summer squash examined at Gainesville, Alachua County. (Habeck).

DECIDUOUS FRUITS AND NUTS

SPIDER MITES - MICHIGAN - Panonychus ulmi adults, nymphs and eggs evident in many southwest area apple and plum orchards. (Wooley, Pshea). COLORADO - Tetranychus spp. abundant in few apple orchards, with overwintering forms congregating under bark scales on tree trunks. (Bulla).

ERIOPHYIID MITES - COLORADO - Aculus cornutus abundant in many orchards. (Bulla). CALIFORNIA - Eriophyes pyri heavy on pear trees in South San Francisco, San Mateo County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - MARYLAND - Heavy on home apple planting at Oxon Hill, Prince Georges County. (U. Md., Ent. Dept.). ALABAMA - Infesting 20-acre apple orchard in Tuscaloosa County. Limb and twig samples 100 percent covered with mature scales; some scales moved onto leaves. (Holstrum).

APHIDS - COLORADO - First fall migrants of Myzus persicae returning to peach trees September 26 in Mesa County. Few egg-laying colonies started. (Bulla). IDAHO - Eriosoma lanigerum heavy on backyard apple trees in Nampa, Canyon County. Large numbers of green lacewing predators noted. (Homan et al., Sept. 23).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - MICHIGAN - Adults and nymphs persist in some Berrien and Kent County apple orchards. (Wooley).

CODLING MOTH (Carpocapsa pomonella) - MICHIGAN - Larvae damaging apples in some Berrien, Van Buren and Kent County orchards. Many still in early instar stages. (Wooley, Pshea).

PECAN WEEVIL (Curculio caryae) - TEXAS - Light on pecan trees near Bonham, Fannin County. Laying eggs on nuts. (Turney).

WALNUT CATERPILLAR (Datana integerrima) - VIRGINIA - Larvae feeding on walnut trees at Charlottesville, Albemarle County. (Isakson, Smith).

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Moderately infesting English walnuts at Ogden, Weber County. (Knowlton). OREGON - Heavy on dooryard walnut trees in Medford, Jackson County. (Berry). Surveys reveal infestations in Jackson, Josephine, Baker, Gilliam, Hood River, Malheur, Morrow, Umatilla, Union and Wasco Counties. (Larson).

CITRUS

BROWN SOFT SCALE (Coccus hesperidum) - ARIZONA - Infestation continues in citrus nursery in Yuma County despite continuous control efforts. (Ariz. Coop. Sur.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - New infestation in citrus grove on Yuma Mesa in Yuma County. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Heavy on citrus in Soledad, Monterey County. Intensity of infestations increasing in northern part of State. (Cal. Coop. Rpt.).

SMALL FRUITS

ACHEMON SPHINX (Pholus achemon) - CALIFORNIA - Medium on grapevines in Sacramento, Sacramento County. This is late for species to be active. (Cal. Coop. Rpt.).

GRAPE BERRY MOTH (Paralobesia viteana) - WISCONSIN - Larvae pupating in Dane County; few light infestations in Madison area. (Wis. Ins. Sur.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Decreasing on backyard grape plantings in nearly all areas. (Ariz. Coop. Sur.).

ORNAMENTALS

AZALEA CATERPILLAR (Dantana major) - VIRGINIA - Heavy on azalea at Smithfield, Isle of Wight County. (Isakson, Jones). SOUTH CAROLINA - Damaging leaves of azalea in Charleston and Beaufort Counties. Control highly successful in both areas; few small larvae present. (Nettles et al., Sept. 26).

BAGWORM (Thyridopteryx ephemeraeformis) - VIRGINIA - Infesting shrubs in Vinton, Roanoke County. (Isakson). ALABAMA - Pupating in central section on cedar, willow, hackberry and other trees. (McQueen).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Damaging holly nursery stock at Perkins, Sacramento County. Larval and pupal populations high. (Cal. Coop. Rpt.).

ROUNDHEADED WOOD BORERS - VIRGINIA - Obera tripunctata larvae infesting twigs of dogwoods and lilacs in Chesapeake. (Amos, Wood). ALABAMA - O. tripunctata larvae injuring twigs and smaller limbs of isolated dogwoods on lawns in Lee County. (Copeland et al.). OHIO - Prionus laticollis larvae damaging some dogwood roots in Columbiana County. (Pittman, Campbell, Sept. 23).

WEEVILS (Brachyrhinus spp.) - NEVADA - B. meridionalis adults light to heavy, with variable damage to lilac and privet leaves in Ely and McGill, White Pine County. This new county record. (Bechtel, Martinelli). CALIFORNIA - B. cribricollis adults medium on privet plants in King City; heavy in Soledad, Monterey County. (Cal. Coop. Rpt.).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - ALABAMA - Larvae infesting ornamental pines in Lowndes County. (Mathews).

ARMORED SCALES - VIRGINIA - Aspidiotus perniciosus infesting photinia in Newport News. (Amos, Kelly). Unaspis euonymi heavy on euonymus at home in Haynesville, Richmond County. (Amos, Clement). ALABAMA - U. euonymi heavy on old euonymus plantings in Lee County. (Upton et al.).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Medium on azaleas in Oroville, Butte County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

LOCUST BORER (Megacyllene robiniae) - IDAHO - Collected in Coeur d'Alene, Kootenai County. This new county record. (Stranahan). In 1965 this insect recorded for first time at Pocatello, Bannock County. (O'Keefe, Sept. 23). UTAH - Serious in black locust throughout Salt Lake County. (Knowlton, Parrish).

CALIFORNIA PRIONUS (Prionus californicus) - UTAH - Probably this species heavily damaging roots of cottonwood trees in Cottonwood area of Salt Lake County. Chokecherry and Gambel oak also infested. (Knowlton, Parrish).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Light on elm in Eureka, Eureka County for second known infested area in County. (Bechtel, Martinelli).

APHIDS - NEVADA - Periphyllus negundinis heavy on boxelder in Eureka County and light to medium in Lander and White Pine Counties. Lachnus salignis heavy, with large amounts of honeydew on willow in Eureka and White Pine Counties. Medium in Lander County. (Bechtel, Martinelli).

PIGEON TREMEX (Tremex columba) - UTAH - Emerged from large willow tree at Milford, Beaver County, August 11. Det. by D. R. Smith. (Knowlton, Esplin).

A LEAFHOPPER (Opsius stactogalus) - CALIFORNIA - Adults heavy on tamarisk trees in Dos Palos, Merced County. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Medium on sweetgum in Churchland area, Chesapeake. (Isakson, Tate).

ROYAL MOTHS (Anisota spp.) - NEBRASKA - A. rubicunda larvae completely defoliated some farmstead groves in Otoe County. (Wälstrom). MICHIGAN - A. senatoria larvae defoliated small oak trees near Pickney, Livingston County. (Newman).

BARK BEETLES (Dendroctonus spp.) - CALIFORNIA - D. pseudotsugae severely damaging Douglas-fir in several areas including Six Rivers National Forest and Shasta-Trinity National Forest. D. brevicornis and Ips sp. damaging Ponderosa and sugar pines in 600-1,000 acre stand in Six Rivers National Forest. (USFS).

WHITE GRUBS (Phyllophaga spp.) - KANSAS - Damaging young pines in field planting in Harper County. (Gates).

SPRUCE NEEDLE MINER (Taniva albolineana) - NEVADA - Light, spotted infestations on spruce in McGill, White Pine County. This second known infested area in county. Surveys in Eureka and Lander Counties negative. (Bechtel, Martinelli).

A PHYCITID MOTH (Dioryctria abietella) - CALIFORNIA - Damaging Douglas-fir cones in Boundary Ridge, Cooper Ranch and Notice Creek areas of Six Rivers National Forest; 20-50 percent of cones ruined. (USFS).

SARASOTA SPITTLEBUG (Aphrophora saratogensis) - MINNESOTA - Heavily damaged two areas of red pine in Red Lake, Big Falls area. (Minn. Ins. Rpt.).

INTRODUCED PINE SAWFLY (Diprion similis) - MINNESOTA - Controls necessary in several small locations in north central area. (Minn. Ins. Rpt.).

MAN AND ANIMALS

MOSQUITOES - MINNESOTA - Aedes vexans was the most numerous species in evening and daytime bite collections and in Larval collections made by Metropolitan Mosquito Control District. Three larvae of Culiseta inornata were collected. In cattail swamps 500 Mansonia larvae per square foot found. (Minn. Ins. Rpt.).

NORTH CAROLINA - Aedes sollicitans lighting at rate of 8-10 per minute around Manteo and in marsh areas of Pamlico and Carteret Counties. Numbers much lower in other areas of these counties. (Ashton). LOUISIANA - Larval collections resulted in: Anopheles quadrimaculatus, Culex erraticus, C. pipiens quinquefasciatus, and Psorophora confinnis. Aedes taeniorhynchus increased in Jefferson Parish. Culex salinarius high in Wentwood area. (Stokes). CALIFORNIA - Populations generally low, but local infestations present. Early harvest of rice eliminated populations that normally occur. (Cal. Coop. Rpt.).

HORN FLY (Haematobia irritans) - ALABAMA - Building up considerably on beef cattle in several herds in Lee and Baldwin Counties; over 500 per animal common. (McQueen). MISSISSIPPI - Populations decreasing throughout Oktibeha County. (Dinkins). OKLAHOMA - Ranged 400-1,200 per head (averaged 600) on cattle in Major County. Ranged 100-200 per head in Payne County. (Okla. Coop. Sur.). TEXAS - Heavy numbers attacking cattle and sheep in Val Verde County. (Tatum).

FACE FLY (Musca autumnalis) - IDAHO - Large numbers congregating on south side of home in Benewah County. (Wittrock, Sept. 23).

SCREW-WORM (Cochliomyia hominivorax) - Total of 187 cases reported in U. S. September 25 - October 1 as follows: TEXAS - Culberson, Reeves, Gaines, Concho, Sutton, Menard, Gonzales, La Salle, Duval, Starr, Real 1 each. Kendall, Bander, Bexar, Dimmit,, Webb 2 each. Jeff Davis 6, Presidio 21, Brewster 11, Pecos 3, Terrell 9, Crockett 5, Schleicher 3, Val Verde 14, Edwards 2, Kerr 3, Kinney 11, Uvalde 5, Medina 6, Maverick 5, Zavala 5, Frio 4, Jim Hogg 5, Hidalgo 6. ARIZONA - Mohave 9, Yuma 1, Yavapai 6, Maricopa 7, Pinal 1, Pima 1, Graham 3. NEW MEXICO - Grant 1, Hidalgo 2, Otero 1, Eddy 2, Lea 1. CALIFORNIA - San Diego 3. Total of

330 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 60, Sonora 160, Chihuahua 76, Coahuila 25, Nuevo Leon 5, Tamaulipas 4. Total of 253 cases reported in Mexico south of Barrier Zone. Barrier Zone area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 41,898,250, New Mexico 6,176,000, Arizona 18,788,000, California 1,716,000, Mexico 57,228,000. (Anim. Health Div.).

BED BUG (*Cimex lectularius*) - VIRGINIA - Large numbers of adults collected from hatchery at Harrisonburg, Rockingham County. (Freund).

BLOODSUCKING CONENOSE (*Triatoma sanguisuga*) - TEXAS - Several observed in household near Blum, Hill County. (Myers).

WESTERN BLOODSUCKING CONENOSE (*Triatoma protracta*) - CALIFORNIA - Light in a farm residence in Santa Barbara County. Prevalent in Calaveras County this season and required control. (Cal. Coop. Rpt.).

BLACK WIDOW SPIDER (*Latrodectus mactans*) - COLORADO - Invading homes at Fort Collins. (Daniels, Wells, Sept. 22). UTAH - Active in northern and central areas, especially Cache County. (Knowlton, Sept. 20).

FOWL TICK (*Argas persicus*) - TEXAS - Light on poultry near Rockwall, Rockwall County. (Corbin).

STORED PRODUCTS

FLAT GRAIN BEETLE (*Cryptolestes pusillus*) - FLORIDA - Heavily infesting 6,000 pounds of Bahia grass seed at Belle Glade, Palm Beach County; less than 1 percent of remaining seed viable. Det. by W. G. Genung. (Genung).

BENEFICIAL INSECTS

PREDACEOUS MITES - COLORADO - Several species abundant in most orchards in Mesa and Delta Counties. (Bulla).

DAMSEL BUGS (*Nabis* spp.) - WYOMING - These, ladybird beetles and green lacewings light in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Marks).

A PARASITIC WASP (*Scolia dubia*) - VIRGINIA - Adults noted in Buchanan, Patrick and Appomattox Counties; these parasites of green June beetle. (Isakson et al.).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - ARKANSAS - *Melanoplus differentialis* and *M. femurrubrum* numerous in northwest area. (Boyer). COLORADO - Adult surveys in 37 counties indicate economic infestations on rangelands in Cheyenne and Kiowa Counties; and croplands in Archuleta, Montezuma and Mesa Counties; light but heavier than in 1965 in Elbert and Lincoln Counties. Light in scattered areas of Baca and Prowers; heavy in Yuma, Sedgwick, Weld and Boulder Counties. Dominant species *Melanoplus* spp. and *Aulocara* spp. *M. sanguinipes* more abundant than in 1965. (Watson). SOUTH DAKOTA - Light to threatening populations noted, in or near alfalfa in Harding and Lawrence Counties. Dominant species, *Melanoplus bivittatus* and *M. differentialis* in Harding County and *M. femurrubrum* and *M. sanguinipes* in Lawrence County. (Jones). High populations of *Brachystola magna* in Haakon, Jackson, and Washabaugh Counties. (Christenson). WISCONSIN - *Melanoplus femurrubrum* remains active, populations extremely low throughout State. (Wis. Ins. Sur.).

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Heavy and widespread throughout north central area, infesting cotton not yet desicated. (Turney).

JAPANESE BEETLE (*Popillia japonica*) - MICHIGAN - No new finds this period. Overall collections for season very light. (Moore). SOUTH CAROLINA - No new counties found infested this season. (PPC South. Reg., Aug. Rpt.). GEORGIA - Collected in Cherokee County during August; this new county record. (PPC South. Reg., Aug. Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - New county records include Fayette, Lamar, Pike and Pickens Counties, ALABAMA; Miller County, GEORGIA; and De Soto Parish, LOUISIANA. (PPC South. Reg., Aug. Rpt.).

PINK BOLLWORM (*Pectinophora gossypiella*) - ARIZONA - New infestations continue and known infestations show increased damage. None found in Santa Cruz, Cochise or Greenlee Counties. (Ariz. Coop. Sur.). CALIFORNIA - Survey and detection so far this season as follows: Imperial County, Bard Valley 617 moths, 65 larvae, 1 pupa; Imperial Valley 854 moths, 69 larvae; Riverside County, Palo Verde Valley 2,071 moths, 522 larvae, Coachella Valley 9 moths, 0 larvae; San Bernardino County, Needles 22 moths, 1 larvae. Treatment started September 27 in Imperial County. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Larvae taken from guava at Avon Park, Highlands County, and St. Petersburg, Pinellas County; adults taken by trees in Manatee County. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - GEORGIA - Collected in Atkinson County during July. This new county record. (PPC South. Reg., Aug. Rpt.).

WEATHER OF THE WEEK ENDING OCTOBER 3

HIGHLIGHTS: For third consecutive week, widespread, substantial rain fell in the previously-parched Middle Atlantic and Northeast States. It was also the fourth week of cool temperatures for much of the eastern half of the Nation.

PRECIPITATION: A front that stretched from Colorado to North Carolina produced rains from the central Rocky Mountains to Virginia on Monday, and then over most of the Southeast as it moved to the Gulf of Mexico and the Atlantic Ocean. A new storm developed west of Hudson Bay, moved southeastward, and brought substantial rains to the northern Great Plains, the Great Lakes Region, and the Northeast at midweek, and to most of the eastern half of the Country on Friday and Saturday. Some light rains fell in the Far Northwest on Monday and in southern California and southern Arizona on Thursday. Rain and snow fell in the northern Rockies, portions of the northern Great Plains, and northern New England over the weekend. Wide areas in the western half of the Nation received no rain or only light sprinkles. Severe thunderstorms moved across northern Ohio Thursday. An associated tornado injured 22 persons in the suburbs southeast of Cleveland.

TEMPERATURE: At the beginning of the week, cool cloudy weather prevailed over the northern two-thirds of the Nation and warm sunny weather over the southern third. Brisk northerly winds again brought unseasonably cold air into the northern Great Plains at midweek, and afternoon temperatures remained in the 50's from eastern Montana to northern New England through the end of the week. Temperatures dropped to below freezing over portions of the northern Rockies, the northern Great Plains, the Great Lakes Region, and the northern portions of the Appalachians and the Northeast on one or two mornings. Mild temperatures continued over the Far Southwest. Readings were unusually high in the interior valleys of California; Red Bluff registered 109° and Sacramento a record-breaking 103° on Thursday afternoon. Strong southerly winds also brought warmer temperatures and clouds of dust to the western Great Plains on Sunday. (Summary supplied by Environmental Data Service, ESSA).

INSECT DETECTION

New County Records

SPOTTED ALFALFA APHID (Therioaphis maculata) - SOUTH DAKOTA - Alates collected in Zieback, Harding and Butte Counties. (p. 955).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Collected in Perry and Madison Counties September 22. (p. 956).

BERMUDAGRASS MITE (Aceria neocynodonis) - OKLAHOMA - Collected in Washington County. This first for eastern section of State. (p. 957).

A WEEVIL (Brachyrhinus meridionalis) - NEVADA - Collected in White Pine County. (p. 962).

LOCUST BORER (Megacyllene robiniae) - IDAHO - Collected at Coeur d'Alene, Kootenai County. (p. 962).

JAPANESE BEETLE (Popilla japonica) - GEORGIA - Collected in Cherokee County in August. (p. 965).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Collected in Fayette, Lamar, Pike and Pickens Counties. GEORGIA - Collected in Miller County. LOUISIANA - Collected in De Soto Parish. (p. 965).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Collected in Atkinson County during July. (p. 965).

CORRECTIONS

CEIR 16(38):926 - HORSE FLIES - GEORGIA - Delete note. The species involved was house fly, Musca domestica.

HAWAII INSECT REPORT

Insects of Regional Significance - SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) medium, 3rd to 5th instar nymphs infesting broccoli plantings in Honokaa, Hawaii Island; up to 10 nymphs noted on flower heads. (Yoshioka, Horii). LEAF MINER FLIES (Liriomyza spp.) - Larvae and adults heavy on various crops received from different areas throughout State. Infesting tomatoes, cucurbits, peas, beans and eggplants. (Funasaki).

Forage Legumes - Heavy populations of TAWNY GARDEN SLUG (Limax flavus) causing foliar damage to experimental clovers in the volcano area of Hawaii Island at 4,000 feet elevation. (Yoshioka, Kami).

Tomatoes - A PLANT BUG (Cyrtopeltis modesta) - Nymphs and adults causing loss of fruits from blossom drop in all tomato producing areas on Kauai. (Au).

General Vegetables - LEEK MOTH (Acrolepia assectella) larvae light to medium in 1 acre of green onions in Waimanalo, Oahu. (Sato).

Fruits - A large colony of FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) found in old, partially decayed avocado tree near Wailuku Post Office grounds on Maui. (Takishita).

Ornamentals - BARNACLE SCALE (Ceroplastes cirripediformis) heavily infesting stems of Singapore holly (Malpighia coccigera) in Hilo, Hawaii Island. This new host record. (Himori). RED WAX SCALE (Ceroplastes rubens) heavily infested gardenia plants in nursery in Hilo, Hawaii Island. Scales confined to midribs of leaves, ranged 12-50 scales per leaf. (Hu).

Forest and Shade Trees - An APHID (Neophyllaphis araucaria) infesting 40 acres of Norfolk Island pine trees in Kapoho, Hawaii Island. Wingless forms on heavily infested trees ranged 10-20 per leaf. Winged forms in lesser numbers. (Hu et al.). Young larvae of a BUTTERFLY (Vanessa tameamea) heavy in small leaf folds of mamaki (Pipturus albidus) in volcano area, Hawaii Island at 4,000 feet elevation. (Funasaki).

Beneficial Insects - A SCOLIID WASP (Campsomeris marginella modesta) - Unusually heavy in open cane fields and gardens in Olokele, Kauai. This wasp introduced from Philippines in 1916 as parasite of Oriental beetle (Anomala orientalis) which once was numerous and very destructive in cane fields. (Au). A PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) - Numerous in dying stems of puncture-vine in Puunene, Maui. (Miyahira). A SCIOMYZID FLY (Sepedon macropus) - Adults and egg masses of this snail predator heavy in taro patches in Waihee, Maui. (Miyahira).

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

EUROPEAN CORN BORER increasing in southeastern South Dakota; twice as heavy in Illinois as in 1965. CHINCH BUG heavy throughout northeast and east central Kansas. (p. 971). FALL ARMYWORM damaging small grains in Alabama and alfalfa in Oklahoma. (pp. 971, 972).

ALFALFA WEEVIL active in Virginia and Utah; more serious and widespread than in 1965 in Arkansas River Valley, Colorado. PEA APHID heavy on alfalfa in Virginia, Wisconsin and Wyoming. (p. 972). ALFALFA SEED CHALCID damage heavier than in previous years in Nevada. (p. 973).

BOLL WEEVIL and BOLLWORMS continue heavy throughout Alabama. (p. 973). PINK BOLLWORM treatment initiated sooner than scheduled due to rapid buildup in southern California. Found for first time in San Diego County. (p. 979).

CABBAGE LOOPER damaging collards and turnips in Oktibbeha County, Mississippi; difficult to control on lettuce in Colorado, problem on this crop in New Mexico and Arizona. (pp. 974, 983). Several PECAN PESTS damaging in northeast Oklahoma. (p. 975). BROWN DOG TICK increasing in Las Vegas area, Nevada; heaviest yet encountered. (p. 978).

Detection

- A WEEVIL collected at Villanova, Pennsylvania; first record for United States. (p. 981).
- IMPORTED FIRE ANT collected for first time since 1950 in Tennessee. (p. 981).

New State records include 2 WEEVILS in Wisconsin (p. 981) and A WEEVIL in Maryland. (p. 981). For new county records see page 981.

Special Reports

Distribution of Southern Corn Rootworm. (p. 984).

Prediction

CORN EARWORM could be serious problem on lettuce in Maricopa County, Arizona, next few weeks. (p. 983).

Reports in this issue are for week ending October 7 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....971

Insects Affecting

Corn, Sorghum, Sugarcane.....971	Cucurbits.....974
Small Grains.....971	General Vegetables.....974
Turf, Pastures, Rangeland.....972	Deciduous Fruits and Nuts.....975
Forage Legumes.....972	Citrus.....975
Soybeans.....973	Small Fruits.....976
Cotton.....973	Ornamentals.....976
Tobacco.....974	Forest and Shade Trees.....977
Sugarbeets.....974	Man and Animals.....977
Beans and Peas.....974	Stored Products.....979
Cole Crops.....974	

Beneficial Insects.....979

Federal and State Plant Protection Programs.....979

Hawaii Insect Report.....980

Insect Detection.....981

Corrections.....981

Light Trap Collections.....982

Additional Notes.....983

Distribution of Southern Corn Rootworm (map).....984

WEATHER OF THE WEEK ENDING OCTOBER 10

HIGHLIGHTS: High pressure produced typical Indian summer weather over most of the Nation. Heavy thundershowers occurred over portions of Texas on Tuesday, and in Alabama and Georgia on Sunday. Hurricane Inez brought heavy rains to the Florida Keys on Wednesday.

TEMPERATURE: The week began with a cold front extending from the Great Lakes to Texas. After the front moved offshore over the Atlantic Ocean and Gulf of Mexico, high pressure extending from the Pacific Ocean to the Atlantic brought Indian summer weather, with blue skies, cool mornings, and warm afternoons. Temperatures over the northern and central Great Plains climbed from the 20's and 30's on Wednesday to the 80's by Thursday afternoon. Some Iowa stations recorded 23° on Wednesday and Thursday mornings and 86° on Friday afternoon. A cold front pushed into the Northwest Saturday, and by Sunday maximum temperatures from Washington and Oregon to the Great Lakes were mostly in the 60's. Mild temperatures continued in the central and southern Great Plains, with Fort Smith, Arkansas, registering 93° Sunday afternoon. The synoptic situation at the end of the week closely resembled that of the previous week. A cold front stretched from the Great Lakes to Texas, while a massive High and extensive clear, cool weather covered the States behind the front.

Weather continued on page 978.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - COLORADO - Possible problem on tomatoes in Arkansas Valley failed to materialize; apparently kept in check due to weather and biological factors. Moth numbers in light trap at Two Buttes indicate strong potential for late in season; however, little evidence of egg laying or larval development noted. (Schweissing, Campbell). OKLAHOMA - Heavy on late corn in Mayes County; 9 per 10 sweeps in Tillman County alfalfa. (Okla. Coop. Sur.). SOUTH CAROLINA - Continues to damage late-planted soybeans. (Nettles et al., Oct. 4). VIRGINIA - Very light on soybeans in Brunswick, Greenville, Dinwiddie, Prince Edward and Sussex Counties. (Isakson). MARYLAND - Light to moderate pod damage noted on late soybeans in northern Worcester County. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (*Empoasca fabae*) - VIRGINIA - Adults and nymphs 1-4 per sweep on alfalfa in Prince Edward County. (Isakson). WISCONSIN - Nymphs common in few alfalfa fields, up to 3 per sweep; decreased markedly since earlier in season. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OREGON - Low on alfalfa in Umatilla and Morrow Counties. (Goeden). WYOMING - Averaged 5-7 per 10 sweeps on alfalfa in Laramie and Goshen Counties. (Marks). UTAH - Found on alfalfa at Collinston, Box Elder County. (Knowlton). NEW MEXICO - Light, spotted infestations noted in southern Bernalillo County alfalfa. (Heninger). OKLAHOMA - Very light in southwest area alfalfa. (Okla. Coop. Sur.). ARKANSAS - None found in alfalfa field checked in Newton County. (Boyer, Roberts). KANSAS - Very light in Ellis County alfalfa. (Harvey). WISCONSIN - Remains low on alfalfa; highest for any field being 40 per sweep; 1-10 per sweep in most areas. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - SOUTH DAKOTA - Fall abundance survey indicates marked increase in Davison, Hanson, McCook and Minnehaha Counties compared with last year. Damage light except for heavily infested fields. Mostly third instar; range second to fifth. (Jones). ILLINOIS - Annual fall survey in 46 counties shows State average 112.2 borers per 100 plants compared with 56.9 in 1965. Increase probably due to very low incidence of parasites and disease plus ideal weather at hatching time. (White). MISSOURI - Infestation 89.6-100 percent and borers 232.4-590 per 100 corn plants in northeast and north central areas. (Craig, Peters). ARKANSAS - Counts relatively high in Clay County corn. (Boyer, Roberts). MICHIGAN - Second-brood larvae in fifth stage in Shiawassee County October 4. Populations vary among fields. (Dowdy).

STALK BORER (*Papaipema nebris*) - WISCONSIN - Total of 46 adults taken in Platteville light trap. (Wis. Ins. Sur.).

CORN ROOTWORMS (*Diabrotica* spp.) - SOUTH DAKOTA - Adults noted in all corn checked in Davison, Hanson, McCook and Minnehaha Counties. Numbers low; 5 percent *D. virgifera*, remainder *D. longicornis*. (Jones).

CHINCH BUG (*Blissus leucopterus*) - KANSAS - Moderate to heavy in corn throughout northeast and east central areas. Considerably higher in extreme eastern counties than in July. All instars present. (Simpson).

SMALL GRAINS

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Treatment required on several small grain fields in Colbert County. (Somerville).

HESSIAN FLY (*Mayetiola destructor*) - KANSAS - Moderate to heavy on early planted wheat in Lane and Rooks Counties. Up to 20 percent loss on some stands. (Harvey et al.).

TURF, PASTURES, RANGELAND

BILLBUGS (*Sphenophorus* spp.) - UTAH - *S. parvulus* spreading and damaging lawns in Salt Lake County. (Knowlton, Burningham). KANSAS - *S. venatus vestitus* larvae and adults noted in old zoysia lawns in Johnson and Sedgwick Counties. (Simpson).

A STRATIOMYID FLY (*Altermetoponia rubriceps*) - CALIFORNIA - Heavy in Westwood Terrace district of San Francisco County; lawns showing damage, large swarms of adults occurring. (Cal. Coop. Rpt.).

MOLE CRICKETS - FLORIDA - Heavily infesting 100 acres of pasture at Hawthorne, Alachua County. (Kuitert, Andrews).

FORAGE LEGUMES

ALFALFA CATERPILLAR (*Colias eurytheme*) - NEW MEXICO - Larvae 25-35 per 25 sweeps in northern Eddy County alfalfa; adults numerous. Counts per 25 sweeps in Bernalillo County alfalfa: 2-3 larvae, 0-5 pupae, 2-3 adults. (Heninger, Mathews). CALIFORNIA - Larvae light in 200 acres of alfalfa in Lancaster area, Los Angeles County. (Cal. Coop. Rpt.).

GREEN CLOVERWORM (*Plathypena scabra*) - OKLAHOMA - Averaged 85 per 10 sweeps in Davidson area alfalfa, Tillman County; 2 per 10 sweeps in Kiowa County. (Okla. Coop. Sur.).

FALL ARMYWORM (*Spodoptera frugiperda*) - OKLAHOMA - Destroyed field of fall-seeded alfalfa in Pawnee County. (Okla. Coop. Sur.).

WEBWORMS (*Loxostege* spp.) - OKLAHOMA - Heavy on alfalfa in Mayes County; light to absent in southwest area. (Okla. Coop. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - VIRGINIA - Adults 20 and larvae 4 per 100 sweeps on 12-inch alfalfa in Prince Edward County. (Isakson). COLORADO - More widespread and more serious than in 1965 in Arkansas River Valley. Most serious in Pueblo County. (Schweissing). UTAH - Larvae still active, some light damage; 2 larvae and 3 adults per 10 sweeps at Collinston and Willard, Box Elder County. (Knowlton).

A SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) - NEW MEXICO - Adults per 25 sweeps in alfalfa 2-4 in Bernalillo County, 2-6 in northern Eddy County. (Heninger, Mathews).

PEA APHID (*Acyrtosiphon pisum*) - NEW MEXICO - Very light to spottedly heavy on alfalfa in Artesia area, Eddy County; light in Bernalillo County and in Espanola Valley in Rio Arriba County. (Kloepfer et al.). UTAH - Generally light in Box Elder County alfalfa. Aphids heavily parasitized by 2 species of parasitic wasps. (Knowlton). WYOMING - Ranged 230-250 per 10 sweeps on alfalfa in Laramie and Goshen Counties. (Marks). ARKANSAS - Found for first time in Newton County since last spring; 75-100 per 100 sweeps. Expected to increase with cool weather. (Boyer, Roberts). WISCONSIN - Ranged 30-100 per sweep in alfalfa near Mazomanie. (Wis. Ins. Sur.). VIRGINIA - Adults and nymphs 450 per 10 sweeps on alfalfa in Prince Edward County. (Isakson).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults 4-8 per 10 sweeps on alfalfa in Laramie and Goshen Counties. (Marks). UTAH - *Lygus elisus* numerous in Box Elder County alfalfa; 2-16 per 10 sweeps in Fielding-Tremonton fields. (Knowlton). NEW MEXICO - *Lygus* spp. adults and nymphs per 25 sweeps in alfalfa, 2-3 in southern Bernalillo County, 2-5 in Espanola Valley and 4-6 in northern Eddy County. (Heninger et al.).

GREEN STINK BUG (*Acrosternum hilare*) - VIRGINIA - Adults and nymphs 8 per 10 row feet on alfalfa in Brunswick County field. (Isakson).

CLOVER LEAFHOPPER (*Aceratagallia sanguinolenta*) - UTAH - Counts 7 per 10 sweeps in alfalfa at Cornish, Cache County. (Knowlton).

BUFFALO TREEHOPPER (*Stictocephala bubalus*) - VIRGINIA - Adults 60 per 10 sweeps on alfalfa in Prince Edward County. (Isakson).

ALFALFA SEED CHALCID (*Bruchophagus roddi*) - NEVADA - Damage to alfalfa seed heavier than in previous years in Humboldt and Lander Counties. (Lundahl).

SOYBEANS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Adults light to moderate on soybeans in northern Worcester County. (U. Md., Ent. Dept.). VIRGINIA - Adults averaged 30 per 10 feet of row in one field in Brunswick County, light in Greensville, Dinwiddie, Prince Edward and Sussex Counties. (Isakson). ARKANSAS - Increased in several areas of State. Very little bean damage noted. (Barnes).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - VIRGINIA - Light in all soybean fields checked. (Isakson). MARYLAND - Moderately infesting large acreage of soybeans near Snow Hill, Worcester County. (U. Md., Ent. Dept.).

STINK BUGS - SOUTH CAROLINA - Building up in most areas of State. (Nettles et al., Oct. 4). ALABAMA - Considerable increase in numbers and movement of *Acrosternum hilare* and *Euschistus servus* noted on soybeans in southwest area. (Bond).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatilis*) - SOUTH CAROLINA - Ranged 15-20 per foot of row on late-planted soybeans at Edisto Experiment Station. (Nettles et al., Oct. 4).

A NOCTUID MOTH (*Pseudoplusia includens*) - ALABAMA - Represented over 95 percent of all loopers examined on soybeans in 6 central and southwestern counties. (Bass et al.).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - ALABAMA - Continues at high levels in cotton throughout State. Some treatments made in Colbert County. (Somerville et al.). MISSISSIPPI - Feeding on young, green bolls and squares in Yazoo County; numbers moderate. (Dinkins). OKLAHOMA - Percent punctured squares 60-94 in southwest area cotton and in Payne and Grady Counties; most infestations considered non-economic. (Okla. Coop. Sur.).

For Boll Weevil Complex in New Mexico see page 980.

BOLLWORMS (*Heliothis* spp.) - ALABAMA - Continue at high levels in cotton throughout State. Some treatment done in Colbert County. (Somerville et al.). OKLAHOMA - *H. zea* egg and larval counts up to 10 percent in southwest area and Grady County; moth activity decreased. (Okla. Coop. Sur.). NEW MEXICO - *H. zea* light in Hidalgo and Grant County cotton fields. (Hare).

AN OLETHREUTID MOTH (*Crocidosema plebeiana*) - CALIFORNIA - Larvae heavy in cotton bolls in Anaheim, Orange County. (Cal. Coop. Rpt.).

STINK BUGS - NEW MEXICO - Damage in Virden Valley heavy; moderate damage noted on cotton at Animas and Rodeo, Hidalgo County. (Hare).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults very heavy on tobacco planting near Bowie, Prince Georges County. (U. Md., Ent. Dept.).

SUCKFLY (Cyrtopeltis notatus) - VIRGINIA - Moderate in 3-acre planting of late-maturing tobacco in Pittslyvania County. (Dominick, Brown, Sept. 30).

SUGARBEETS

LYGUS BUGS (Lygus spp.) - UTAH - Mostly L. hesperus, 4 per 10 sweeps in sugarbeet fields in Lewiston, Cornish area of Cache County. (Knowlton).

A WEEVIL (Cosmobaris americana) - OREGON - Adults collected from sugarbeet foliage 6 miles west of Vale, Malheur County. (Goeden).

BEANS AND PEAS

BEAN LEAF ROLLER (Urbanus proteus) - FLORIDA - Larvae heavy on beans at Sanford, Seminole County; treatment required. (Greene).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - MISSISSIPPI - Heavily damaging leaves of collards and turnips in Oktibbeha County. (Dinkins).

CROSS-STRIPED CABBAGEWORM (Evergestis rimosalis) - ARKANSAS - Infesting kale in Searcy County. Det. by E. P. Rouse. (Boyer, Roberts).

SOUTHERN CABBAGEWORM (Pieris protodice) - OKLAHOMA - This and yellow-striped armyworm light on turnip foliage in Jackson County. Parasites numerous. (Okla. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - MISSISSIPPI - Causing severe "cupping" of collard leaves in Oktibbeha County. (Dinkins). UTAH - Numerous in home garden cabbage in Salt Lake County. (Knowlton).

YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma) - ALABAMA - Larvae and adults damaging turnip leaves in home garden in Mobile County. (Seibels).

CUCURBITS

SQUASH BUG (Anasa tristis) - CALIFORNIA - Heavy on squash in Fresno, Fresno County. (Cal. Coop. Rpt.).

A THRIPS (Kurtomathrips morrilli) - CALIFORNIA - Heavy on wild gourd, Cucurbita foetidissima, in Anaheim, Orange County. This new county record. (Cal. Coop. Rpt.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - COLORADO - Difficult to control on lettuce in Pueblo County. (Schweissing). NEW MEXICO - Continues problem in Dona Ana County lettuce fields. Most growers treating on 3-day schedule. (Durkin, Sept. 30).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Heavy on green chili in Dona Ana County. (Clayshulte, Sept. 30).

DECIDUOUS FRUITS AND NUTS

WALNUT CATERPILLAR (*Datana integerrima*) - OKLAHOMA - Heavy and damaging pecan trees in Payne and Mayes Counties. (Okla. Coop. Sur.).

TWIG GIRDLER (*Oncideres cingulata*) - OKLAHOMA - Moderate and damaging pecan trees in Seminole County. (Okla. Coop. Sur.). VIRGINIA - Damaged twigs and small limbs of pecan in Nottoway County. (Amos).

FALL WEBWORM (*Hyphantria cunea*) - OKLAHOMA - Continues heavy on pecan and other trees in eastern area. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (*Laspeyresia caryana*) - OKLAHOMA - Damaging 40-50 percent of nuts on unsprayed pecan trees in Payne County. (Okla. Coop. Sur.).

PECAN WEEVIL (*Curculio caryae*) - OKLAHOMA - Moderate on pecans in Mayes County; adults light in Payne County. (Okla. Coop. Sur.).

PECAN LEAFROLL MITE (*Aceria caryae*) - OKLAHOMA - Light on pecan leaves in small area of Payne County. (Okla. Coop. Sur.).

FILBERTWORM (*Melissopus latiferreanus*) - CALIFORNIA - Medium in almond fruit in Los Altos, San Mateo County. (Cal. Coop. Rpt.).

FRUIT FLIES (*Rhagoletis* spp.) - TENNESSEE - Nearly full-grown *R. pomonella* larvae infesting apples in Unicoi County. (Williams et al.). CALIFORNIA - *R. completa* larvae heavy in peach fruit at Rialto, San Bernardino County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - ALABAMA - Extremely heavy and damaging root system of ten-year-old apple tree at Auburn. (Bagby).

CITRUS

Citrus Insect Situation in Florida - End of September - CITRUS RUST MITE (*Phyllocoptura oleivora*) on leaves infested 64 percent of groves (norm 56 percent); 39 percent economic (norm 35 percent). On fruit, citrus rust mite infested 67 percent of groves (norm 68 percent); 51 percent economic (norm 44 percent). Population recently increased above normal level on both leaves and fruit. Further increase expected to continue through October. Highest districts west, south and north. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 9 percent of groves (norm 24 percent); 4 percent economic (norm 8 percent). Population below average and in low range. Gradual increase will occur in October and November. Highest district north. CITRUS RED MITE (*Panonychus citri*) infested 24 percent of groves (norm 32 percent); 8 percent economic (norm 8 percent). Population in low range, slightly below normal. Probably will increase in October and hold near fall average. Highest districts north and west. YELLOW SCALE (*Aonidiella citrina*) infested 60 percent of groves; 13 percent economic. Although population declined in August and early September, it was highest on record for those months in 15 years. An upward trend began in late September and is expected to continue through October. Highest districts central, north and west. GLOVER SCALE (*Lepidosaphes gloverii*) infested 50 percent of groves; 8 percent economic. Population currently normal and in low range. Increase expected. Highest districts east and central. PURPLE SCALE (*L. beckii*) infested 51 percent of groves; 2 percent economic. Recently more common but very few infestations expected to become heavy. Highest district west. CHAFF SCALE (*Parlatoria pergandii*) infested 31 percent of groves; 2 percent economic. Slight increase expected from current low level. Highest district east. BLACK SCALE (*Saissetia oleae*) infested 35 percent of groves; 10 percent economic. Populations dropped below normal fall level, but still numerous in scattered groves. Little change expected. Highest district west. WHITEFLIES infested 70 percent of groves; 12 percent economic. Little change expected. MEALYBUGS decreased to low level but still above normal abundance. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

PINEAPPLE MEALYBUG (Dysmicoccus brevipes) - CALIFORNIA - Medium on pineapple in Point Mugu, Ventura County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Heavy on citrus in Soledad, Monterey County. (Cal. Coop. Rpt.).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults infesting leaves of 35 percent of Citrus sinensis plants in nursery at Springhead; light on C. paradisi in nursery at Valrico. (Simmons, Vaughn).

SMALL FRUITS

RAISIN MOTH (Cadra figulilella) - CALIFORNIA - Larvae medium on muscat grapes in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

ACHEMON SPHINX (Pholus achemon) - OKLAHOMA - Larvae moderate, damaging grape foliage in Payne County. (Okla. Coop. Sur.).

LEAFHOPPERS (Erythroneura spp.) - OKLAHOMA - Continue extremely heavy on grapes in Payne County. (Okla. Coop. Sur.).

GRAPE ERINEUM MITE (Eriophyes vitis) - CALIFORNIA - Heavy on grapevines in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

ORNAMENTALS

A WEEVIL (Brachyrhinus cribricollis) - NEVADA - Heavily damaging roses in Boulder City, Clark County. This second record for Clark County and State. (Bechtel, Lauderdale).

IO MOTH (Automeris io) - FLORIDA - Infesting 50 percent of Ixora coccinea, and completely defoliating some at nursery in Davie, Broward County. (Shirah).

PINK SCAVENGER CATERPILLAR (Sathrobrotia rileyi) - CALIFORNIA - Heavy in hollyhock seed pods in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - Caused 80 percent of leaves to fall from Virginia-creeper at Hyde Park and 50 percent at Lewiston, Cache County. (Knowlton).

SPIDER MITES - NEVADA - Heavy numbers damaging juniper in Reno, Washoe County. Webbing very conspicuous. (Ting). WYOMING - Large numbers of Tetranychus sp. present on ornamental junipers at Torrington, Goshen County. (Marks).

ARMORED SCALES - FLORIDA - Phenacaspis cockerelli severe on magnolia and Pseudaulacaspis pentagona severe on ash in nursery at Lake Monroe, Seminole County. All stages of Aspidiotus destructor moderate on date palms at nursery in Longwood, Seminole County. (Kipp). Florida theae continues problem on holly and camellia; recently found at nurseries in Polk, Hillsborough and Seminole Counties. (Mead). CALIFORNIA - Unaspis euonymi medium on pachysandra nursery stock in San Leandro nursery, Alameda County. (Cal. Coop. Rpt.). OREGON - Phenacaspis pinifoliae infesting Scotch and other varieties of ornamental pines in Jackson County. (Berry).

MEALYBUGS - CALIFORNIA - Pseudococcus adonidum heavy on Phormium tenax in Point Mugu, Ventura County. (Cal. Coop. Rpt.). WISCONSIN - Phenacoccus dearnessi adults numerous on twigs of hawthorn in Beloit. (Wis. Ins. Sur.).

FOREST AND SHADE TREES

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Larvae infesting sycamore trees and seeking overwintering sites around trees and buildings. (Isakson, Lancaster).

AN ENGRAVER BEETLE (Ips calligraphus) - VIRGINIA - Seriously damaging 10 trees at one stand in Brunswick County. (Berisford).

ASIATIC GARDEN BEETLE (Maladera castanea) - RHODE ISLAND - Larvae damaging Canadian hemlock in nursery in Bristol; 15-40 grubs per plant. (Veilleux, Sept. 30).

ERIOCOCCID SCALES - CALIFORNIA - Eriococcus araucariae heavy on pine nursery stock in El Cajon nursery, San Diego County. (Cal. Coop. Rpt.). OREGON - Probably Gossyparia spuria heavy on elm twigs in Hermiston, Umatilla County. (Goeden).

AN ERIOPHYID MITE (Aceria fraxinivorus) - NEVADA - Probably this species heavy on small, canned ash trees at State tree nursery in Sparks, Washoe County. (Christner).

MAN AND ANIMALS

MOSQUITOES - MARYLAND - Aedes sollicitans very annoying in Snow Hill area of Worcester County. (U. Md., Ent. Dept.). MINNESOTA - Final operation of light traps in Minneapolis-St. Paul area resulted in 109 female mosquitoes. Aedes vexans most numerous; Culiseta inornata, Culex territans, C. restuans, C. salinarius, C. pipiens and Anopheles walkeri also collected. (Minn. Ins. Rpt.). LOUISIANA - Larval collections in Jefferson Parish contained Aedes sollicitans, A. triseriatus, Anopheles crucians, A. quadrimaculatus, Culex erraticus, C. pipiens quinquefasciatus, C. salinarius and Psorophora confinnis. Light trap collections decreased due to cooler nights. C. salinarius dominant. (Stokes).

FACE FLY (Musca autumnalis) - MONTANA - Large numbers found in house under construction at Hamilton, Ravalli County, during September 1966 by W. L. Jellison. One pint of flies collected. Det. by C. W. Sabrosky. This new county record. (Sabrosky). UTAH - Still troublesome to horses and cattle at Richmond, Lewiston and Cornish, Cache County. (Knowlton).

HOUSE FLY (Musca domestica) - OKLAHOMA - Ranged up to 30 per Scudder grid in untreated barns in Payne County. Heavy in dairy barns in Mayes County, moderate in homes in Cleveland County. (Okla. Coop. Sur.). FLORIDA - Heavy at swine evaluation center at Live Oak, Suwannee County. Flies attracted to manure and molasses feed. (Strayer).

HORN FLY (Haematobia irritans) - OKLAHOMA - Average numbers per head in Noble County: Bulls 1,500, cows 250, steers 400, calves 60. Moderate in Payne and Cleveland Counties. (Okla. Coop. Sur.). TENNESSEE - These, stable flies and black flies infesting dairy and beef cattle in Knox County September 22. (Williams et al.). SOUTH CAROLINA - Still present in Clemson area; more numerous on black than red animals. (Nettles et al., Oct. 4).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 3-4 per head on cattle in Noble County. (Okla. Coop. Sur.).

HORSE BOT FLY (Gasterophilus intestinalis) - OKLAHOMA - Adults numerous and very annoying to horses in Payne County. (Okla. Coop. Sur.).

A SCARAB (Trox suberosus) - ALABAMA - Present in litter, along with darkling beetles, in most poultry houses throughout northern section. Det. by O. L. Cartwright. (Balch, Thomas).

LESSER MEALWORM (Alphitobius diaperinus) - ALABAMA - Adults and larvae heavy in litter and under feeders in most commercial poultry houses throughout Cullman County. Det. by T. J. Spilman. (Balch, Thomas et al.).

AN ORIBATID MITE (Nothrus sp.) - NEVADA - Heavy on cat and in home in Henderson, Clark County. Det. by E. W. Baker. (Cassaday et al., Sept. 23). Species of this genus live out of doors and not known to be harmful. Feed on organic debris. (PPC).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEVADA - Increasing in Las Vegas area, Clark County; populations heaviest yet encountered. (Zoller).

BLACK WIDOW SPIDER (Latrodectus mactans) - OREGON - Occurring around numerous homes in Medford, Jackson County. (Berry).

SCREW-WORM (Cochliomyia hominivorax) - Total of 237 cases reported in U. S. October 2-8 as follows: TEXAS - El Paso 1, Hudspeth 5, Culberson 4, Reeves 1, Jeff Davis 3, Presidio 15, Brewster 7, Pecos 2, Terrell 3, Andrews 1, Tom Green 1, Crockett 3, Sutton 1, Kimble 1, Mason 1, Llano 2, Burnet 1, Williamson 2, Travis 1, Hays 4, Fayette 1, Comal 1, Kendall 1, Gillespie 3, Kerr 7, Bandera 1, Real 8, Edwards 5, Val Verde 24, Kinney 9, Uvalde 7, Medina 9, Bexar 5, Maverick 6, Zavala 6, Frio 8, Atascosa 1, Karnes 1, Dimmit 15, La Salle 3, Live Oak 2, Webb 4, Duval 2, Kleberg 1, Zapata 2, Jim Hogg 5, Brooks 3, Starr 1. NEW MEXICO - Lea 2, Eddy 10, Otero 1, Luna 3, Grant 1. ARIZONA - Mohave 4, Yuma 1, Maricopa 7, Yavapai 5, Pima 2, Cochise 1. CALIFORNIA - Riverside 1, San Diego 2. Total of 406 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 1, Territorio sur de Baja California 34, Sonora 176, Chihuahua 108, Coahuila 56, Nuevo Leon 15, Tamaulipas 16. Total of 163 cases reported from Mexico south of Barrier Zone. Barrier Zone area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 51,990,250, Arizona 21,086,000, New Mexico 5,738,000, California 1,716,000, Mexico 29,520,000. (Anim. Health Div.).

Weather continued from page 970.

PRECIPITATION: A cold front that stretched from the Great Lakes to Texas at the beginning of the week produced scattered rain over most of the Eastern States on Monday and Tuesday. Locally heavy thunderstorms brought up to 2.5 inches of rain over Texas from the trans-Pecos eastward, with Houston reporting 2.78 inches on Tuesday. Lighter thundershowers dotted the southwestern deserts Tuesday and Wednesday. Hurricane Inez brought heavy showers to the Florida Keys on Wednesday and light rain fell on the northern Pacific coast on Thursday. A fast-moving cold front reached the Northwest Saturday afternoon; by Sunday, it stretched from the Great Lakes to Texas (in almost the exact position of the front of a week earlier) and was causing widespread showers and thunderstorms on the Mississippi River to the Atlantic Ocean. A number of localities in Alabama and Georgia received from 3 to more than 5 inches of rain late Sunday afternoon and evening. Hail and high winds were associated with some of the thunderstorms; hail reached golf-ball size and winds gusted to 63 m.p.h. near St. Louis, Missouri. Two large areas of the Nation received little precipitation. One extended from California to Montana and northern North Dakota. The other stretched from eastern New Mexico to southern Iowa and west central Illinois. Snow accumulations of nearly 1 foot were reported on the higher Rocky Mountains in Wyoming. (Summary supplied by Environmental Data Service, ESSA).

STORED PRODUCTS

COWPEA WEEVIL (*Callosobruchus maculatus*) - CALIFORNIA - Heavy in packaged beans in retail store in San Diego, San Diego County. (Cal. Coop. Rpt.).

VETCH BRUCHID (*Bruchus brachialis*) - MARYLAND - Infesting vetch seed on Harford County property. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults and larvae of several species continue active in alfalfa in Laramie and Goshen Counties. (Marks). UTAH - Adults and nymphs of these and other predators unusually numerous for so late in season. (Knowlton).

A PUNCTURE-VINE SEED WEEVIL (*Microlarinus lareynii*) - CALIFORNIA - Probably this species heavy in puncture-vine plants in Escalon, San Joaquin County. (Cal. Coop. Rpt.).

DAMSEL BUGS (*Nabis* spp.) - WYOMING - Adults and nymphs 12-15 per 10 sweeps in Laramie and Goshen County alfalfa. (Marks).

A TACHINA FLY (*Lespesia archippivora*) - MISSOURI - Probably this species, parasitized 15 of 20 Vanessa cardui larvae collected from commercial sunflower field September 16. Det. by W. S. Craig. (Munson).

Beneficial Insects in Oklahoma - Predators numerous in fall-seeded wheat in Tillman County. Convergent lady beetle, lacewing larvae, collops beetles and Orius insidiosus observed. Predators in alfalfa continue high in most areas. (Okla. Coop. Sur.).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - NEW MEXICO - Adult survey completed in 21 counties. Economic infestations found on 2,167,100 acres, including 2,034,000 acres of rangeland. In Saint Augustine Plains 700,000 acres infested; this first economic infestation in area since 1958. Phliobostroma quadrimaculatum, Melanoplus gladstoni, Drepanopterna femoratum and Aulocara eliotti ranged 15-40 per square yard. In Lincoln County, 50,000 acres of rangeland infested; M. gladstoni, M. lakinum, M. occidentalis and Boopedon nubilum dominant. (Fulkerson). OKLAHOMA - Rangeland counts averaged 6 per square yard; crop margin counts 5-9 per square yard. Damage to fall-seeded wheat generally light. No flights or migrations observed. (Okla. Coop. Sur.). KANSAS - M. sanguinipes 10 per square yard in many alfalfa fields in Riley, Pottawatomie, Jackson, Shawnee, Douglas, Miami and Franklin Counties. M. femurrubrum, M. differentialis and other species up to 15 per square yard along roadsides and ditches. All species laying eggs. (Campbell et al.). WISCONSIN - M. femurrubrum laying eggs in Rock and Green Counties. (Wis. Ins. Sur.).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Adults and larvae continue to be collected in desert areas. Treatment initiated sooner than scheduled due to rapid buildup in infested fields; 14,453 acres treated in Imperial Valley, Imperial County. Collections so far this season: Riverside County - Palo Verde Valley 2,315 adults, 723 larvae; Coachella Valley 17 adults. Imperial County - Imperial Valley 881 adults, 69 larvae; Bard Valley 667 adults, 363 larvae. San Bernardino County - Needles 22 adults, 1 larva. San Diego County - Borrego Valley 3 adults. San Diego County, new county record. (Cal. Coop. Rpt.). NEW MEXICO - Moderate to heavy in southern Eddy County cotton. Percent infested green bolls 35-98. Many bolls from heavily infested fields with 4-9 larvae. Infestations lighter in northern Eddy County, light in Chaves County. Light, spotted infestations found in Animas Valley, no infestations found in Virden Valley, Hidalgo County. (N. M. Coop. Rpt.).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - Leaves falling in infested areas of Calhoun County; shows birds caused some egg destruction, indicating possible high egg mortality. (Moore).

BOLL WEEVIL COMPLEX (*Anthonomus grandis* complex) - NEW MEXICO - All detection surveys in Dona Ana, Luna, Hidalgo, Chaves and Eddy Counties negative. (N. M. Coop. Rpt.).

JAPANESE BEETLE (*Popillia japonica*) - MICHIGAN - Trap removal continues in Metropolitan Detroit area; six new locations and one repeat infestation found. (Moore).
VIRGINIA - Larvae numerous in lawn in Mathews County. (Isakson, Dinwiddie).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Eight larvae taken from calamondin at St. Petersburg, Pinellas County; 2 larvae from common guava at Avon Park, Highlands County; 4 larvae from guava in Frostproof, Polk County; one adult from side of house and 3 adults from sticky board trap at Englewood, Sarasota County. (Fla. Coop. Sur.). Previously collected in Hardee County July 7, and Pinellas County August 26. These new county records. (PPC).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - TENNESSEE - Found in Lincoln County, near McBurg. (Williams et al.). This new county record and first collected in State since 1950. Previously recorded at Memphis, Shelby County, August 21, 1950, and apparently eradicated. (PPC).

HAWAII INSECT REPORT

Insects of Regional Significance - A PLATASPID BUG (*Coptosoma xanthogramma*) - All stages severe on sesban (*Sesbania grandiflora*) in Kaneohe, Oahu. Four-foot branches, 0.5-1.5 inches in diameter, with 400 nymphs and 600 adults per branch. This new host record. Numerous nymphs and adults congregating on chili pepper plant and several plumeria plants nearby. Nymphs and adults, trace to heavy on terminals of coral trees (*Erythrinia* spp.) in Honolulu and windward Oahu. This another new host record. Other hosts are mauna-loa, jade-vine, lima bean, snap bean, pigeonpea, cotton and African tuliptree. (Kumabe et al.).

Turf - Larvae of a BILLBUG (*Sphenophorus venatus vestitus*) light on zoysia grass in Hilo and in Kikuyu grass in Kamuela, Hawaii Island; 1 larva per square foot. Adults medium in Bermuda grass, 10 per square foot, in Ewa and light in Kaneohe, Oahu. (Yamayoshi et al.).

Forage Legumes - A PYRAUSTID MOTH (*Nomophila noctuella*) - Larvae, probably this species, medium in experimental alfalfa plantings in Volcano area, Hawaii Island. (Yoshioka).

General Vegetables - SWEETPOTATO VINE BORER (*Omphisa anastomosalis*) larvae light to medium in 1 acre of sweetpotatoes in Kahaluu, Oahu. (Sato).

Forest and Shade Trees - BARNACLE SCALE (*Ceroplastes cirripediformis*) heavy on 15 fiddlewood trees (*Citharexylum spinosum*) in Punchbowl area of Honolulu, Oahu; 10 trees in very poor condition. (Komatsu, Funasaki).

INSECT DETECTION

New United States Record

A WEEVIL (Trachyphloeus aristatus (Gyll.)) - PENNSYLVANIA - Found crawling on floors and walls of residence in Villanova. Collected by Mrs. C. R. Knaus August 15, 1966. Det. by R. E. Warner. Only previous report from North America is Carleton Place (near Ottawa), Ontario, Canada, where extremely numerous and climbing walls and entering homes. Nothing is known concerning biology of this species except that, like closely related species, it feeds on roots. Host plants not known. (PPC)

New State Records

A WEEVIL (Cosmobaris americana) - WISCONSIN - Collected by D. H. Custer from Chenopodium album (lambquarters), at Madison, Dane County, June 28, 1966. Det. by R. E. Warner. (Wis. Ins. Sur.). Known to attack sugarbeets. (PPC).

A WEEVIL (Trichobaris trinotata) - WISCONSIN - Collected by M. S. Conrad from grass at a park in Brodhead, Green County, June 15, 1965. Det. by R. E. Warner. (Wis. Ins. Sur.).

A WEEVIL (Barypeithes pellucidus) - MARYLAND - Numerous adults collected from walls and concrete walks surrounding a swimming pool at La Vale, Allegany County, June 9, 1966. Det. by R. E. Warner. (U. Md., Ent. Dept.).

New County Records

A THRIPS (Kurtomathrips morrilli) - CALIFORNIA - Collected from wild gourd in Anaheim, Orange County. (p. 974).

FACE FLY (Musca autumnalis) - MONTANA - Collected at Hamilton, Ravalli County, in September. (p. 977).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Collected in Borrego Valley, San Diego County. (p. 979).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Collected in Hardee County July 7 and Pinellas County August 26. (p. 980).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TENNESSEE - Collected in Lincoln County. (p. 980).

CORRECTIONS

CEIR 16(33):797, 808 - SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Should read: "Populations largest in several years..."

LIGHT TRAP COLLECTIONS

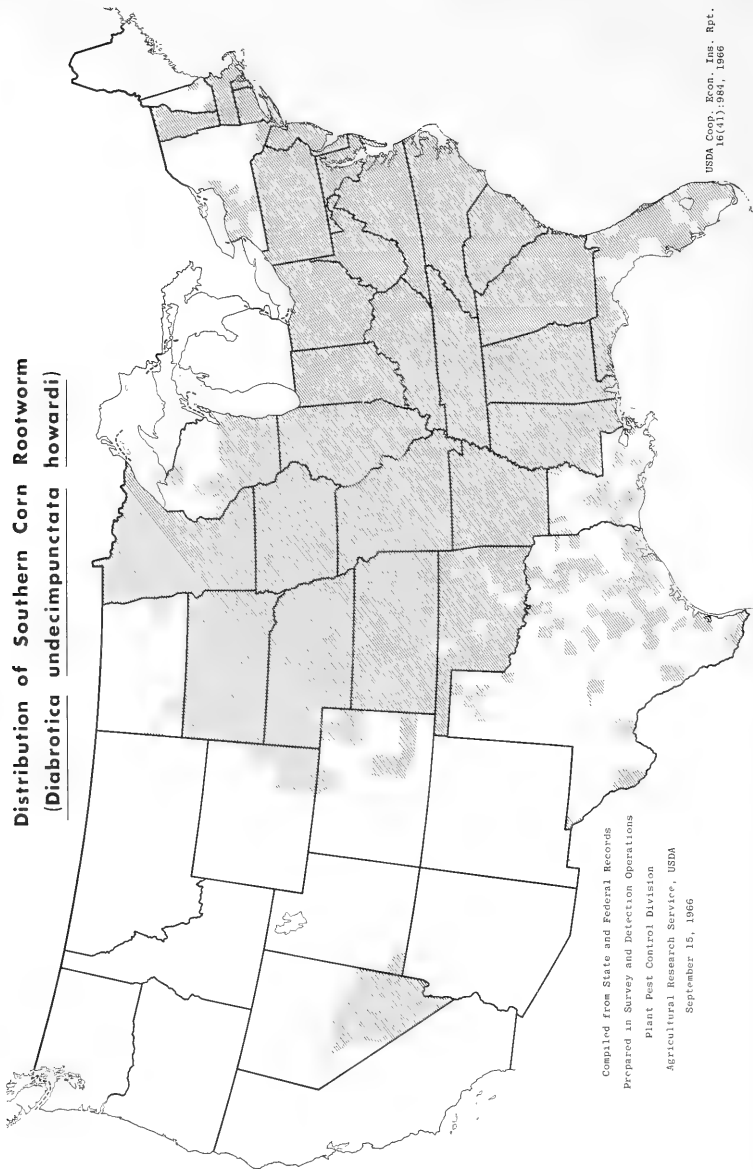
State	County	Date	Time	Trap	Species	Number	Other	Notes
FLORIDA	Gainesville	10/5		1		2		
	Sanford	10/2-6		1		48		
GEORGIA	Tifton	9/29-10/5	BL			9		
INDIANA (Counties)	Possey	9/23-30	BL			153		
	Hamilton	9/23-30	BL			10		
	St. Joseph	9/23-30	BL			4		
MISSISSIPPI	Stoneville	9/30-10/6	2BL			5	622	
NEBRASKA	Scotts Bluff Expt. Sta.	9/19-26		1		4		
	North Platte	9/15-22		205		33		
NORTH DAKOTA	Bismarck	10/14, 20		4				
	Fargo	10/20, 28		3				
SOUTH CAROLINA	Charleston	9/26-10/2	BL			1	11	
TEXAS	Waco	9/30-10/7	BL			77	14	55
WISCONSIN	Platteville	9/30-10/3	BL					
	Madison	9/29-10/4	BL					
WYOMING	Laramie	9/9-16		1				1

ADDITIONAL NOTES

ARIZONA - THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) populations continue high in alfalfa in Yuma and Maricopa Counties; damage moderate to heavy in most areas. Populations decreasing in Pinal, Graham and Cochise Counties. SPOTTED ALFALFA APHID (Therioaphis maculata) decreasing rapidly in infested areas of Maricopa, Pinal and Cochise Counties. Moderate to heavy numbers of CABBAGE LOOPER (Trichoplusia ni) causing heavy damage to lettuce in Yuma, Maricopa and Red Rock areas of Pinal County. Egg laying heavy in Maricopa and Yuma Counties. BEET ARMYWORM (Spodoptera exigua) increasing on lettuce throughout Maricopa and Yuma Counties; controls necessary in most areas. Moderately damaged sugarbeets near Casa Grande and Chandler. CORN EARWORM (Heliothis zea) light to moderate on lettuce in Maricopa County; could be serious problem next few weeks. Young BOLLWORM (H. zea) larvae continue to appear in cotton in Yuma, Maricopa, Pinal, Cochise and Graham Counties; damage heavy to top crop in many areas. New infestations of PINK BOLLWORM (Pectinophora gossypiella) still detected in Yuma and Pinal Counties; light to heavy infestations found throughout Yuma County. Larvae of a NOCTUID MOTH (Thurberiphaga diffusa) found feeding in bolls of wild cotton in desert area near Amado, Pima County. (Ariz. Coop. Sur.).

NORTH DAKOTA - GRASSHOPPER adults continue evident in Stark, Dunn, Grant and Hettinger Counties; mild weather resulted in late individuals reaching maturity. Egg deposition continues. HORN FLY (Haematobia irritans) adults annoying range cattle in Stark, Dunn, Grant and Adams Counties; up to 50 (average 15) per Hereford cow. (Brandvik).

**Distribution of Southern Corn Rootworm
(Diabrotica undecimpunctata howardi)**



Compiled from State and Federal Records
Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
September 15, 1966

USDA Coop. Econ. Ins. Rep.
16(41):984, 1966

UNITED STATES DEPARTMENT OF AGRICULTURE

Hyattsville, Maryland 20782

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

Overwintering EUROPEAN CORN BORER population appears highest in several years in central Nebraska. (p. 987).

CUTWORM complex heavy in pastures in northeast and central Texas; destroying small grains in Falls County and increasing in southeastern Texas. FALL ARMYWORM infesting Bermuda grass in Florida. (p. 987).

Some SOYBEAN PESTS increasing in South Carolina. (p. 989).

Several PECAN PESTS continue high in Texas; BLACK PECAN APHID major pest of season, with FALL WEBWORM heaviest in several years in Nacogdoches County. (p. 990).

PINK BOLLWORM situation in New Mexico and California. (pp. 993, 994).

Detection

New State records include two PIT SCALES in Maryland (p. 991) and a LOUSE FLY in Louisiana (p. 993).

For new county records see page 994.

Prediction

Dry fall weather and high light trap collections indicate high population of PALE WESTERN CUTWORM in Nebraska in spring of 1967. (p. 988).

Special Report

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in 16 States for 1965. (pp.997-1007).

Reports in this issue are for week ending October 14 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	987
Insects Affecting	
Cörn, Sorghum, Sugarcane.....	987
Small Grains.....	988
Turf, Pastures, Rangeland.....	988
Forage Legumes.....	988
Soybeans.....	989
Peanuts.....	989
Cotton.....	989
Sugarbeets.....	990
Potatoes, Tomatoes, Peppers.....	990
Beans and Peas.....	990
Deciduous Fruits and Nuts.....	990
Citrus.....	991
Small Fruits.....	991
Ornamentals.....	991
Forest and Shade Trees.....	992
Man and Animals.....	992
Beneficial Insects.....	993
Federal and State Plant Protection Programs.....	993
Insect Detection.....	994
Corrections.....	994
Hawaii Insect Report.....	995
Nomenclatural Change for Fuller Rose Beetle.....	995
Light Trap Collections.....	996
Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in 16 States for 1965.....	997

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-OCTOBER TO MID-NOVEMBER

Weather Bureau's 30-day outlook for mid-October to mid-November calls for temperatures to average above seasonal normals over most areas from the Rockies to the Appalachians and also over the north Pacific coast. Below normal averages are called for along the middle and north Atlantic coast as well as in California, while near normal temperatures are indicated for unspecified areas. Precipitation is expected to exceed normal over the west coast States and the western plateau. Subnormal totals are called for east of the Continental Divide except for near normal in the northern Plains, the upper Mississippi Valley and the south Atlantic coast and near to above normal in portions of the southern Plains. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - TEXAS - Larvae moderate to heavy on grass pastures in Stephens County; moderate on several Bermuda grass pastures near Sulphur Springs, Hopkins County. (Blackburn, Herschler).

CORN EARWORM (*Heliothis zea*) - MARYLAND - Pod damage light to medium on late soybeans in Dorchester County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Increasing on soybeans in Charleston County, decreasing in Hampton and Florence Counties. (Thomas). OKLAHOMA - Heavy in late sweet corn in Mayes County. (Okla. Coop. Sur.). COLORADO - Up to 65 percent of harvested corn damaged in Mesa County. (Hantsbarger). CALIFORNIA - Larvae medium on corn at Sanger, Fresno County; damage noted in corn being harvested. Medium in carnation plantings in Encinitas, San Diego County. (Cal. Coop. Rpt.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - OKLAHOMA - Ranged 0.5-8 per linear foot on wheat in Beaver, Texas and Cimarron Counties. (Okla. Coop. Sur.). CALIFORNIA - Light to medium in corn at North Sacramento, Sacramento County. (Cal. Coop. Rpt.).

GREENBUG (*Schizaphis graminum*) - OKLAHOMA - Single specimen observed in wheat in Guymon area of Texas County. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WISCONSIN - Averaged 3-10 per sweep; few oviparae noted but no males as yet. (Wis. Ins. Sur.). OKLAHOMA - Very light, 1-11 per 10 sweeps on alfalfa in Texas and Cimarron Counties. (Okla. Coop. Sur.). COLORADO - Trace numbers in Fort Collins area. (Simpson). NEW MEXICO - Generally light in alfalfa fields throughout State. (N. M. Coop. Rpt.).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Few adults and nymphs present in marginal areas of alfalfa. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - SOUTH CAROLINA - Collected in Aiken County; all stalks contained at least 1 borer. Corn beginning to lodge. (Rogers). MISSOURI - Ranged 77.6-96 percent infestation and 203.6-556 borers per 100 plants in 4 northwest counties. (Munson). NEBRASKA - Populations in central area of State appear to be highest in several years. (Rhine). SOUTH DAKOTA - Fall survey indicates low population in south central area. Increasing in 3 southeastern counties. (Jones).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ALABAMA - Heavy lodging of corn occurring throughout Marion County due to girdling by overwintering generation. (Price).

SUGARCANE BORER (*Diatraea saccharalis*) - TEXAS - Larvae moderate in field of Hegari grain sorghum near Knippa of Uvalde County. (Tapscott).

CORN ROOTWORMS (*Diabrotica* spp.) - WISCONSIN - Few *D. longicornis* adults still present. Severely lodged 80 percent of corn in field near Arlington. Picking operations reduced to less than 1 m.p.h. and one direction. At 3 locations in field, 44, 32, and 4 percent of ears missed. (Wis. Ins. Sur.). SOUTH DAKOTA - Adults, less than two per stalk; associated with green stalks. *D. virgifera* composed 80 percent of population. (Jones).

BUMBLE FLOWER BEETLE (*Euphoria inda*) - IDAHO - Adults damaging corn at Orofino, Clearwater County, necessitating controls. (Fitzsimmons, Oct. 3).

RICE WEEVIL (*Sitophilus oryzae*) - ALABAMA - Heavily infesting Morgan County corn previously damaged by corn earworm. (Rutledge).

SORGHUM MIDGE (Contarinia sorghicola) - CALIFORNIA - Light damage to milo plantings in southern Fresno County. Loss apparent at harvest. (Cal. Coop. Rpt.).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Increasing, but still light to moderate on small grains and Bermuda grass pastures in northeast and central areas; light populations appearing in southeastern portion of State. (Sherrill et al.). ALABAMA - Larvae seriously damaging small grains in Morgan County. (Rutledge).

CHINCH BUG (Blissus leucopterus) - TEXAS - Very heavy, widespread infestations noted on small grains planted on former sorghum land in Milam County. (Moore).

CUTWORMS (Agrotis spp.) - TEXAS - A. ipsilon heavy in 1,500-2,000 acres of wheat and other small grain fields in Falls County. Considerable damage inflicted to several fields, necessitating replanting of some and spot planting in others. Populations intermingled with fall armyworm. (Criswell). NEBRASKA - Dry fall weather and high light trap collections indicate higher populations of A. orthogonia next spring. (Pruess).

APHIDS - WISCONSIN - Macrosiphum avenae alates and apterae averaged 6 per 100 sweeps in rye near Arlington. (Wis. Ins. Sur.). OKLAHOMA - Occasional winged adults of M. avenae noted in wheat in Texas County. Rhopalosiphum padi averaged 2 per linear foot on wheat in Goodwell area of Texas County. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

A BILLBUG (Sphenophorus venatus vestitus) - KANSAS - Reported infesting old zoysia grass in Johnson and Sedgwick Counties in CEIR 16(41):972. This new record for Sedgwick County. (Simpson).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Larvae infesting Bermuda grass in Bartow, Polk County. (Schmidt).

A SPITTLEBUG (Prosapia bicincta) - ALABAMA - Heavy on Coastal Bermuda grass in Chambers County. (Stewart et al.).

FALSE CHINCH BUG (Nysius ericae) - IDAHO - Nymphs nuisance on lawns at Lewiston, Nez Perce County. (Hulbert, Saxton, Oct. 3).

A SNAIL (Vallonia pulchella) - CALIFORNIA - Heavy in lawn and turf at Carmel, Monterey County. (Banks).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - All stages damaging alfalfa in Royal City area near Quincy, Grant County. (Halfhill, Oct. 10). NEVADA - Ranged 5-15 per sweep in Pahrangat Valley and Panaca, Lincoln County, alfalfa hay fields. (Bechtel, Zoller). WYOMING - Low in alfalfa in Big Horn, Park and Washakie Counties. (Marks). NEW MEXICO - Light on alfalfa at La Plata and Farmington, San Juan County; medium to heavy in Chaves and Eddy Counties. Controls underway. (Heninger, Mathews). OKLAHOMA - Active on alfalfa in Texas and Cimarron Counties; 35-45 per 10 sweeps. (Okla. Coop. Sur.). WISCONSIN - Increase continues in alfalfa; over 200 per sweep present in several fields. Beneficial insects scarce. (Wis. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Ranged 3-4 per 10 sweeps on alfalfa in Payne, Texas, and Cimarron Counties. Lygus sp. ranged up to 6 per 10 sweeps in panhandle area. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults 4-6 per 10 sweeps in alfalfa in Big Horn, Park and Washakie Counties. (Marks).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - OKLAHOMA - Averaged 25 per 10 sweeps in Payne County alfalfa; very light in panhandle area. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - NEW MEXICO - Heavy on alfalfa in Chaves County; some fields require controls. Lighter over rest of State. (Mathews).

ALFALFA WEBWORM (*Loxostege commixtalis*) - WISCONSIN - Larvae persist in many alfalfa fields; 1 per sweep in some instances. (Wis. Ins. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - NEVADA - Adults 0-8, larvae 0-4 per 100 sweeps in hay fields in Hiko, Lincoln County, where adults, larvae, pupae and damage heavy at this time in 1965. (Bechtel, Zoller). COLORADO - Adults entering hibernation in Larimer County untreated alfalfa. (Simpson).

GREEN JUNE BEETLE (*Cotinis nitida*) - MISSOURI - Larvae causing soil to be loose and extremely dry in fall-seeded alfalfa and small grain in southwest and south central areas. Plants dying in these fields. (Munson).

SOYBEANS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - SOUTH CAROLINA - Increasing on soybeans in Hampton and Charleston Counties, decreasing in Williamsburg County. (Thomas). ALABAMA - Heavy buildup occurring on 100-acre soybean planting near Atmore, Escambia County. (Lemons et al.).

STINK BUGS - TEXAS - *Nezara viridula* heavy in 180 acres of cowpeas and 200 acres of soybeans in Wharton County. (Smith). KANSAS - *Acrosternum hilare* adults and nymphs 3-4 per 10 feet of row on outside rows in Cherokee County. (Wilde).

GREEN CLOVERWORM (*Plathypena scabra*) - SOUTH CAROLINA - Increasing on soybeans in Florence and Charleston Counties, decreasing in Hampton County. (Thomas).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - SOUTH CAROLINA - Increasing on soybeans in Hampton and Charleston Counties, decreasing in Florence County. (Thomas).

FIELD CRICKETS - ARKANSAS - Damaging soybeans in Desha County. Damage resembles bollworm feeding except for rough edges left on pods. Feeding heaviest during past few weeks on nearly mature soybeans. (Boyer).

PEANUTS

BURROWING STINK BUGS - ALABAMA - Previously reported damaging peanuts in CEIR 16 (40):959, CEIR 16(39):937, CEIR 16(38):919 and CEIR 16(37):903. Determined as *Pangaeus bilineatus* and *Tominotus communis* by R. D. Froeschner. *P. bilineatus* dominant species. (Ledbetter et al.).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - ARKANSAS - Additional adults expected; black-eyed pupae observed in bolls in Desha County. (Boyer).

STINK BUGS - NEW MEXICO - Damage to cotton lint extensive in Eddy and Chaves Counties. Some damage noted in other cotton-growing areas of State. (Mathews).

SUGARBEETS

BEEB WEBWORM (Loxostege sticticalis) - CALIFORNIA - Larvae heavy in sugarbeets in Buttonwillow, Kern County. (Black).

POTATOES, TOMATOES, PEPPERS

CABBAGE LOOPER (Trichoplusia ni) - IDAHO - Larvae of this and western yellow-striped armyworm defoliated potatoes in Nampa, Parma and Drylake areas of Canyon County. Populations abundant and general over area. (Homan, Sept. 20).

GREEN PEACH APHID (Myzus persicae) - TEXAS - Heavy on bell peppers in Moore County. Controls unsatisfactory. (Rummel).

POTATO APHID (Macrosiphum euphorbiae) - CALIFORNIA - Adults heavy on tomato plants in Salinas, Monterey County. (Cal. Coop. Rpt.).

A LEAF MINER FLY (Liriomyza munda) - CALIFORNIA - Larvae medium in pear tomatoes in Corona, Riverside County. (Cal. Coop. Rpt.).

BEANS AND PEAS

WESTERN STRIPED CUCUMBER BEETLE (Acalymma trivittata) - CALIFORNIA - Probably this species heavy on foliage and fruit of beans and pumpkins in Halfmoon Bay, San Mateo County. (Cal. Coop. Rpt.).

BEAN LEAF SKELETONIZER (Autoplusia egena) - CALIFORNIA - Infesting beans in Salinas, Monterey County. (Cal. Coop. Rpt.).

PEA LEAF MINER (Liriomyza bryoniae) - CALIFORNIA - Medium on peas in Salinas, Monterey County. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

FALL WEBWORM (Hyphantria cunea) - TEXAS - Heaviest outbreak in several years noted on pecans throughout Nacogdoches County. Light to moderate on pecans and mulberries in El Paso County. Heavy loss of leaves could affect 1967 nut crop. (Rice, Neeb).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Heavy in pecans in Mayes County. (Okla. Coop. Sur.).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Light to heavy and widespread on walnuts in Sterling County; defoliation apparent in isolated cases. Light to moderate in Glasscock County. (Barleman, Neeb)..

PECAN WEEVIL (Curculio caryae) - TEXAS - Heavy in areas of Hamilton County. Pupa-tion and adult emergence underway in early September; approximately 50 percent of population emerged September 18-25. Moderate infestations observed on pecans near San Angelo, Tom Green County. (Hyman, Wagner).

BLACK PECAN APHID (Myzocallis caryaefoliae) - TEXAS - Continues one of major pecan pests of season. Heavy near Palestine, Anderson County; defoliation apparent on many trees. (LaRue).

A LEAF BLOTCH MINER (Cameraria caryaefoliella) - ALABAMA - Larval mining heavy in large pecan orchard at Ufiah, Monroe County. (Bagby et al.).

RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Locally heavy on plum in Dos Palos, Merced County; probably third generation. (Cal. Coop. Rpt.).

PEACH TREE BORER (Sanninoidea exitiosa) - OKLAHOMA - Larvae heavy in peach trees in Perkins area of Payne County. (Okla. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Locally heavy in peach fruit at Atherton, San Mateo County. (Cal. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Oviparae increasing on Prunus spp.; no eggs observed October 11 in western Dane County. Drought and high winds may reduce overwintering potential. (Wis. Ins. Sur.).

CITRUS

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

AN ARMORED SCALE (Unaspis citri) - FLORIDA - All stages severe on stems and bark of 20 orange plants of 2,000 in nursery at Apopka, Orange County. (Musgrove, Oct. 3).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - All stages infesting leaves on 75 percent of citrus plants in Clermont nursery, Lake County. Buildup on nursery stock general in area. (Henderson).

A STINK BUG (Loxa sp.) - FLORIDA - Adults moderate on 90 percent of sweet orange at Fort Lonesome, Hillsborough County; "stinging" fruit and causing them to drop. (Vaughn).

SMALL FRUITS

DRIED FRUIT BEETLE (Carpophilus hemipterus) - CALIFORNIA - Adults medium in 10 acres of grapes infected with bunch rot at Fairfield, Solano County. (Cal. Coop. Rpt.).

WHITE GRUBS (Phyllophaga spp.) - KANSAS - Killing strawberry plants in Greenwood County. Controls applied. (Simpson).

ORNAMENTALS

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Heavy on many ornamental oaks in Payne County. (Okla. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Larvae infesting blooms of gladiolus at nursery in Marianna, Jackson County. (Albritton). CALIFORNIA - Medium on carnation plantings in Encinitas, San Diego County. (Cal. Coop. Rpt.).

A PYRAUSTID MOTH (Undulambia polystichalis) - FLORIDA - Larvae infesting 1 leather-leaf fern per square yard in two ferneries at Seville and Pierson, Volusia County. (Roberts).

PIT SCALES - MARYLAND - Cerococcus kalmiae collected from azalea by C. Werner in spring of 1965 at Cheverly, Prince Georges County. Det. R. F. Wilkey. Lecaniodi-aspis prosopidis collected from mimosa by C. W. McComb, September 23, 1966, at Riviera Beach, Anne Arundel County. Det. R. F. Wilkey. Both are new State records. (McComb). FLORIDA - Cerococcus deklei adults moderate on stems of hibiscus plants in a nursery in Opa-Locka, Dade County. (Dillon).

GREEN SHIELD SCALE (Pulvinaria psidii) - FLORIDA - All stages severe on stems and leaves of ixora plants at store in Eau Gallie, Brevard County. Sixty plants placed under quarantine. (Levan).

ARMORED SCALES - FLORIDA - Phenacaspis cockerelli moderate on European fan palm and bird-of-paradise at nursery in Oviedo, Seminole County. Infesting sagopalms at nursery in Orlando, Orange County. Chrysomphalus aonidium severe on 95 percent of 500 queenpalm seedlings at nursery in Oviedo. (Kipp, Crews).

COTTONY-CUSHION SCALE (Icerya purchasi) - FLORIDA - All stages infesting stems and leaves of pittosporum plants in a store at Eau Gallie, Brevard County. Plants placed under quarantine. (Levan).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Moderate numbers appearing sporadically on pine trees throughout Houston; large number of trees killed in few concentrated areas. (Cooper).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Mostly larvae, with some pupae and adults, present in Siberian elm in Alamo, Lincoln County. This new county record. (Bechtel, Zoller). TEXAS - A suspected case of Dutch elm disease negative in Dallas, Dallas County; however, S. multistriatus moderate in several American elm trees. (Milikien et al.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Infestations and damage in Tonopah, Nye County, and Panaca, Lincoln County, heavier than in 1965. (Bechtel, Zoller).

POPLAR-AND-WILLOW BORER (Sternochetus lapathi) - WASHINGTON - Moderate adult population damaging willow at Yakima, Yakima County, September 26. (Hutt).

LOCUST BORER (Megacyllene robiniae) - UTAH - Seriously damaging black locust trees in Ogden area, Weber County. (Knowlton).

MEALYBUGS - CALIFORNIA - Phenacoccus gossypii heavy on leaves, limbs and trunks of catalpa trees in Sutter Creek, Amador County. Pseudococcus obscurus medium on mulberry trees in Salinas, Monterey County. (Cal. Coop. Rpt.).

PAINTED MAPLE APHID (Drepanaphis acerifoliae) - ARKANSAS - Populations continue high, with increased numbers of winged forms in Fayetteville area. (Boyer). CALIFORNIA - Medium on maple trees in Arlington, Riverside County. (Cal. Coop. Rpt.).

A SAWFLY (Caliroa lineata) - TEXAS - Larvae heavy on oak trees near Houston, Harris County. (Shores).

MAN AND ANIMALS

AN ASSASSIN BUG (Triatoma gerstaeckeri) - COLORADO - Adults taken in home at Grand Junction, Mesa County. This species known vector of Chagas disease. (Quist, Thatcher).

CAT FLEA (Ctenocephalides felis) - CALIFORNIA - Built up in many areas over State past month. (Cal. Coop. Rpt.).

MOSQUITOES - FLORIDA - Psorophora confinnis general and annoying in suburbs and golf courses at Gainesville, Alachua County. (Mead). LOUISIANA - Aedes sollicitans abundant in Grand Isle area and Culex salinarius showed noticeable increase in Wentwood area of Jefferson Parish. (Stokes). UTAH - Collections in 14 Weber County light traps 50 percent of 10-year average, and 20 percent of 1965 average. (Knowlton).

FACE FLY (Musca autumnalis) - IDAHO - Several adults observed inside building at Plummer, Benewah County. (Raeder, Portman, Sept. 24). UTAH - Annoying horses and cattle in Syracuse area, Davis County, and Plain City area, Weber County. (Knowlton).

HOUSE FLY (Musca domestica) - NEVADA - Adults very heavy in Alamo, Lincoln County, and medium in Tonopah, Nye County. (Bechtel, Zoller).

HORN FLY (Haematobia irritans) - TEXAS - Unusually heavy on untreated cattle and sheep in Crockett and Sterling Counties due to unusually wet weather during summer and fall. (Jacoby, Barleman). OKLAHOMA - Moderate on cattle in Marshall County. (Okla. Coop. Sur.).

HORSE BOT FLY (Gasterophilus intestinalis) - OKLAHOMA - Continues heavy and annoying to horses in Payne County. (Okla. Coop. Sur.).

A LOUSE FLY (Ornithoica confluenta) - LOUISIANA - Collected from cattle egret in East Baton Rouge Parish June 28, 1966, by J. E. Farlow and E. C. Burns. Det. by A. Stone. This first State record and first record from cattle egret in this country. (Chapin).

SCREW-WORM (Cochliomyia hominivorax) - Total of 188 cases reported in U. S. October 9-15 as follows: TEXAS - Brooks 3, Dimmit 16, Edwards 4, Kendall 1, Kinney 20, Live Oak 1, Maverick 5, Medina 3, Terrell 5, Tom Green 2, Uvalde 10, Val Verde 19, Brewster 7, Crockett 2, La Salle 1, McCulloch 1, Pecos 1, Starr 3, Zavala 5, Caldwell 1, Coryell 1, Menard 2, Real 1, Reeves 3, Sutton 2, Glasscock 1, Irion 2, Jeff Davis 3, Mason 2, Webb 1, Williamson 1, Llano 2, Duval 4, Hudspeth 1, Taylor 1, Bureson 1, Atascosa 1, Jim Wells 1, Jim Hogg 1, Zapata 1, Karnes 1, Frio 1, Presidio 2, Bastrop 1, Callahan 2, Sterling 1, Kimble 2. NEW MEXICO - Eddy 2, Dona Ana 1, Otero 1, De Baca 1, Hidalgo 1, Grant 2. ARIZONA - Yuma 3, Mohave 6, Cochise 1, Maricopa 6, Pima 5, Yavapai 3, Santa Cruz 1. CALIFORNIA - Imperial 2, San Diego 1. Total of 357 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 2, Territorio sur de Baja California 32, Sonora 106, Chihuahua 121, Coahuila 58, Nuevo Leon 19, Tamaulipas 19. No cases reported from Mexico south of the Barrier Zone. Barrier Zone area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 49,198,250, New Mexico 5,332,000, Arizona 18,556,000, California 1,716,000, Mexico 55,018,000. (Anim. Health Div.).

BENEFICIAL INSECTS

PUNCTURE-VINE WEEVILS (Microlarinus spp.) - CALIFORNIA - M. lareynii and M. lypriformis heavy on puncture-vine areas along railroad tracks in Fullerton, Orange County. (Hawthorne). NEVADA - Larvae, pupae and adults of M. lareynii and M. lypriformis variable in Alamo and Caliente, Lincoln County. M. lareynii appears most effective. (Bechtel, Zoller).

BRACONIDS - WASHINGTON - Aphidius smithi, A. pulcher and Praon simulans adults noted on forage in Royal City area near Quincy, Grant County; averaged 1 for each 4 pea aphids present. Parasite populations variable; up to 3 per sweep. (Half-hill).

FEDERAL&STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - WISCONSIN - Melanoplus femurrubrum females continue to lay eggs; 40 percent still contain eggs; 60 percent of M. differentialis females egg bearing. Incidence of parasitism by nematodes somewhat higher than in prior weeks. (Wis. Ins. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Large populations of small larvae in southern Dona Ana and Eddy County cotton fields. Larvae further north in valleys than previously recorded. (N. M. Coop. Rpt.). CALIFORNIA - Trapping continues in desert cotton-growing areas. Total for season in Imperial, Riverside, San Bernardino and San Diego Counties, 4,068 moths and 1,241 larvae. Quarantine

hearings held past week for invoking Federal quarantine in area. Selected treatment applied in Imperial, Riverside and San Diego Counties. Detection surveys continue negative in San Joaquin Valley. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Overall numbers apparently continue downward trend. Adults light in Manatee, Pinellas and Martin Counties. (Campbell et al.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Moderate at Houston nursery, Harris County. (Manning).

INSECT DETECTION

New State Records

A PIT SCALE (Cerococcus kalmiae) - MARYLAND - Collected by C. Werner at Cheverly, Prince Georges County, Spring 1965. Det. by R. F. Wilkey. (p. 991).

A PIT SCALE (Lecaniodiaspis prosopidis) - MARYLAND - Collected by C. W. McComb at Riviera Beach, Anne Arundel County, September 23, 1966. Det. by R. F. Wilkey. (p. 991).

A LOUSE FLY (Ornithoica confluenta) - LOUISIANA - Collected by J. E. Farlow and E. C. Burns in East Baton Rouge Parish June 28, 1966. (p. 993).

New County Records

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Collected at Alamo in Lincoln County. (p. 992).

A BILLBUG (Sphenophorus venatus vestitus) - KANSAS - Collected from zoysia grass in Sedgwick County. (p. 988).

CORRECTIONS

CEIR 16(40):962 - AZALEA CATERPILLAR (Dantana major) should read (Datana major).

CEIR 16(40):962 - ROUNDHEADED WOOD BORERS - VIRGINIA - Obara tripunctata should read Oberea tripunctata.

CEIR 16(40):965 - CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Should read: "...; adults taken in traps in Manatee County..."

CEIR 16(40):966 - JAPANESE BEETLE (Popilla japonica) should read (Popillia japonica).

HAWAII INSECT REPORT

Insects of Regional Significance - LEAF MINER FLIES (Liriomyza spp.) light on lettuce (older leaves only), light on tomatoes and moderately heavy on pole beans in Omaopio; heavy on tomatoes in Pulehu; light on tomatoes and pole beans in Waiakoa; all on Maui. Light to medium on pole beans, peas and cucumbers in Pupukea, Oahu. (Miyahira, Takishita, Higa). SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) light but extensive on cowpeas in Lihue, Koloa, and Waimea districts, Kauai. Parasitism by a tachina fly (Trichopoda sp.) estimated at 20 percent. (Haw. Ins. Rpt.).

Turf - All stages of BERMUDAGRASS MITE (Aceria neocynodonis) medium in Honolulu (Kapahulu), Pearl City, Waipahu, Nanakuli and Waianae, Oahu. This mite widespread on island, causing moderate damage to common Bermuda grass. (Haramoto).

General Vegetables - DIAMONDBACK MOTH (Plutella maculipennis) larvae light on watercress in Waiawa (between Pearl City and Waipahu), Oahu. Overall damage light but extensive. Adults 5 per sweep. (Higa). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) light on eggplant in Lualualei, Oahu. (Funasaki). IMPORTED CABBAGEWORM (Pieris rapae) caused heavy damage to cauliflower in Pulehu, Maui. All stages noted. (Miyahira).

Ornamentals - COTTONY-CUSHION SCALE (Icerya purchasi) heavy, particularly nymphs, on Fuschia sp. in Pearl City (Pacific Palisades), Oahu. (Shiroma).

Man and Animals - Total of 309 Aedes vexans nocturnus and 6,222 Culex pipiens quinquefasciatus taken in light traps operated by Mosquito Control Branch, Department of Health, on Oahu during September. (Haw. Ins. Rpt.).

Beneficial Insects - A PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) heavy on one remaining puncture-vine plant at Sandy Beach, Oahu. Weevils purposely introduced; complete kill expected within thirty days. (Haw. Ins. Rpt.).

A Change of Name for the Fuller Rose Beetle, Pantomorus godmani
(Crotch). (Coleoptera: Curculionidae).

In the Journal of the Entomological Society of Australia (N. S. W.), Vol. 2, 1956, Chadwick published two papers. The first, pp. 10-20, "A Review of Fuller's Rose Weevil (Pantomorus cervinus (Boheman)) (Col., Curculionidae)," is a review of work done on the nomenclature, morphology, anatomy, and world and Australian distribution of this insect. He concludes that Pantomorus cervinus (Boheman) is the correct scientific name and Fuller's rose weevil the correct common name of this widely distributed insect pest. This weevil is listed as Pantomorus godmani (Crotch), the Fuller rose beetle, in the latest "Common Names of Insects Approved by the Entomological Society of America," December 1965. The second paper, pp. 21-34, "A Check List of the Brachyderinae (Col., Curculionidae) "Occurring in Australia," lists all known references to that species.

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COOPERATIVE ECONOMIC INSECT REPORT

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS - 1965

Introduction

Insect loss estimates have been published in the Cooperative Economic Insect Report as individual presentations in past years. In an attempt to make the information more useful and more readily available, estimates from the various States have been compiled in a single issue of the report.

The loss data in the following compilation were received from 16 States. The entomologists preparing the estimates, together with the States from which they report, are listed below.

Dale Fullerton	Arizona
W. P. Boyer	Arkansas
L. E. Jenkins	Colorado
Paul P. Burbutis	Delaware
Clarence E. White	Illinois
Ray T. Everly	Indiana
Wallace C. Harding, Jr.	Maryland
Robert Flaskerd	Minnesota
Ray Pratt	Montana
Jon J. Rhine	Nebraska
Gerald L. Nielsen	New Mexico
Don C. Arnold	Oklahoma
M. W. Meisch	Texas
O. W. Isakson	Virginia
Marlin S. Conrad	Wisconsin
William D. Marks	Wyoming

Copies of the compilation were sent to the various States involved for review prior to release. Some suggestions for possible improvement in presentation were made. These suggestions have been incorporated where possible.

Separates of this compilation are available from Survey and Detection Operations.

USDA Coop. Econ. Ins. Rp
16(42): 997-1007, 1966

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss		Subtotal (\$1000)	Control Cost			Total Dollar Loss (1000)
				Loss Per Acre	Montrated Acres (1000)		Cost Per Acre	Treated Acres (1000)	Subtotal (\$1000)	
CORN (Grain)										
Arizona		Crw, Lcsh, A, Cw	17.0	bu.	4.0	28.56	3.00	13.0	39.00	67.56
Colorado		Faw, Cew, Rw, Ww	450.0	3.1	98.8	367.70	3.00	126.6	379.90	747.60
Illinois		SI	9,692.0	9.2	2,028.0	19,959.52	3.25	4,733.0	15,384.80	35,344.32
		Cla	"	4.6	454.5	2,235.97	2.25	55.3	134.50	2,370.47
		Faw	"	4.6	34.6	170.05	2.25	21.6	48.72	218.77
		Aw, Gh, Cfb	"	-	-	-	2.25	56.2	126.45	126.45
		Cb	"	-	-	-	2.25	45.2	101.66	101.66
Indiana		Cew	4,889.1	0.21	-	-	-	-	-	858.55
		Cla	"	7.10	-	-	-	-	-	38,479.32
		Agm	"	2.30	-	-	-	-	-	1,260.00 *
Maryland		Aw, Cw, Sww	501.0	7.4	115.0	1,067.20	5.00	10.0	50.00	1,117.20
Minnesota		SI, Rw, Cew, Ww	4,428.0	-	300.0	-	2.30	2,600.0	4,600.00	4,600.00
Nebraska		Rw, Ecb, Ce, Scb	4,216.0	10.05	1,000.0	11,460.00	2.65	2,500.0	6,625.00	18,085.00
Wisconsin		Rw, SI	1,637.0	4.56	-	-	2.00	800.0	1,600.00	1,600.00
Wyoming		Wcrw, Faw, Cla	14.0	0.73	0.6	0.55	3.00	0.2	0.66	1.21
See Legend I					Subtotal	35,289.55	29,080.69		104,968.11 *	
CORN (Silage)										
Wyoming		Wcrw, Faw, Cla	26.0	0.09	1.6	1.16	3.00	0.8	2.43	3.59
See Legend I					Subtotal	1.16	2.43		3.59	
SWEET CORN										
Minnesota		Ecb, Cw, Cew	91.5	tons	-	-	3.50	89.6	313.40	313.40
Wisconsin		Ecb, Cew	88.0	4.19	-	-	12.00	16.9	202.60	202.60
See Legend I					Subtotal	-	516.00		516.00	
POPCORN										
Nebraska		Rw, Ecb, Cew Scb & others	24.0	lbs. 460.0	7.0	83.70	2.65	15.0	39.70	123.40
See Legend I					Subtotal	83.70	39.70		123.40	

* Indiana losses are not broken down into yield losses or control costs.

Crop	State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Yield Loss Nontreated Acres (1000)	Subtotal (\$1000)	Cost Per Acre	Control Cost Treated Acres (1000)	Subtotal (\$1000)	Total Dollar Loss (1000)
SORGHUM (Grain)										
Arizona		Lb, Aw, Cew, Fb	165.0	14.00	30.0	525.00	8.00	120.0	960.00	1,485.00
Nebraska		Cla, Cw, Gh, Ww	2,329.0	2.73	250.0	620.00	2.90	250.0	725.00	1,345.00
Oklahoma		Cew, Sm, Sww, Cla	606.0	8.00	227.5	1,274.00	2.68	34.0	91.13	1,365.13
Texas		Sm, Sww, Cb, Cew	5,495.0	13.00	1,000.0	13,780.00	2.00	1,500.0	3,000.00	16,780.00
See Legend I			Subtotal		16,199.00	4,776.13		20,975.13		
SORGHUM (Silage)										
Arizona		Aw, Lb, Ww, Cew	19.0	2.40	4.0	134.00	8.00	12.0	96.00	30.00
Oklahoma		Cew, Sm, Sww, Cla	296.0	0.44	227.5	550.73	2.68	34.0	91.13	641.86
See Legend I			Subtotal		684.73	187.13		871.86		

LEGEND I - CORN AND SORGHUM PEST COMPLEX

- A - Aphids
- Agm - Angoumois grain moth
- Aw - Armyworms
- Cb - Chinch bugs
- Cew - Corn earworm
- Cfb - Corn flea beetle
- Cla - Corn leaf aphid
- Cw - Corn rootworms
- Cw - Cutworms
- Ecb - European corn borer
- Faw - Fall armyworm
- Fb - Flea beetles
- Gh - Grasshoppers
- Lcsb - Lesser cornstalk borer
- Lb - Lygus bugs
- Rw - Rootworms
- Scb - Seed corn beetle
- Si - Soil insects
- Sm - Sorghum midge
- Sww - Sod webworm
- Wcrw - Western corn rootworm
- Ww - Wireworms

Crop	State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Yield Loss Nontreated Acres (1000)	Subtotal (\$1000)	Cost Per Acre	Control Cost Treated Acres (1000)	Subtotal (\$1000)	Total Dollar Loss (1000)
BARLEY										
Arizona		A, M, Cw, Aw, Ww	169.0	8.76	17.0	747.60	5.00	17.0	350.00	1,097.60
Colorado		Aw, Aga, Ega, Acw	300.0	0.30	22.0	12.63	3.00	44.5	133.46	146.09
Wyoming		Gh, Aw, Ega, Gb	121.0	0.83	5.7	4.56	1.50	1.6	2.45	7.01
See Legend II			Subtotal		764.79	485.91		1,250.70		
OATS										
Nebraska		Cw, Gh, Gb, Ww	772.0	2.40	75.0	118.50	2.40	10.0	24.00	142.50
Wisconsin		A	1,993.0	-	-	-	2.00	8.7	17.43	17.43
Wyoming		Gh, Aw, Ega, Gb	102.0	0.48	5.6	1.88	1.50	1.5	2.31	4.19
See Legend II			Subtotal		120.38	43.74		164.12		

Crop	State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Yield Loss Acres Non-treated (1000)	Subtotal (\$1000)	Control Cost		Total Dollar Loss (1000)
							Cost Per Acre	Treated Acres (1000)	
WHEAT									
Arizona		A, M, Ww, Cw, Aw	26.0	bu.	5.0	50.25	5.00	19.0	145.25
Arkansas		Aw, Ycw	356.0	-	-	-	2.00	53.4	106.80
Colorado		Pww, Acw, Bwm, Gb	780.0	0.15	2.0	0.09	3.00	4.0	12.09
Illinois		Aw	1,603.0	3.55	37.8	181.90	2.25	58.6	313.80
Nebraska		Cw, Hf, Gb, Gh	2,805.0	0.40	275.0	143.00	2.45	125.0	449.25
Oklahoma		Gb, M, Cw	4,747.0	4.76	772.8	4,891.90	1.77	271.5	5,300.50
Texas		Gb, Wgm, Bwm, Aw	3,228.0	2.25	140.0	487.20	1.00	130.0	617.20
Wyoming		Gh, Bwm	208.0	0.11	4.1	0.58	1.50	3.5	5.89
					Subtotal	5,754.92			6,950.78
WHEAT, OATS, BARLEY									
Minnesota		Gh, A, Aw	4,411.0	0.42	0.9	0.39	2.00	4.1	8.59
					Subtotal	0.39			8.59
RICE									
Arkansas		Rsb, Gh Rww, Gc	430.0	-	-	-	2.00	9.1	18.30
					Subtotal	-	0.75	348.3	261.20
					Subtotal	279.50			279.50
					Total	6,640.48			8,653.69

LEGEND II - SMALL GRAIN AND RICE

- | | | | | | |
|-----|---|-------------------|------|---|----------------------|
| A | - | Aphids | Ega | - | English grain aphid |
| Acw | - | Army cutworm | Gb | - | Grainbug |
| Aga | - | Apple grain aphid | Gc | - | A grasshopper |
| Aw | - | Armyworms | Gh | - | Grasshoppers |
| Bwm | - | Brown wheat mite | Hf | - | Hessian Fly |
| Cw | - | Cutworms | M | - | Mites |
| | | | Ww | - | Wireworms |
| | | | Pwcw | - | Pale western cutworm |
| | | | Rsb | - | Rice stink bug |
| | | | Rww | - | Rice water weevil |
| | | | Vcw | - | Variigated cutworm |
| | | | Wgm | - | Winter grain mite |
| | | | Ww | - | Wireworms |

Crop	State	Beest Complex	Total Acres Produced	Loss Per Acre	Yield Loss Notified Acres (1000)	Subtotal (\$1000)	Control Cost		Total Dollar Loss (1000)
							Cost Per Acre	Subtotal (\$1000)	
ALFALFA (Hay)									
Arizona		Eaw, Ac, A, M	200.0	0.70	85.0	892.50	3.50	90.0	1,207.50
Colorado		Aw, Pa, Sa, Aw	850.0	0.09	387.0	851.50	3.00	130.9	1,207.50
Delaware		Aw, Pa, Tpb, Plh	6.0	2.08	1.0	74.90	6.00	5.0	104.90
Illinois		Plh	1,049.0	0.08	46.2	92.50	3.25	18.5	152.60
		Saa	"	0.28	8.5	59.50	3.25	-	59.50
Maryland		Aw, Pa, Ms, Plh	91.0	0.77	6.0	184.80	5.00	85.0	609.80
Montana		Aw	1,100.0	1.29	310.0	2,266.10	3.00	140.0	2,686.10
New Mexico		Saa, Pa, Aw	175.0	0.04	9.0	8.50	2.60	3.0	16.30
Oklahoma		Pa, Saa, Gh	577.0	10.50	215.0	2,562.68	3.74	96.6	2,923.93
Virginia		Aw, Pa, Ms, Plh	171.0	0.56	17.0	361.80	4.50	154.0	1,054.80
		See Legend III			Subtotal	7,354.78		2,704.85	10,059.63
ALFALFA-MIX (Hay)									
Minnesota		Gh, Pa, Cw, Lh	2,454.0	0.03	70.0	37.10	2.00	10.0	57.10
		See Legend III			Subtotal	37.10		20.00	57.10
ALFALFA-CLOVER (Hay)									
Illinois		Ms	1,649.0	0.15	7.8	108.60	3.25	10.6	111.60
		Pa	"	0.35	30.2	65.80	3.25	0.9	100.40
		Gh	"	-	-	-	3.25	20.6	66.90
		See Legend III			Subtotal	174.40		104.50	278.90
CLOVER (Hay)									
Illinois		Clw	600.0	0.14	1.8	5.80	3.25	4.1	19.20
		See Legend III			Subtotal	5.80		13.40	19.20
CLOVER-TIMOTHY (Hay)									
Maryland		A, Ms, Pb, W	212.0	0.23	125.0	862.50	3.25	75.0	1,106.20
		See Legend III			Subtotal	862.50		243.70	1,106.20

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss		Subtotal (\$1000)	Control Cost		Total Dollar Loss (1000)	
				Loss Per Acre (1000)	Nonretreated Acres (1000)		Cost Per Acre (1000)	Treated Acres (1000)		
HAY										
Nebraska		Gh, Gw, Cw, Saa	4,984.0	0.07	160.0	212.80	2.65	100.0	265.00	477.80
Wisconsin		Pa, Pih, Gh, Ms	4,900.0	0.06	-	-	2.00	100.0	200.00	200.00
See Legend III					Subtotal	212.80			465.00	677.80
ALFALFA (Seed)										
Arizona		Cw, Lh, Tcah	16.0	0.45	3.0	40.50	9.00	13.0	177.00	157.50
Nebraska		Pb, Lh, Gh, A	49.0	0.07	15.0	27.30	2.60	25.0	65.00	92.30
Wyoming		Alw, Pa, Gh	3.0	0.04	1.4	1.80	8.00	1.6	12.50	14.30
See Legend III					Subtotal	69.60			194.50	264.10
Total						8,716.98			3,745.95	12,462.93

LEGEND III - FORAGE CROP PEST COMPLEX

- A - Aphids
- Ac - Alfalfa caterpillar
- Aw - Armyworms
- Alw - Alfalfa weevil
- Clw - Clover leaf weevil
- Cw - Cutworms
- Eaw - Egyptian alfalfa weevil
- Gh - Grasshoppers
- Gw - Green cloverworms
- Lh - Leafhoppers
- M - Mites
- Ms - Meadow spittlebug
- Pa - Pea aphid
- Pb - Bean leaf beetle
- Pih - Illinois
- Pih - Plant bugs
- Pih - Potato leafhopper
- Saa - Sooty alfalfa aphid
- Tcah - Three-cornered alfalfa hopper
- Tjbb - Tarnished plant bug
- W - Weevils

SOYBEANS

Arkansas		Blw, Gcw, Sb, Tcah	3,219.0	5.30	137.3	1,819.80	2.20	664.6	1,462.00	3,281.80
Maryland		T, Sm, Blb, Cew & others	213.0	1.60	47.5	178.60	2.00	2.5	5.00	183.60
Minnesota		Gh, Cw	3,166.0	2.80	5.0	36.00	2.50	5.0	12.50	48.50
Nebraska		Blb, Wg, Mbb, Gcw	722.0	0.50	25.0	29.50	3.10	5.0	15.50	45.00
See Legend IV					Total	2,063.90			1,495.00	3,558.90

LEGEND IV - SOYBEAN PEST COMPLEX

- Blb - Bean leaf beetle
- Blw - Bluet
- Cw - Cutworms
- Cew - Corn earworm
- Gcw - Green cloverworm
- Mbb - Mexican bean beetle
- Sm - Stink bugs
- Sp - Spider mites
- Sb - Soybean beetle
- T - Thrips
- Tcah - Three-cornered alfalfa hopper
- Wg - White Grubs

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss		Subtotal (\$1000)	Control Cost		Total Dollar Loss (1000)	
				Loss Per Acre	Non-treated Acres (1000)		Cost Per Acre	Treated Acres (1000)		Subtotal (\$1000)
COTTON										
Arizona		M, Fh, Pbw, Bwc & others	339.0	lbs. 219.0	80.0	5,245.60	12.00	240.0	2,880.00	8,125.60
Arkansas		Bw, Blw, T, M & others	1,195.0	208.0	5.7	336.70	10.40	692.0	7,196.80	7,533.50
New Mexico		Pbw, Blw, Ca, Fh & others	176.0	192.0	23.0	1,501.40	4.00	2.0	8.00	1,509.40
Oklahoma		Blw, Bw, Fh	555.0	73.0	183.4	6,141.13	9.51	144.0	1,370.18	7,511.31
Texas		A, Sm, T, Fh & others	5,565.0	102.0	1,000.0	29,470.00	6.00	3,410.0	20,460.00	49,930.00
		See Legend V			Total	42,694.83			31,914.98	74,609.81

LEGEND V - COTTON PEST COMPLEX

A - Aphids
Blw - Bollworms
Bw - Boll weevil
M - Mites
Bwc - Boll weevil complex
Ca - Cotton aphid
Fh - Fleahoppers
M - Mites
Pbw - Pink bollworm
Sm - Spider mites
T - Thrips

Crop	State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Non-treated Acres (1000)	Subtotal (\$1000)	Cost Per Acre	Treated Acres (1000)	Subtotal (\$1000)	Total Dollar Loss (1000)
Maryland		Gpa, Fb, Hw, Bw	33.5	lbs. 230.0	7.5	1,087.50	10.00	26.0	260.00	1,347.50
		See Legend VI			Total	1,087.50			260.00	1,347.50

LEGEND VI - TOBACCO PEST COMPLEX

Bw - Budworms
Fb - Flea beetles
Gpa - Green peach aphid
Hw - Hornworms
Scb, Gs, Sbrm, Bww & others
Ww, Cw, Lm
Ww, Lh, Gh, Fb,

SUGARBETS										
Colorado		Scb, Gs, Sbrm, Bww & others	180.0	0.42	24.0	120.20	3.00	25.8	77.50	197.70
Minnesota		Ww, Cw, Lm	122.7	-	-	-	3.00	18.0	54.00	54.00
Nebraska		Ww, Lh, Gh, Fb,	66.5	1.62	13.0	273.80	3.45	27.0	39.20	313.00

Crop	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Yield Loss		Subtotal (\$1000)	Control Cost		Total Dollar (1000)
				Monitored (1000)	Notmonitored (1000)		Cost Per Acre	Treated Acres (1000)	
SUGARBEETS (Continued)			tons						
Wyoming	A1, Bww, Sbrm, Blh	53.2	0.32	3.7	15.20	4.50	1.6	7.10	22.30
	See Legend VII		Total		409.20			177.80	587.00

LEGEND VII - SUGARBEET PEST COMPLEX

- A1 - Alfalfa looper
- Blh - Beet leafhopper
- Bww - Beet webworm
- Cw - Cutworms
- Fb - Flea beetles
- Ch - Grasshoppers
- Gs - Garden symphylan
- Lh - Leafhoppers
- Ln - Leaf miners
- Sbrm - Sugar-beet root maggot
- Ww - Webworms

POTATOES	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Yield Loss		Subtotal (\$1000)	Control Cost		Total Dollar (1000)
				Monitored (1000)	Notmonitored (1000)		Cost Per Acre	Treated Acres (1000)	
Arizona	Pp, Ih, Ww, Cw	11.0	42.0	2.0	351.10	8.00	9.0	72.00	23.10
Colorado	Aw, Vcw, Fb, Gpa & others	58.0	1.5	-	-	4.00	48.8	150.40	150.40
Minnesota	Ww, Plh, Fb & others	94.2	14.2	27.2	621.80	8.00	67.0	536.00	1,157.80
Nebraska	Pp, Fb, Ww, Cpb & others	10.9	28.9	1.0	44.90	6.20	8.5	52.70	97.60
Wisconsin	Plh, S1	58.5	81.0	8.0	1,678.40	12.00	50.0	600.00	2,278.40
Wyoming	Pp, Fb, Cpb	3.6	3.5	0.3	2.80	5.00	2.6	13.20	16.00
	See Legend VIII				2,699.00			1,424.30	4,123.30

TOMATOES	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Yield Loss		Subtotal (\$1000)	Control Cost		Total Dollar (1000)
				Monitored (1000)	Notmonitored (1000)		Cost Per Acre	Treated Acres (1000)	
Colorado	Thw, Tfw, Tp, Blh	2.0	0.07	-	1.70	3.00	2.0	6.00	7.70
Maryland	Fb, Cw, Cpb, Hw	6.7	3.0	2.1	208.53	10.00	4.6	46.00	254.53
	See Legend VIII				210.23			52.00	262.23
	Total				2,909.23			1,476.30	4,385.53

LEGEND VIII - POTATO PEST COMPLEX

- Aw - Armyworms
- Blh - Beet leafhopper
- Cpb - Colorado potato beetle
- Cw - Cutworms
- Fb - Flea beetles
- Gpa - Green peach aphid
- Hw - Hornworms
- Lh - Leafhoppers
- Plh - Potato leafhopper
- Pp - Potato psyllid
- SI - Soil insects
- Tfw - Tomato fruitworm
- Thw - Tomato hornworm
- Tp - Tomato Pinworm
- Vw - Wireworm
- Ww - Wireworms

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss		Subtotal (\$1000)	Control Cost		Total Dollar Loss (1000)
				Loss Per Acre	Notreated Acres (1000)		Cost Per Acre	Treated Acres (1000)	
BEANS (Dry)									
Colorado		Mbb, Fb, T, M	230.0	cwt. 0.02	2.5	0.38	3.00	4.6	13.70
Nebraska		Wbcw, Mbb, Gh, Lh & others	80.0	1.8	25.0	351.00	3.40	25.0	85.00
Wyoming		Mbb, Fb, Lb	47.0	0.31	1.2	3.10	3.50	0.5	1.80
See Legend IX				Subtotal		354.48			100.50
BEANS (Snap)									
Wisconsin		Pl, Lb, Scm	36.3	tons 0.69	-	-	3.00	20.0	60.00
See Legend IX				Subtotal					60.00
BEANS (Lima)									
Wisconsin		Pl, Lb	4.8	0.29	-	-	3.00	4.4	13.40
See Legend IX				Subtotal					13.40
PEAS (Canning)									
Minnesota		Pa	56.9	-	-	-	3.50	11.1	38.90
Wisconsin		Pa, Aw	124.7	0.13	-	-	2.00	12.7	25.40
				Subtotal					64.30
				Total		354.48			238.20
LEGEND IX - BEANS PEST COMPLEX									
Aw		- Armyworms							Pl - Potato leafhopper
Fb		- Flea beetles							Scm - Seed-corn maggot
Gh		- Grasshoppers							T - Thrips
Lb		- Lygus bugs							Wbcw - Western bean cutworm
CABBAGE									
Colorado		Cl, Al, A, Icw	1.7	tons 1.00	-	-	6.00	1.7	10.20
Wisconsin		Cm, Icw, Ca	6.2	0.15	-	-	25.00	6.2	155.00
See Legend X				Subtotal					165.20

Crop	Pest Complex	Total Acres Produced (1000)	Loss Per Acre	Yield Loss Nontreated Acres (1000)	Subtotal (\$1000)	Cost Per Acre	Control Cost Treated Acres (1000)	Subtotal (\$1000)	Total Dollar Loss (1000)
CAULIFLOWER									
Wisconsin	Icw	0.3	cwt. 56.0	-	-	20.00	0.3	6.40	6.40
See Legend X									
CUCUMBERS									
Wisconsin	Scb	13.8	tons 0.16	-	-	3.00	12.0	36.00	36.00
See Legend X									
VEGETABLES & MELONS									
Arizona	Fb, Aw, M, Cl & others	86.6	cwt. 32.0	12.0	1,920.00	15.00	72.0	1,050.00	2,970.00
See Legend X									
CARROTS									
Wisconsin	Sslh	3.2	cwt. 197.5	-	-	9.00	3.2	28.80	28.80
See Legend X									
LETTUCE									
Colorado	Cl, Al	7.0	cwt. 8.0	-	-	6.00	7.0	42.00	42.00
Wisconsin	Sslh	2.5	100.0	0.5	255.00	9.00	2.0	18.00	273.00
See Legend X									
ONIONS									
Colorado	Ot, Om, Cw	5.8	cwt. 5.1	0.6	6.63	5.00	4.7	23.75	30.38
Wisconsin	Om, T	1.9	88.5	-	-	8.00	1.0	8.00	8.00
See Legend X									
				Subtotal	6.63			31.75	38.38
				Total	2,181.63			1,378.15	3,559.78

LEGEND X - VEGETABLE PEST COMPLEX

- | | |
|----------------------------|--------------------------|
| A - Aphids | Om - Onion maggot |
| Al - Alfalfa looper | Ot - Onion thrips |
| Aw - Armyworms | Stcb - Striped cucumber |
| Ca - Cabbage aphid | Seetie - Seetie |
| Cl - Cabbage looper | Sslh - Six-spotted leaf- |
| | -opper |
| | T - Thrips |
| Cm - Cabbage maggot | |
| Cw - Cutworms | |
| Fb - Flea beetles | |
| Icw - Imported cabbageworm | |
| M - Mites | |

Crop	Pest Complex	Total Acres Produced (1000)	Yield Loss		Control Cost			Total Dollar Loss (1000)	
			Loss Per Acre	Nontreated Acres (1000)	Cost Per Acre	Treated Acres (1000)	Subtotal (\$1000)		
APPLES									
Colorado	Cm, Sm, Raa, Waa	5.31	15.06	0.1	3.31	20.00	5.2	104.00	107.31
Delaware	M, Cm, Pc, Rblr	0.93	-	-	-	36.00	0.9	33.30	33.30
Maryland	Cm, Pc, A, Sm	1,450.00	bu.	-	-	0.30/bu.	-	435.00	435.00
Minnesota	Am, Cm, C, M	2.00	-	-	-	150.00	2.0	300.00	300.00
Virginia	Cm, A, M, Pc	10,400.00	bu.	-	-	.20/bu.	-	2,080.00	2,080.00
Wisconsin	Am, Cm	7.18	190.00	-	-	110.00	7.2	790.24	790.24
					Subtotal	3.31	3,742.54		3,745.85
PEACHES									
Colorado	Lb, Ofm, Ptb, M	5.00	3.1	0.1	0.82	12.00	4.9	58.42	59.24
					Subtotal	0.82	58.42		59.24
PEARS									
Colorado	Cm, Sm, Ps	1.03	6.9	-	-	16.00	1.0	16.40	16.40
					Total	4.13	3,817.36		3,821.49
					Grand Total	119,320.50	81,119.03		241,037.40

LEGEND XI - DECIDUOUS FRUIT PEST COMPLEX

- | | | |
|-------------------|---------------------------|-------------------------------|
| A - Aphids | M - Mites | Raa - Rosy apple aphid |
| Am - Apple maggot | Ofm - Oriental fruit moth | Rblr - Red-banded leaf roller |
| C - Curculios | Pc - Plum curculio | Sm - Spider mites |
| Cm - Codling moth | Ps - Pear-slug | Waa - Woolly apple aphid |
| Lb - Lygus bugs | Ptb - Peach twig borer | |

Weather continued from page 986.

WEATHER OF THE WEEK ENDING OCTOBER 17

HIGHLIGHTS: A major cold air outbreak and a severe blizzard brought an end to Indian summer over much of the Nation and announced the approach of winter. A tornado virtually destroyed a town in Iowa.

PRECIPITATION: A major storm developed over southeastern Montana late Tuesday and by midnight Wednesday was centered over north central Nebraska. Heavy snow fell in the Wyoming and Colorado Rockies, accumulating to 18 inches in some localities. Ski resorts near Salt Lake City, Utah, welcomed 16 inches of snow but northerly winds east of the Continental Divide drifted the snow badly, causing considerable inconvenience and hardship. Seven persons lost their lives in the severe storm. As the storm center moved eastward across Iowa, a cold front trailed southward to Texas. The clash of polar air following the front with the tropical gulf air ahead of it set off severe thunderstorms and tornadoes. Winds gusted to 80 m.p.h. at Austin, Texas, to 70 m.p.h. at Winona, Minnesota, and from 50 to 60 m.p.h. from South Dakota to the Texas Panhandle. Baseball-sized hail fell near Rochester, Minnesota, and near Aldrich, Missouri. Smaller hail was reported at numerous locations from Minnesota to Michigan and southward to Missouri and Illinois. Vicious tornadoes occurred in Minnesota, Iowa, and Missouri. The worst of these practically wiped out the town of Belmond, Iowa, on Friday afternoon. It killed 6 persons and injured 172, destroying 119 buildings and causing major damage to 160 and minor damage to 308. About 550 families suffered in some way from this visit of the most destructive late-season tornado ever to occur in the State. Significant rains fell along the northern Pacific coast, Texas upper coast, coastal Louisiana, the middle eastern coast of Florida, over a few spots in the North-east, and in the lower Rio Grande Valley.

TEMPERATURE: During the first part of the week, southerly winds brought warm, moist gulf air northward over the central Great Plains, with temperatures reaching the 80's and 90's as far north as Nebraska and Iowa. A cold front extended southward west of this stream of warm, moist air. Behind the front northerly winds (gusting to 60 m.p.h. at Cheyenne, Wyoming) tumbled the temperatures 40° or more in some areas. The coldest air mass of the season plunged southward, bringing freezing temperatures to the higher portions of California, central Arizona, central New Mexico, and the High Plains of Texas. Temperatures dropped to near zero in the Wyoming and Colorado Rockies. Some of the coldest temperatures of the week included 6° below zero at Farson, Wyoming, and 5° below zero at Fraser, Colorado. Temperatures averaged below normal from the Pacific Ocean to Lake Michigan in the north and to the Appalachians in the south. From Indiana eastward to the Atlantic Ocean and east of the southern Appalachians, temperatures averaged slightly above normal. In Ohio and vicinity, temperatures averaged above normal for the first time in 6 weeks. (Summary supplied by Environmental Data Service, ESSA).



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Hyattsville, Maryland 20782

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

Fall survey of EUROPEAN CORN BORER indicates increase in Missouri, northeast South Dakota, southeast North Dakota, and northwest Minnesota. (p. 1011).

HESSIAN FLY infesting up to 75 percent of early planted wheat in central and north central Kansas. (p. 1012).

SUGAR-BEET ROOT MAGGOT serious on sugarbeets in north central Colorado. (p. 1013).

Repeated controls for CABBAGE LOOPER necessary on lettuce in Maricopa and Yuma Counties, Arizona. BEET ARMYWORM increasing in same area. (p. 1013).

PINK BOLLWORM spreading in Arizona and California. Detected in Nevada for first time. (p. 1016). Heavy buildup of BOLL WEEVIL in Rolling Plains of Texas. (p. 1016).

Detection

● An APHID collected at Augusta, Maine; first record for United States. (p. 1021).

● PINK BOLLWORM collected for first time in Nevada. (p. 1016).

Other new State records include an APHID from Virginia (p. 1014), SOUTHWESTERN CORN BORER from Kentucky (p. 1011) and an APHID from New York (p. 1021).

Prediction

EUROPEAN CORN BORER expected to be damaging in southern Minnesota in 1967 if conditions ideal. (p. 1011).

Special Report

Aphis craccae Linnaeus, an Aphid Newly Discovered in the United States. (p. 1021).

CONTENTS

Special Insects of Regional Significance.....1011

Insects Affecting

Corn, Sorghum, Sugarcane.....1011	Potatoes, Tomatoes, Peppers.....1013
Small Grain.....1012	General Vegetables.....1013
Forage Legumes.....1012	Deciduous Fruits and Nuts.....1014
Soybeans.....1013	Ornamentals.....1014
Peanuts.....1013	Forest and Shade Trees.....1014
Cotton.....1013	Man and Animals.....1015
Sugarbeets.....1013	Households and Structures.....1015

Beneficial Insects.....1015

Federal and State Plant Protection Programs.....1016

Insect Detection.....1017

Corrections.....1017

Hawaii Insect Report.....1018

Light Trap Collections.....1019

Distribution of Southwestern Corn Borer (Map).....1020

Aphis craccae Linnaeus, an Aphid Newly Discovered in the United States.....1021

WEATHER OF THE WEEK ENDING OCTOBER 24

HIGHLIGHTS: Heavy showers fell over the Appalachians and the Northeast, while a storm in the Northwest brought rains to the coast and heavy snow to the Cascades. In between, high pressure and clear cool weather predominated from the Great Basin to the Appalachians.

TEMPERATURE: Temperatures averaged below normal over most of the Nation. Arkansas and nearby portions of neighboring States were 9° or more colder than normal. Only the California coast, the Florida Peninsula, and the Georgia and Carolina coast averaged near or slightly above normal. San Antonio, Texas, set a new low temperature record for so early in the season when the temperature dropped to 34°. Pueblo, Colorado, set a new record with an 18° reading.

PRECIPITATION: Early in the week, a low pressure system over the eastern United States produced rain from the central Great Plains to the Atlantic Ocean. The heaviest fell from the Appalachians to the middle Atlantic coast, with Tuesday's and Wednesday's totals exceeding 3 inches from Atlanta, Georgia, to Philadelphia, Pennsylvania. Up to 2 inches of snow fell in the mountains of West Virginia. Rain continued to soak the northeastern States on Thursday. Also, on Thursday, a new storm moved into the Pacific Northwest. It brought heavy rain to the coast, almost 4 inches at Astoria, Oregon, and unusually heavy snow to the Cascades (snow accumulated to 10 inches at the 3,000-foot level and to 30 inches at 5,500 feet). The snow continued in the Cascades on Friday while spreading to the high-elevations of the northern Rockies.

Weather continued on page 1018.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - ILLINOIS - Survey in southeast district showed increase in abundance and damage by this pest compared with 1965. (White). ALABAMA - Larvae still heavy in late plantings of sweet corn in Lee and other central counties. (Barwood et al.). ARIZONA - Populations on lettuce in Yuma and Maricopa Counties decreased week ending October 14. Larvae continue damaging sorghum in Yuma County, particularly late planted fields. (Ariz. Coop. Sur.). CALIFORNIA - Larvae mining stems of *Callistemon* sp. nursery stock in Ontario, San Bernardino County. This species more severe on occasional hosts than for many years. (Cal. Coop. Rpt.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - WISCONSIN - Common in rye fields in Kenosha County. More than 50 percent of corn examined over State affected; many active colonies still present. (Wis. Ins. Sur.). KANSAS - Moderate in corn not yet completely dry in northeast area. (Simpson).

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Occasional aphid found in winter wheat in Curry and Roosevelt Counties. Populations appear extremely light. (Mathews, Nielsen).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - VIRGINIA - Light, 1-10 per sweep, on alfalfa in Bedford County. (Isakson). ARKANSAS - Counts very low on alfalfa in northwest area. (Boyer). WISCONSIN - Populations higher than anticipated in Kenosha County; up to 10 per 50 sweeps. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Nymphs and adults noted in many southeastern area alfalfa fields; up to 3 per sweep along margins at several locations. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - State average, 307 borers per 100 plants represents 32 percent increase over 1965 fall population of 209. This fourth consecutive year of noticeable increase. (Burbutis). ALABAMA - Larvae damaging grain sorghum stems in 6-acre field in Jackson County. (White). ARKANSAS - Infestations much lower in northwest area than in northeast area. (Boyer). MISSOURI - Statewide averages higher than in past 10 years. Only southeast district with lower percentage infested plants and lower numbers of borers per 100 plants than in 1965. State average 299.6 borers per 100 stalks compared with 145.2 in 1965. (Munson). ILLINOIS - Larvae collected in July and August found to be only 16.8 percent infested with microsporidiosis. (White). MINNESOTA - Number of borers per 100 plants increased in all reporting districts. High in northwest, primarily in Norman and Mahanomen Counties. Borer populations moderate in southwest, south central and west central districts but damage low this year. Damaging numbers expected in 1967 if conditions ideal. (Minn. Ins. Rpt.). SOUTH DAKOTA - Fall abundance survey completed in Brown, Codrington, Day, Deuel, Grant, Hamlin, Marshall, and Roberts Counties. Increases indicated in Brown, Day and Roberts Counties. (Jones). NORTH DAKOTA - Fall abundance survey indicates increase in borer populations in Richland, Ransom, Sargent, Dickey and Cass Counties compared with 1965. (Brandvik).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - KENTUCKY - Collected for first time in State October 6. Infestations found in Calloway, Graves, Fulton, Hickman, Marshall, McCracken, Carlisle, and Ballard Counties. Percent girdled stalks 4-28 and infestations 4-68. (Townsend, Pass). ILLINOIS - Percent infested stalks increased from 1.73 in 1965 to 3.66 this year in 7 southern counties. Found for first time in Jackson, Williamson and Saline Counties. (White).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Larvae continue to damage stalks and ears of late corn in isolated fields in Chilton and other central counties. (McQueen). KANSAS - Infestations ranged 0-5 percent with injury to corn occurring

at junction of leaf sheath and nodes, (Wiseman). Numerous dead, full-grown larvae found in 3 Washington County fields. (Simpson).

PINK SCAVENGER CATERPILLAR (*Sathrobrota rileyi*) - ALABAMA - Larvae medium to heavy in ears of corn in Chilton, Coosa, Talladega, and St. Clair Counties; will continue as stored grain pest during winter months. (McQueen).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - Adults of *D. longicornis* and *D. virgifera* still active in corn in southern half of State. (Minn. Ins. Rpt., Oct. 14).

CHINCH BUG (*Blissus leucopterus*) - KANSAS - Moderate, 25-50 per plant, on corn in Marshall, Washington and Clay Counties. (Simpson).

SMALL GRAINS

Hessian FLY (*Mayetiola destructor*) - KANSAS - Late-planted wheat in central and north central areas ranged trace to 25 percent infested. Up to 75 percent of plants infested in early planted fields. Heavy in volunteer wheat in Russell and Ellis Counties, light in Barton County. (Simpson).

GREEN JUNE BEETLE (*Cotinis nitida*) - VIRGINIA - Larvae very severe in barley field in Franklin County; field disked up. (Welch, Isakson).

APHIDS - WISCONSIN - *Anuraphis bakeri* and *Macrosiphum avenae* common in rye in Kenosha County. (Wis. Ins. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - VIRGINIA - Adults averaged 1 per 10 sweeps in alfalfa in Franklin and Bedford Counties. (Isakson). WISCONSIN - None found in over 40 fields of alfalfa checked in Kenosha and Walworth Counties (southeast area); 150-1,000 sweeps taken in each field. *Sitona* spp. common in most fields; few adults of *H. punctata* also present. (Wis. Ins. Sur.).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - WYOMING - Adults averaged 2 per 25 sweeps in Goshen County alfalfa. (Haws, Marks).

CORN ROOTWORMS (*Diabrotica* spp.) - WISCONSIN - *D. longicornis* and *D. undecimpunctata howardi* adults 1-3 per 50 sweeps in Kenosha County alfalfa. (Wis. Ins. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - NORTH DAKOTA - Larvae 80 per 100 sweeps in alfalfa in Richland County. (Brandvik, Oct. 14). VIRGINIA - Larvae light in alfalfa in Bedford and Franklin Counties. (Isakson).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults averaged 4-5 per 10 sweeps in Goshen County alfalfa. (Haws, Marks). NORTH DAKOTA - *L. lineolaris* adults 100 per 100 sweeps in alfalfa in Richland and Ransom Counties. (Brandvik, Oct. 14).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - VIRGINIA - Adults 2-6 per 10 sweeps on alfalfa in Bedford and Franklin Counties. (Isakson).

PEA APHID (*Acyrtosiphon pisum*) - VIRGINIA - Ranged 30-70 per sweep on alfalfa in Franklin and Bedford Counties. Both winged and nonwinged forms present. (Isakson). WISCONSIN - Populations high on alfalfa; 200-500 per sweep in southeastern counties. (Wis. Ins. Sur.). NORTH DAKOTA - Remains high on alfalfa in Richland and Ransom Counties; over 1,000 per 100 sweeps in some fields. Lady beetle adults 10 per 100 sweeps in same fields. (Brandvik, Oct. 14). WYOMING - Ranged 12-20 per 25 sweeps in Goshen County alfalfa. (Haws, Marks).

SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Damaging leaves of young soybeans in Oktibbeha County. (Dinkins, Oct. 14).

STINK BUGS - SOUTH CAROLINA - Infestations scattered on soybeans in most counties. (Thomas, Oct. 18). ALABAMA - Acrosternum hilare heavy and widespread in soybeans throughout Geneva County. (Smith).

PEANUTS

RED-NECKED PEANUTWORM (Stegasta bosqueella) - NEW MEXICO - Found in terminals of peanut plants in Roosevelt County; heavy in majority of fields. Populations much heavier than last year. (Mathews, Nielsen).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Large numbers of adults occurring in cotton in Montgomery, Chilton, Talladega, and St. Clair Counties. (McQueen). MISSISSIPPI - Continues to damage green bolls and squares in Yazoo County. (Dinkins, Oct. 14). For Boll Weevil in Texas, see page 1016.

For Boll Weevil complex in Arizona, see page 1016.

BOLLWORMS (Heliothis spp.) - ALABAMA - Numerous larvae observed feeding on squares and leaves of cotton in Montgomery and other central counties. No economic damage noted. (McQueen). MISSISSIPPI - H. zea and H. virescens larvae still found in terminal areas of green cotton; feeding on green bolls and squares in Yazoo County. (Dinkins, Oct. 14). ARIZONA - Spotted and heavy H. zea populations damaging top bolls in Yuma, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

STINK BUGS - NEW MEXICO - Light damage noted in Lea County cotton fields; light to moderately heavy in Chaves County. (Mathews).

SUGARBEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Widespread and serious in Weld, Adams and Larimer Counties. (Jenkins).

POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Mining leaves and stems of potatoes on Eastern Shore. Larvae infesting harvested potatoes in Nansemond County. (Hofmaster, Amos). MARYLAND - Heavy in stored potatoes at St. Inigoes, St. Marys County. (U. Md., Ent. Dept.).

GENERAL VEGETABLES

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae increasing in some lettuce fields in Maricopa County. Damage light to moderate. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Heavy numbers damaging lettuce in Maricopa and Yuma Counties. Repeated controls necessary to prevent excessive damage. (Ariz. Coop. Sur.). VIRGINIA - Considerable number of eggs observed on Eastern Shore during first week of October; heavy population expected to develop throughout October. (Hofmaster).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Larvae migrating from cotton to vegetables. Foil barriers necessary in Yuma County. (Ariz. Coop. Sur.).

ONION MAGGOT (Hylemya antiqua) - CALIFORNIA - Larvae and pupae heavy in roots of green onion nursery stock at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Continues heavy on pecans in Mayes County. (Okla. Coop. Sur.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Moderate in pecans in Tillman County; light in Mayes County. (Okla. Coop. Sur.).

ORNAMENTALS

AZALEA LACE BUG (Stephanitis pyrioides) - ALABAMA - Heavy isolated infestations noted on azalea in Lee County. (Doughty).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - ALABAMA - Heavy on ornamental mulberry and cottonwood trees in Clay County. (Owens).

HEMISPHERICAL SCALE (Saissetia coffeae) - CALIFORNIA - Heavy on eugenia nursery stock in Ontario, San Bernardino County. (Cal. Coop. Rpt.).

A FALSE POWDER-POST BEETLE (Melalgus confertus) - CALIFORNIA - Larvae occurring in Conadria fig nursery stock in Grass Valley, Nevada County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

ENGRAVER BEETLES (Ips spp.) - VIRGINIA - Increasing in several Coastal Plain counties; damaging several trees in Piedmont area. (For. Pest Surv. Rpt., Sept. Sum.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Active in Coastal Plain district; sharp increase noted in Piedmont district. (For. Pest Surv. Rpt., Sept. Sum.).

WHITE-PINE WEEVIL (Pissodes strobi) - VIRGINIA - Decreased in western section of State; increased slightly in Piedmont counties. (For. Pest Surv. Rpt., Sept. Sum.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - VIRGINIA - Damage evident in Nelson, Rockingham and Pulaski Counties. (For. Pest Surv. Rpt., Sept. Sum.).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Moderate to heavy, causing partial to complete defoliation of poplar, pecan and elm trees throughout Dona Ana County. (Hare).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - VIRGINIA - No increase observed in 1966. (For. Pest Surv. Rpt., Sept. Sum.).

AN APHID (Myzocallis walshii) - VIRGINIA - Heavy on red oaks at Big Meadows Lodge on Skyline Drive, Shenandoah National Park, September 6, 1966. Leaves heavy with honeydew. Collected by H. H. Shepard. Det. by A. N. Tissot. New State record. (Leonard).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - OKLAHOMA - Moderate on cattle in Cotton County. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - MISSISSIPPI - Adults and larvae heavy in commercial chickenhouses in Simpson County. (Dinkins, Oct. 14).

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained: Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, Culex restuans, Culex salinarius, and Culex tarsalis. Light trap collections increased sharply in Wentwood area; Culex salinarius predominant species. (Stokes).

SOUTHERN FIRE ANT (Solenopsis xyloni) - CALIFORNIA - Medium in cotton fields in Niland, Imperial County; may delay harvest by annoying workers. (Cal. Coop. Rpt.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 156 cases reported in U. S. October 16-22 as follows: TEXAS - Goliad, Lamb, Mitchell, Callahan, Bexar, Irion, Coryell, Crane, Kerr, Kimble, Hudspeth, Williamson, Jim Hogg, Comal, Menard, Brooks, McLennan, 1 each; Duval, Pecos, Gonzales, Medina, Scurry, Reeves, 2 each; Webb 9, Val Verde 14, Jeff Davis 4, Brewster 6, Presidio 12, Frio 5, Zavala 8, Maverick 9, Dimmit 6, Edwards 6, Uvalde 3, Terrell 3, Sutton 4, Kinney 5. ARIZONA - Maricopa 6, Mohave 3, Pima 5, Yavapai 1, Yuma 3, Pinal 3, Cochise 1, Gila 1, Greenlee 1, Graham 6. NEW MEXICO - Luna 1. CALIFORNIA - Imperial 1. Total of 379 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 29, Sonora 166, Chihuahua 105, Coahuila 48, Nuevo Leon 19, Tamaulipas 12. Total of 619 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 62,428,250, Arizona 8,644,000, New Mexico 1,276,000, California 1,516,000, Mexico 21,908,000. (Anim. Health Div.).

HOUSEHOLDS AND STRUCTURES

A WEEVIL (Brachyrhinus cribricollis) - CALIFORNIA - Adults heavy and migrating to walls of nursery in San Diego, San Diego County. Many infestations occurring over State. (Cal. Coop. Rpt.).

A POWDER-POST BEETLE (Trogoxylon prostomoides) - CALIFORNIA - Adults medium in bamboo curtains in residence in Crescent City, Del Norte County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

A DAMSEL BUG (Nabis sp.) - WYOMING - Adults 6-8 per 25 sweeps in alfalfa fields of Goshen County. (Haws, Marks).

LADY BEETLES - ALABAMA - Hippodamia convergens (convergent lady beetle) heavy in cotton over State; Chrysopa oculata and Geocoris punctipes also heavy. Several thousand Coleomegilla maculata fuscilabris present over 50-square-foot hibernation area adjacent to field of corn in St. Clair County. (McQueen).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - MINNESOTA - Egg survey week ending October 14 indicated noneconomic to light infestations in most fields. General hard freeze October 15 probably stopped egg laying for season. (Minn. Ins. Rpt.). NORTH DAKOTA - Adults 3 per square yard in field margins of Richland and Ransom Counties. Egg laying continues; few *Melanoplus femurrubrum* still mating. *M. bivittatus* and *M. differentialis* also noted. (Brandvik, Oct. 14). WYOMING - Adult survey completed in 17 counties; economic on 1,711,000 acres of rangeland; over 8 per square yard. Total of 2,342,000 acres infested in 1965. Most heavily infested counties as follows: Campbell 525,000 acres; Converse 100,000 acres; Johnson 208,000 acres; Niobrara 205,000 acres; Platte 100,000 acres; Sheridan 260,000 acres. (Watson).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEVADA - Four adults collected in Pah-rump Valley, Nye County. Exact date and location uncertain. Det. by H. H. Blake-more and R. W. Hodges. New State record. (Bechtel). CALIFORNIA - Sex lure traps show spread in quarantined desert cotton areas. Adults also collected in Sandy Valley, San Bernardino County. One male taken at Cantil, Kern County, October 18. New county record. Treatment underway in Imperial, Coachella and Borrego Valleys. Larvae appearing in gin trash in Palo Verde Valley, Riverside County. Collections so far this season: Imperial County - Bard Valley 971 adults, 585 larvae; Imperial Valley 970 adults, 74 larvae. San Diego County - Borrego Valley 23 adults. Riverside County - Pal Verde Valley 2,706 adults, 872 larvae; Coachella Valley 46 adults. San Bernardino County - Sandy Valley one adult, Needles 23 adults. Kern County - Cantil one adult. (Cal. Coop. Rpt.). ARIZONA - New infestations detected near Winkleman in northeast Pinal County week ending October 24. Additional infestations found south of Stanfield, south of Casa Grande and near Chu Chu. New infestations continue to be found in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Infested green bolls ranged 4-48 percent from Roswell, Chaves County, to Artesia, Eddy County. Ranged 0-28 percent infested green bolls in Lea County. Frost in Chaves and northern Dona Ana Counties caused young green bolls to "sour" and rot. (Mathews, Nielsen). TEXAS - Infestations general in Waco area; however, lower than last year. (PPC South. Reg., Sept. Rpt.). OKLAHOMA - First of season found in lint cleaner inspections in Greer, Kiowa and Bryan Counties. Inspections in Jackson, Tillman, Harmon, Love, Marshall, Canadian, and Caddo Counties negative. (Okla. Coop. Sur.).

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Several infestations found outside the High Plains control zone; heavy buildup in Rolling Plains area of Borden County. (PPC South. Reg., Sept. Rpt.).

BOLL WEEVIL COMPLEX (*Anthonomus grandis* complex) - ARIZONA - Light to moderate numbers of larvae and adults found in area south of Stanfield, Pinal County. (Ariz. Coop. Sur.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - Surveys continued negative in NEW JERSEY, PENNSYLVANIA, WEST VIRGINIA and Metropolitan WASHINGTON, D. C., area. Fifteen new infested sites found in Norfolk area, VIRGINIA. Delimiting surveys continued around Temple Hills, Prince Georges County, MARYLAND. (PPC East. Reg., Sept. Rpt.). Found for the first time at Brinkley, Monroe County, ARKANSAS, and Belmont, Tishomingo County, MISSISSIPPI. (PPC South. Reg., Sept. Rpt.).

EUROPEAN CHAFER (*Amphimallon majalis*) - MASSACHUSETTS - Total of 81 acres treated at isolated infested area at Charlton, Worcester County, by September 30; treatment to continue. Treatment of isolated infestation in vicinity of naval shipyard at South Boston planned; involves soil treatment of approximately 230 acres. NEW JERSEY - Treatment of infested areas in Port Newark, Essex County, began September 26; total of 42 acres treated. (PPC East. Reg.).

GYPSY MOTH (*Porthetria dispar*) - NEW JERSEY - During September, 12 moths recovered at 6 sites; 534 moths recovered from 269 sites during season. (PPC East. Reg.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - ALABAMA - Heavy populations constructed mounds somewhat higher than usual in fields and other areas in Chilton, Coosa, Talladega, St. Clair and other counties as result of recent rains. Mounds 12-18 inches high not uncommon. Farmers experiencing considerable stinging and irritation during harvesting. (Harmon et al.).

CITRUS WHITEFLY (*Dialeurodes citri*) - CALIFORNIA - Infestation found in southeast San Diego, San Diego County, October 17; now known to occur in 8-block area. (Cal. Coop. Rpt.).

WHITE GARDEN SNAIL (*Theba pisana*) - CALIFORNIA - Total of 25 properties infested in 7 city-block area of Manhattan Beach, Los Angeles. (PPC West. Reg., Sept. Rpt.).

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - TEXAS - Trap collections and fruit cutting negative for month. (PPC South. Reg., Sept. Rpt.).

INSECT DETECTION

New United States Record

AN APHID (*Aphis craccae* Linnaeus) - MAINE - Collected from wild vetch at Augusta, Kennebec County, July 7, 1966, by J. O. Pepper and A. N. Tissot. Although *A. craccae* occurs on *Vicia cracca* and *V. sativa*, occasionally grown as agricultural crops in Europe, and on *V. faba*, the common broadbean, it is not reported to be seriously injurious. Det. L. M. Russell. (p. 1021).

New State Records

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - KENTUCKY - Collected for first time in State October 6, 1966. Present in 8 counties. (p. 1011).

AN APHID (*Myzocallis walshii*) - VIRGINIA - Collected from red oak in Shenandoah National Park by H. H. Shepard September 6, 1966. Det. by A. N. Tissot. (p. 1014).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEVADA - Four adults collected in Pah-rump Valley. Det. by H. H. Blakemore and R. W. Hodges. (p. 1016).

AN APHID (*Aphis craccae*) - NEW YORK - Collected at Crown Point, Essex County, August 21, 1966, by L. M. Russell and on Wellesley Island, Jefferson County, August 31 and September 1, 1966, by L. L. Pechuman. Det. L. M. Russell. (p. 1021).

New County Records

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ILLINOIS - Found for first time in Jackson, Williamson and Saline Counties. (p. 1011).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Single male taken at Cantil, Kern County. (p. 1016).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ARKANSAS - Found for first time in Monroe County. MISSISSIPPI - Reported for first time from Tishomingo County. (p. 1016).

CORRECTIONS

CEIR 16(42):991 - PIT SCALES - MARYLAND - Should read: "Cerococcus kalmiae collected from azalea by C. Werner in spring of 1964 at Cheverly, Prince Georges County. Det. by R. F. Wilkey."

CEIR 16(42):999 - Above "Legend I - Corn and Sorghum Pest Complex," add the following: Total 52,258.14 — 34,602.08 — 127,458.09 *

HAWAII INSECT REPORT

Insects of Regional Significance - All stages of CARMINE SPIDER MITE (Tetranychus telarius) heavy on 3 acres of snap beans and 4 acres of watermelon in Waianae, Oahu. Intensive spraying gave poor results. (Yamamoto).

General Vegetables - All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on tomatoes in Kahului, Maui. (Miyahira). Adults of a PLATASPID BUG (Coptosoma xanthogramma) 50-250 per plant on 0.75 acre of snap beans in Kaaawa, Oahu. (Sato). CABBAGE LOOPER (Trichoplusia ni) larvae light on broccoli in Waianae, Oahu. (Jackson). BET ARMYWORM (Spodoptera exigua) larvae light to medium and causing about 20 percent damage to green onions in Koko Head; adults and larvae light on broccoli in Waianae, Oahu. (Sato, Jackson).

Citrus - FLORIDA RED SCALE (Chrysomphalus aonidum) nymphs and adults light to medium on orchard of Valencia and navel oranges in Waianae, Oahu; heaviest on ripening fruits. (Konishi).

Ornamentals - All stages of a FALSE SPIDER MITE (Brevipalpus phoenicis) heavy in greenhouse at Omao, Kauai; caused severe (50-60 percent) defoliation of anthurium. Det. confirmed by F. H. Haramoto. (Au).

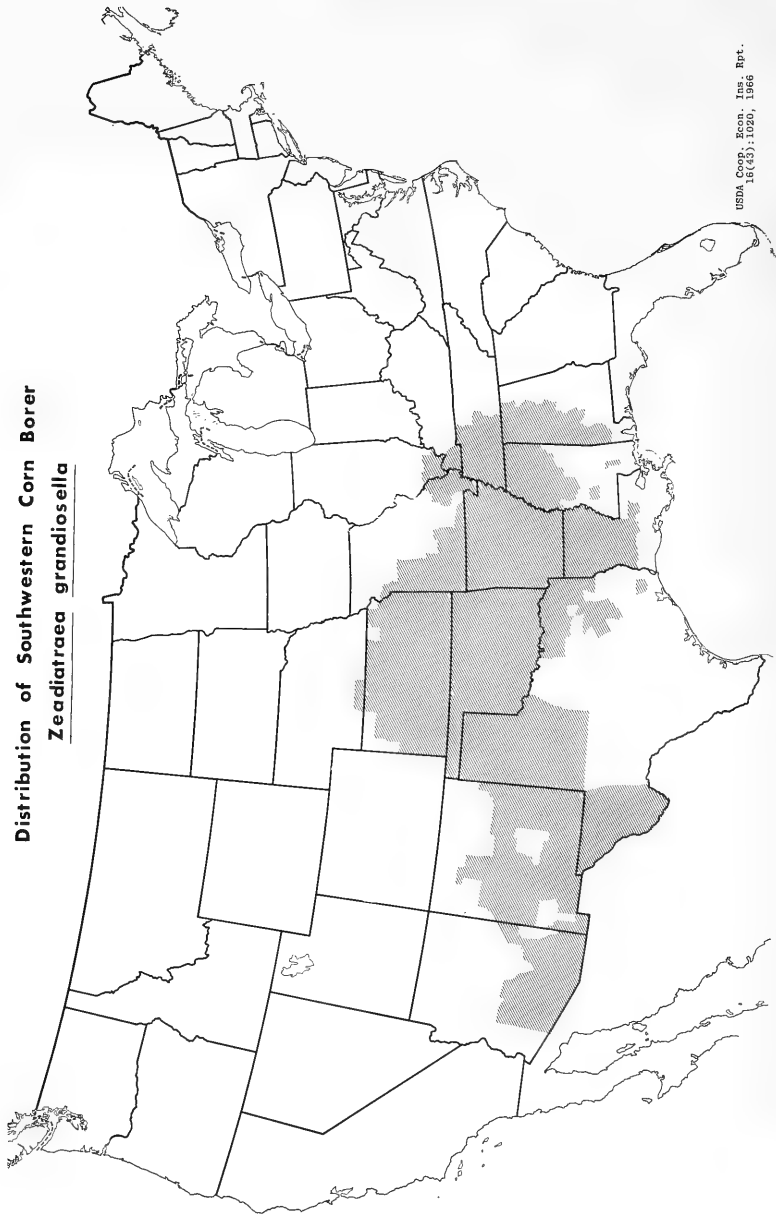
Beneficial Insects - A SCIOMYZID FLY (Sepedon macropus) very active in taro patches in Waihee, Maui. This predaceous insect introduced from Nicaragua in 1958 to aid in control of Lymnaea ollula, a freshwater snail and intermediate host of cattle liverfluke. (Miyahira).

Miscellaneous Pests - In leeward Oahu, GIANT AFRICAN SNAIL (Achatina fulica) moved from bordering thickets in Lualualei and Waianae and moderately damaged one acre of eggplant and 0.5 acre of tomatoes. Substantial rainfall during past two weeks initiated condition. On Maui, snail activity heavy in vicinity of Wailuku. (Yamamoto, Takishita).

Weather continued from page 1010.

Heavy showers developed over southern Florida on Friday, continued on Saturday, and ended Sunday, leaving over 8 inches of rain in the Palm Beach area. Over the weekend spotty showers occurred along a front that stretched from Mobile, Alabama, to southern Maryland, with localities in Alabama and Mississippi receiving more than an inch of rain on Sunday. Weekly precipitation totals in northern Georgia exceeded 6 inches. Most of California, Nevada, Utah, Arizona, and New Mexico received no measurable precipitation, while only light rain or snow fell from the northern and central Rockies to the Great Lakes. (Summary supplied by Environmental Data Service, ESSA).

Distribution of Southwestern Corn Borer
Zea diatraea grandiosella



USDA Coop. Econ. Ins. Rpt.
16(45):1020, 1966

Aphis craccae Linnaeus, an Aphid Newly Discovered

in the United States (Homoptera: Aphididae)

Louise M. Russell 1/

Aphis craccae Linnaeus, a Palearctic species, was collected from wild vetch at Augusta, Maine, July 7, 1966, by J. O. Pepper of the Pennsylvania State University, and A. N. Tissot of the University of Florida. As far as known, this was the first collection of this aphid in the United States. On August 21, 1966, I collected craccae from Vicia cracca at Crown Point, Essex County, New York, and L. L. Pechuman of Cornell University took samples from Vicia sp. on Wellesley Island, Jefferson County, New York, August 31 and September 1, 1966. Although these are the only known collections of craccae in the United States, it is possible that the species is present in New Hampshire, Vermont, and other northern States.

A. craccae had been found previously in Canada. It was reported from Vicia cracca, Quebec, by F. W. Quednau (Canad. Ent. 98(4): 426, 1966), and was observed in Fredericton, New Brunswick, in early summer, 1966, by M. E. MacGillivray and Jean Adams of the Canada Department of Agriculture. Both of these workers, who are familiar with the aphids of the Fredericton area, stated that they had not observed the species before this year. Examination of aphids from vetch in the collection of the U. S. National Museum did not reveal examples of craccae taken before 1966. Thus it is likely that the aphid is comparatively new in North America.

Samples collected July 7 in Maine and July 11 in New Brunswick consisted entirely of viviparous forms. In the New York collections, taken in August and September, however, the majority of specimens were oviparous females, but a few males and viviparous females were present. In all collections that I have examined, the aphids were densely clustered on the terminal growth of the vetch (principally on the stems but with a few on leaves and seed pods), nymphs were more numerous than adults, the insects were not attended by ants, and there was no evidence of parasitism.

Distribution - United States: Maine, New York; Canada: New Brunswick, Quebec; all Europe according to G. Remaudière (Fauna terrestre et d'eau douce des Pyrénées - Orientales, fasc. 2: 16, 1959); China and Japan according to C. C. Tao (Agr. Res. (Taiwan) 8(1):5, 1958).

Hosts - Vicia cassubica, V. cracca, V. dumetorum, V. faba, V. hirsuta, V. lutea, V. pseudocraccae, V. sativa, V. tenuifolia, V. villosa, Vicia spp. Although Aphis craccae has been reported from each of these species of Vicia it is recorded most frequently from cracca, less frequently from sativa, and infrequently from the other species. Frej Ossiannilsson (Lantbrukshögskolans Ann. 30: 463, 1964) listed craccae only on V. cracca in Sweden, and several other European workers have reported the aphid on this plant. Indeed, U. Falk (Wiss. Ztschr. der Univ. Rostock 7(4): 628, 1957/58) stated that in experiments in Germany, craccae left all species of Vicia except cracca within a few days. Tao (op. cit.) reported craccae from Vicia sp. in China and Japan, and (Plant Protect. Bul. (Taiwan) 4(3): 106, 1962) from Vicia faba. The last is the only report I have found of craccae on V. faba. In America craccae is known from V. cracca and Vicia sp. It is possible that the unidentified Vicia also is cracca for this is a common species in New Brunswick, Maine, and New York.

Economic importance - Aphis craccae is not reported to be seriously injurious even though it lives on V. cracca and V. sativa, species that are sometimes grown as agricultural crops in Europe, and on V. faba, the common broadbean. In New Brunswick and New York, where the aphid occurred abundantly, there was little apparent damage at the time I observed the infestations. In Crown Point, New York,

1/ Entomology Research Division, ARS, U. S. Department of Agriculture, Washington, D. C.

the vetch grew in a meadow that was predominantly alfalfa with a few red clover plants and a little timothy grass. Though the vetch and other legumes were sometimes nearly contiguous, aphids were present only on the vetch. Aphis craccae has been tested in the transmission of plant diseases. In experiments, it successfully transmitted bean yellow mosaic and cucumber mosaic, but did not transmit cabbage black ring spot, according to J. S. Kennedy, M. F. Day, and V. F. Eastop (A Conspectus of Aphids as Vectors of Plant Viruses, p. 55, 1962).

Distinguishing characters - In North America Aphis craccae is most likely to be confused with A. craccivora Koch and A. fabae Scopoli. All are "black aphids" that live on vetch, but craccivora and fabae live on many other plants as well. In this country living specimens of craccae can readily be distinguished from the other two species by its dense covering of gray or whitish, coarse, pulverulent, waxy secretion. Both craccivora and fabae lack such a secretion in the adult stage. Also in America, cleared, slide mounted specimens of the three species may be separated on the basis of morphological characters. The most conspicuous differences are in the comparative length of the cornicles, and the number of setae on the cauda, in winged and wingless specimens; in the sclerotization of the abdomen in apterae; in the number of secondary sensoria on antennal segment III and their presence or absence on IV in alatae. The key on the following page will help to separate the three species.



Aphis craccae
Apterous viviparous female
after Falk (op. cit.)

Key to Adult Viviparae

1. Living insects.....2
Cleared, slide mounted insects.....4
2. Densely covered with a gray or whitish, coarse, pulverulent, waxy secretioncraccae
Not densely covered with a waxy secretion.....3
3. Dorsum shining black.....craccivora
Dorsum dull black.....fabae
4. Wingless adults.....5
Winged adults.....7
5. Abdomen without a conspicuous dorsal sclerotized area.....fabae
Abdomen with a conspicuous dorsal sclerotized area.....6
6. Sclerotized area variable but usually in the shape of an inverted T, present in median area of terga I-IV, then widened to the lateral or marginal areas of terga V-VII or VIII; cornicles shorter than (.14: .20 mm) to as long as (.24: .24 mm) the cauda; cauda with 8-13 (usually 9-11) setae.....craccae
Sclerotized area variable but not in the shape of an inverted T, absent from tergum I, and absent or present from terga II-IV, but if present on the latter extending almost, or completely, across them, and across terga V-VII; cornicles usually conspicuously longer (.35: .20 mm) than the cauda; cauda with 4-9 (usually 5-7) setae.....craccivora
7. Antennal segment III with 12-18, and segment IV usually with 1-7, secondary sensoria.....fabae
Antennal segment III usually with less than 12, and segment IV without, secondary sensoria.....8
8. Cauda with 8-13 (usually 9-11) setae; cornicles usually shorter, or at most not longer than the cauda.....craccae
Cauda with 4-9 (unusually 5-7) setae; cornicles usually distinctly longer than the cauda.....craccivora

Synonymy - Aphis craccae Linnaeus also has been cited as Aphis viciae craccae Linnaeus, Aphis viciae Fabricius, Aphis (Pergandeida) craccae (Linnaeus), Pergandeida craccae (Linnaeus), Brachyunguis craccae (Linnaeus), and Microsiphon craccae (Schränk).

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Hyattsville, Maryland 20782

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN EARWORM continues to cause economic damage to lettuce in Yuma and Maricopa Counties, Arizona. (p. 1027).

Populations of EUROPEAN CORN BORER increased in east central and southeastern South Dakota and all counties surveyed in North Dakota. (p. 1027).

Detection

- A MARGARODID SCALE (Kuwania quercus (Kuwana)) collected in California for new North American record. (p. 1032).

New State records include several WEEVILS from Kansas, South Carolina, Georgia and New Mexico (pp. 1031, 1032); a COLLEMBOLA from Utah (p. 1029), and a MEALYBUG from Utah (p. 1030); SMOKY-BROWN COCKROACH in California (p. 1033).

For new county records see page 1035.

Special Reports

A change of Name for the FULLER ROSE BEETLE, Pantomorus godmani. (p. 1036).

SPOTTED ALFALFA APHID (Map). (p. 1038).

Reports in this issue are for week ending October 28 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	1027
Insects Affecting	
Corn, Sorghum, Sugarcane.....	1027
Small Grains.....	1028
Turf, Pastures, Rangeland.....	1028
Forage Legumes.....	1028
Soybeans.....	1029
Cotton.....	1029
Potatoes, Tomatoes, Peppers.....	1030
Beans and Peas.....	1030
Cole Crops.....	1030
General Vegetables.....	1030
Deciduous Fruits and Nuts.....	1030
Citrus.....	1031
Ornamentals.....	1031
Forest and Shade Trees.....	1031
Man and Animals.....	1032
Stored Products.....	1033
Beneficial Insects.....	1033
Federal and State Plant Protection Programs.....	1033
Insect Detection.....	1035
Corrections.....	1035
Hawaii Insect Report.....	1036
A Change of Name for the Fuller Rose Beetle, <u>Pantomorus godmani</u>	1036
Light Trap Collections.....	1037
Spotted Alfalfa Aphid (Map).....	1038

WEATHER BUREAU'S 30-DAY OUTLOOK

NOVEMBER 1966

Weather Bureau's 30-day outlook for November calls for temperatures to average above seasonal normals from the Mississippi Valley westward except for near normal in the west gulf coast region. Below normal temperatures are indicated for the east coast States while near normal averages are in prospect in unspecified areas. Precipitation is expected to be subnormal over most of the Nation except for near to above normal totals in the Pacific Northwest as well as the south Atlantic Coast States and near normal over the middle Atlantic Coast States and the North-east.

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 the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 1034.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - FLORIDA - Light on snap beans at Sanford, Seminole County, October 19. Early instar found on nearly mature endive at Apopka, Orange County, October 10. (Greene, Moherreck). ARKANSAS - Large numbers of larvae killed by fungus observed in Phillips County sorghum field. (Boyer). ARIZONA - Continues to cause economic damage to lettuce in Yuma and Maricopa Counties. Repeated controls necessary. (Ariz. Coop. Sur.). CALIFORNIA - Larvae medium on potatoes in Tulalake area; severe on many crops since August. Larvae medium on 700 trumpetbush (Tecoma capensis) nursery plants in Anaheim, Orange County. (Cal. Coop. Rpt.).

TOBACCO BUDWORM (Heliothis virescens) - MISSISSIPPI - Light; fourth and fifth-stage larvae observed on alfalfa in Oktibbeha County. (Dinkins). CALIFORNIA - Heavy on geraniums in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - KANSAS - Three immature specimens collected in one wheat field in Pottawatomie County. None found in any other wheat field checked in eastern half of State. (Simpson).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - OKLAHOMA - Heavy in wheat over wide area of State and in barley in some areas. Other leafhopper species light. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Remains low; 1-5 per 10 sweeps in alfalfa throughout southern area. No eggs found. (Wis. Ins. Sur.). KANSAS - Light to moderate in southeast area alfalfa, ranged from zero in Wilson County to 100 per 10 sweeps in Bourbon and Cowley Counties. Aphids 10-35 per 10 sweeps in most other counties. (Redding). Counts per 10 sweeps in northeast counties moderate to high; Pottawatomie 15-20, Jefferson 350-400, Douglas 100-150, Jackson 250-300 and Nemaha 150-200. Predators (mostly lacewings) relatively low in most fields. (Simpson). NEW MEXICO - Light, spotted infestations noted in Chaves County alfalfa. (Mathews).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - VIRGINIA - Heavy, 1 per stalk in corn in Buckingham County. (Isakson, Baldwin). ALABAMA - Heavy, 1-6 larvae per stalk in six-acre, late-planted field observed near Independence, Autauga County. Several fields of early planted corn lightly infested. (Henderson et al.). ARKANSAS - Slight damage to late grain sorghum in Phillips County. Stalks tunneled and overwintering larvae present; no apparent reduction in grain yield. Infested 75 percent of cocklebur plants in field. (Boyer). NEBRASKA - Results of fall survey in southern district about same as last year; averaged 6 percent plants infested and 37 borers per 100 stalks. (Rhine). SOUTH DAKOTA - Populations in east central and southeastern areas increased to much higher levels than in 1965. (Jones). NORTH DAKOTA - Increase in borer populations in all counties surveyed. Averaged 211 borers per 100 plants. Heavy predation by downy woodpecker observed near Argusville. Up to 22 percent of borers parasitized by Sympiesis viridula (a eulophid wasp) in single field in Cass County. (Brandvik, Frye).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ALABAMA - Several larvae taken from corn at Millers Ferry in Wilcox County. This new county record and first infestation located east of the Alabama River. (Estes et al.). ARKANSAS - About 1 percent of sorghum plants lodged from infestations in Phillips County. (Boyer). KANSAS - Data collected at the St. John, Sandyland Experiment Field, Stafford County, revealed infestations in individual collections of Latin American corn lines ranged 33-100 percent stalks infested, with average of 80 percent stalks infested for entire plot of corn; ranged 0-89 percent stalks girdled in individual collections. (Wiseman, Oct. 15). Infesting 40 percent of stalks in Allen County cornfields. (Simpson).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Heavily infesting 10-inch corn plants at Sanford, Seminole County. (Greene, Oct. 10). ALABAMA - Late-planted corn and garden patches seriously damaged in Mobile, Baldwin, Monroe, Wilcox, Lowndes and Autauga Counties. Few larvae feeding on ears and stalks of extremely late corn. (Henderson et al.).

CABBAGE LOOPER (Trichoplusia ni) - ARKANSAS - Large numbers of larvae killed by fungus, observed in Phillips County sorghum field. (Boyer).

PINK SCAVENGER CATERPILLAR (Sathrobrotia rileyi) - ALABAMA - Medium to heavy in previously damaged ears of corn from Mobile to Autauga County. (Henderson et al.).

RICE WEEVIL (Sitophilus oryzae) - ALABAMA - Adults heavy in ears of corn in many fields from Mobile northward into Autauga County. Late corn, severely damaged by fall armyworm and corn earworm, contained 1-15 adults per ear. (Estes et al.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - ALABAMA - Occurrence general in cornstalks in fields from Mobile to St. Clair County. Heaviest in fields that border fence lines and woods. (Henderson et al.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Averaged 10 per 50 sweeps in rye near Janesville, Rock County; majority producing embryos. (Wis. Ins. Sur.).

AN APHID (Rhopalosiphum rufiabdominalis) - KANSAS - Ranged 5-10 per wheat plant in some Jefferson County fields. (Simpson).

TURF, PASTURES, RANGELAND

A CHINCH BUG (Blissus insularis) - FLORIDA - All stages heavy in St. Augustine grass at Gainesville, Alachua County. Large patches of turf dead. (Mead, Oct. 19).

GREEN JUNE BEETLE (Cotinis nitida) - SOUTH CAROLINA - Larvae abundant on lawns in Clemson area. (Nettles, Oct. 26).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Adults 1-4, larvae 0-6 per 10 sweeps on alfalfa in Montgomery, Floyd, Pulaski, Wythe, Bland and Tazewell Counties. (Isakson). SOUTH CAROLINA - Adults found in many fields. Coming out from aestivation; will lay eggs before winter. (Thomas, Oct. 26). ARKANSAS - None found in Lee County. (Boyer).

A WEEVIL (Pantomorus taeniatus) - ALABAMA - Adults heavy in Lee, Lamar and other counties, feeding on kudzubean, lespedeza and honeysuckle. Occurs throughout State; more noticeable during late fall months. (Pigott et al., Oct. 21).

LYGUS BUGS (Lygus spp.) - VIRGINIA - Adults 4-9 per 10 sweeps in alfalfa in Floyd, Montgomery, and Pulaski Counties. (Isakson). KANSAS - Low, 5-10 per 10 sweeps, in southeastern area alfalfa. Ranged 20-40 per 10 sweeps in Crawford and Bourbon Counties. (Redding). WYOMING - Adults 4-6 per 10 sweeps in alfalfa in Park, Big Horn, Washakie and Hot Springs Counties. (Marks). NEW MEXICO - Adults per 25 sweeps in alfalfa 3-5 near Tucumcari, Quay County, 6-8 in Lea County. (Kloepfer, Mathews). OKLAHOMA - L. lineolaris 10-15 per 10 sweeps on alfalfa in Payne County. (Okla. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARKANSAS - Numerous in alfalfa in Lee County; 300-400 per 100 sweeps. (Boyer). ARIZONA - Continues to cause moderate damage to alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

GARDEN WEBWORM (Loxostege similalis) - ARIZONA - Adult activity heavy in alfalfa in areas of Yuma County. Larval counts low, 25 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larvae 10-14 per 25 sweeps in Lea County alfalfa. (Mathews).

PEA APHID (Acyrtosiphon pisum) - VIRGINIA - Light on alfalfa in Tazewell and Bland Counties; many lady beetle adults and larvae present. (Isakson). ARKANSAS - Survey negative in Lee County. Ranged 200-300 per 100 sweeps in vetch in Phillips County. (Boyer). KANSAS - Low in southeast area alfalfa, 5-10 per 10 sweeps. Highest counts, 20 per 10 sweeps in Bourbon County. (Redding). Counts per 10 sweeps in northeast counties; Pottawatomie 5, Jefferson 150-200, Jackson 75-100, Douglas 75-100, and Nemaha 125-150. (Simpson). NEW MEXICO - Fall buildup evident in Chaves and Lea County alfalfa. Problem in young alfalfa. (Mathews). Light infestations noted in alfalfa near Tucumcari, Quay County. (Kloepfer). WYOMING - Continues to decline on alfalfa in Park, Big Horn, Washakie and Hot Springs Counties; 35-60 per 10 sweeps. (Marks). WISCONSIN - Ranged 20-350 per sweep throughout southwest and south central areas. No eggs observed. (Wis. Ins. Sur.).

COWPEA APHID (Aphis craccivora) - MASSACHUSETTS - Light numbers of apterae collected by G. O. Saile on vetch at South Dennis July 7, 1966. As far as known this first record of an aphid on vetch in State. Det. L. M. Russell. (Leonard).

COLLEMBOLA - UTAH - Deuteromnithurus repanda numerous on alfalfa in field near Corrine, Box Elder County, September 29. D. repanda, Pseudosinella violenta and Heteromurus nitidus noted on alfalfa at Tremonton in same county September 29. All determinations by D. L. Wray. H. nitidus new State record. (Knowlton).

SOYBEANS

STINK BUGS - SOUTH CAROLINA - Continue to infest soybeans in some counties. (Thomas, Oct. 26). KANSAS - Soybeans checked at elevators in south central and southeastern areas indicate damage 50 percent that of 1965. (Simpson).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Adults continue feeding on cotton squares in southern section. (McQueen). MISSISSIPPI - Activity continues in Yazoo County. Most weevils found in upper half of plant. Diapause proceeding at slow rate in Oktibbeha County. (Dinkins). ARKANSAS - Remains active in green cotton in eastern area. (Boyer). NEW MEXICO - Detection surveys in Grant, Hidalgo, Luna, Dona Ana, Chaves, Eddy, Lea, Roosevelt and Quay Counties negative. (Hare et al.).

BOLLWORM (Heliothis zea) - ARKANSAS - Active on green cotton in east central area. Reproduction continues, eggs present. (Boyer). NEW MEXICO - Few larvae found in bolls in Tucumcari area, Quay County. Light to moderate damage noted. (Kloepfer). ARIZONA - New hatches observed on top crop in Pinal, Maricopa and Yuma Counties. Late, heavy infestation causing problem in Parker Valley in Yuma County. (Ariz. Coop. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH CAROLINA - Locally abundant in several untreated fields of cotton in Pee Dee area. (Taft, Oct. 26).

COTTON LEAFWORM (Alabama argillacea) - ALABAMA - Light in Macon and Houston Counties; few moths taken in Lee County. Pupating in Montgomery County. These first infestations of season. Will not affect cotton production. (Barger et al., Oct. 21).

POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - CALIFORNIA - Larvae heavy in volunteer potatoes in Escondido, San Diego County. (Cal. Coop. Rpt.).

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae medium, damaging potato foliage in Escondido, San Diego County. (Cal. Coop. Rpt.).

A MEALYBUG (Phenacoccus solenopsis) - UTAH - Collected on tomato leaves at Ogden, Weber County, August 11. Det. by L. E. Carey. New State record. (Knowlton, Oct. 24).

COLLEMBOLA - UTAH - Mildew severely damaged 2 fields of potatoes near Tremonton, Box Elder County, by September 29. Large numbers of Pseudosinella violenta and Heteromurus nitidus present; smaller numbers of Hypogastrura armata, Xenylla grisea, Onychiurus encarpatus, Tullbergia iowensis, Folsomia fimetaria, Isotoma eunotabilis and Pseudosinella sexoculata also observed. Det. D. L. Wray. (Knowlton).

BEANS AND PEAS

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - This pest and bean leaf skeletonizer heavy on beans in Garden Grove, Orange County. (Cal. Coop. Rpt.). FLORIDA - Larvae, probably this species, infesting 8 of 100 snap bean plants in Sanford, Seminole County. (Greene, Oct. 19).

BEAN LEAF ROLLER (Urbanus proteus) - FLORIDA - Larvae and eggs heavy on snap beans in prebloom stage at Sanford, Seminole County. (Greene, Oct. 19).

COWPEA APHID (Aphis craccivora) - CALIFORNIA - Nymphs and adults medium on beans in Kerman; locally heavy on beans in Fresno, Fresno County. (Cal. Coop. Rpt.).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Adults numerous; depositing eggs on collards, cabbage, and turnips in southwest section. Light numbers of larvae observed. (McQueen).

CABBAGE APHID (Brevicoryne brassicae) - DELAWARE - Very large swarms occurring at evening twilight during last two weeks in areas of New Castle County. (Burbutis).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Heavy populations continue most serious problem on lettuce in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Larval root injury light on sweetpotatoes dug in Salisbury area. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Heavy numbers of full-grown larvae dropping from pecan nuts in Payne County. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Damage to nuts in Mayes County 50-75 percent. Nut drop continues in Payne County. (Okla. Coop. Sur.).

A FALSE POWDER-POST BEETLE (Xylobiops basilaris) - ALABAMA - Adults widespread throughout central and southern sections girdling dead and dying pecan limbs. (McQueen).

WALNUT SCALE (Aspidiotus juglansregiae) - CALIFORNIA - Medium on walnut trees in Tulare, Tulare County. (Cal. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Egg laying on Prunus spp. underway in western Dane County. (Wis. Ins. Sur.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - All stages severe on 12 peach trees in nursery at Titusville, Brevard County. (Levan, Oct. 13).

CITRUS

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Numerous light infestations observed on citrus on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Severely infesting orange trees in nurseries at Ocoee, Orange County. Many crawlers present. (Ware, Oct. 14).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Populations decreased very rapidly past 2 weeks in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

ORNAMENTALS

BEE T ARMYWORM (Spodoptera exigua) - FLORIDA - Severe on gladiolus at Bradenton, Manatee County, during July, August and September; decreased in October. (Connell, Oct. 21).

A GEOMETRID MOTH (Coryphista meadii) - CALIFORNIA - Locally heavy populations defoliating Oregon-grape at Civic Center in Vallejo, Solano County; heavy on Mahonia repens in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

WEEVILS - SOUTH CAROLINA - Pseudocneorhinus bifasciatus collected from azalea plant in Chesterfield County August 5, 1966. Submitted by J. C. Willis. Det. R. E. Warner. New State record. (PPC). KANSAS - Calomycterus setarius taken in park and houses in Kansas City area, Johnson County, July 7, 1966, by H. L. Brooks. Det. by R. E. Warner. New State record. (PPC).

ARMORED SCALES - OKLAHOMA - Melanaspis obscura very heavy on red oak in Oklahoma County; trunks and lower limbs of small trees completely encrusted. Light on red oak in Tulsa County. Heavy on live oak in Oklahoma County; trunks and lower branches of 25 percent of trees encrusted and some branches killed. (Okla. Coop. Sur.). FLORIDA - All stages of Hemiberlesia cyanophylli moderately to severely infesting stems and leaves of 47 queenpalms at a store in Daytona Beach, Volusia County. (Pott, Oct. 11). Ischnaspis longirostris adults observed on 120 Ixora (Ixora coccinea) plants in a nursery at Ft. Lauderdale, Broward County. This new host record. (Clinton, Oct. 11).

AN APHID (Chaitophorus populellus) - CALIFORNIA - Medium on Populus nigra nursery stock in Millbrae, San Mateo County. Heavy populations developed late this season and excessive honeydew observed. (Cal. Coop. Rpt.).

A WHITEFLY (Aleuroplatus gelatinosus) - CALIFORNIA - Heavy on oak nursery stock in La Mesa, San Diego County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Heavy larval populations defoliating oak trees in St. Helena, Napa County. This third year of heavy infestations; many oak trees declining; few died. (Cal. Coop. Rpt.).

A WEEVIL (Carphonotus testaceus) - NEW MEXICO - Taken on spruce at Pecos, San Miguel County, July 27, 1965, by D. C. Heninger and H. L. Mathews. Det. by R. E. Warner. New State record. (PPC).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - VIRGINIA - Heavy on loblolly pine in Richmond County. Adult males emerging at Virginia Beach. (Isakson, Farmar, Easter). UTAH - Unusually severe on Colorado blue spruce and light on pine at Bountiful, Davis County, during late August. Det. by L. E. Carey. (Knowlton, Oct. 24).

A SOFT SCALE (Toumeyella parvicornis) - FLORIDA - All stages infesting stems of 20 percent of 1,000 slash pine in nursery at Macclenny, Baker County. (Collins, Oct. 6).

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - SOUTH CAROLINA - Collected from oak at Gaffney, Cherokee County, by E. V. Jones, September 12, 1966. Det. R. E. Warner. New State record. (PPC). GEORGIA - Collected from timber at Epworth, Fannin County, August 8, 1966, by E. Goss. Det. R. E. Warner. New State record. (PPC).

A WEEVIL (Lechriops floridanus) - FLORIDA - All stages infesting bark of 75 percent of 800 mahogany trees in nursery at Hialeah, Dade County. Larvae tunneling under outer layer of bark at union of branches and main trunk. Considerable damage causing sap to flow and swelling to occur near breaks in bark. (Hickman, Sept. 19).

A MARGARODID SCALE (Kuwania quercus (Kuwana)) - CALIFORNIA - Collected on Quercus douglasii (blue oak) along Putah Creek, 2.5 miles east of Monticello Dam, Yolo County, by T. Kono on July 14, 1965. Collected since on several trees in immediate area. Det. by R. F. Wilkey. First record for North America. (Cal. Coop. Rpt.). Known from Japan and Formosa. Only one report available in literature on economic importance of this scale. This refers to heavy population on oak in Formosa. (PPC).

MAN AND ANIMALS

MOSQUITOES - DELAWARE - Aedes vexans remains abundant and annoying in New Castle County. A. sollicitans very abundant and annoying in some areas of eastern Kent County. (Burbutis). LOUISIANA - Larval collections in Jefferson Parish contained Aedes sollicitans, Anopheles quadrimaculatus, Anopheles crucians, Culex pipiens quinquefasciatus, C. restuans, C. salinarius and Psorophora confinnis. Culiseta inornata present first time this year in light trap collections. (Stokes).

FACE FLY (Musca autumnalis) - NEBRASKA - Large numbers hibernating in buildings in Cambridge, Furnas County. (Rhine, Oct. 21). KANSAS - Entering homes and buildings in Manhattan area. (Pitts).

HORN FLY (Haematobia irritans) - OKLAHOMA - Continues active on cattle; 100-200 per head in Payne and Ottawa Counties. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 10 per head on untreated dairy cows in Payne County. (Okla. Coop. Sur.).

HORSE BOT FLY (Gasterophilus intestinalis) - OKLAHOMA - Adults continue active on horses in Payne County, but numbers greatly reduced. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 111 cases reported in U. S. October 23-29 as follows: TEXAS - El Paso 1, Reeves 1, Hudspeth 1, Presidio 2, Brewster 4, Pecos 2, Ward 1, Terrell 4, Andrews 1, Mitchell 1, Taylor 1, Schleicher 1, Menard 1, Mason 1, Burnet 1, Crockett 1, Sutton 2, Val Verde 13, Real 1, Bandera 1, Fayette 2, Kinney 3, Uvalde 2, Medina 2, Maverick 4, Zavala 5, Dimmit 14, Webb 8, Duval 1, Nueces 1, Zapata 1, Jim Hogg 1, Brooks 3, Kenedy 2, Starr 2,

Hidalgo 2. ARIZONA - Yuma 5, Maricopa 5, Yavapai 2, Pinal 2. CALIFORNIA - Riverside 2, San Diego 1. Total of 403 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 23, Sonora 198, Chihuahua 80, Coahuila 58, Nuevo Leon 17, Tamaulipas 26. Total of 273 cases reported from Mexico south of Barrier Zone. Barrier Zone area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 58,000,250, New Mexico 1,692,000, Arizona 7,572,000, California 1,016,000, Mexico 36,032,000. (Anim. Health. Div.).

STORED PRODUCTS

INDIAN-MEAL MOTH (Plodia interpunctella) - KANSAS - Adults and larvae heavy in farm storage bin containing corn in Brown County. (Simpson).

POTATO TUBERWORM (Phthorimaea operculella) - MARYLAND - Heavy in stored potatoes at Centreville, Queen Annes County. (U. Md., Ent. Dept.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - UTAH - Infesting flour in several school cafeterias and homes in Davis County communities. (Knowlton).

COWPEA WEEVIL (Callosobruchus maculatus) - OKLAHOMA - Heavy in stored cowpeas in Payne County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Hippodamia convergens and Cycloneda sanguinea active in southwest area vegetable crops. (Henderson et al.). Numerous adults of Coleomegilla maculata fuscilabris hibernating in trash along fence in Baldwin County. (McQueen). MISSISSIPPI - H. convergens numerous in Oktibbeha County alfalfa; 1-2 adults per square foot in some areas. (Dinkins).

DAMSEL BUGS (Nabis spp.) - MISSISSIPPI - Nymphs light in Oktibbeha County alfalfa. (Dinkins). WYOMING - Adults still active in alfalfa in Park, Big Horn, Washakie and Hot Springs Counties; 8-10 per 10 sweeps. (Marks).

FEDERAL&STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - WISCONSIN - Melanoplus femurrubrum females continue to lay eggs; populations diminishing rapidly. (Wis. Ins. Sur.). NEBRASKA - Melanoplus spp. 6 per square yard in parts of northern Jefferson and southern Saline Counties. (Roselle).

SMOKY-BROWN COCKROACH (Periplaneta fuliginosa) - CALIFORNIA - Collected in house trailer at Sutter Creek, Amador County, October 9, 1966, by H. Spiwa. Light numbers of adults and eggs noted. Trailer from out of State. Det. by G. Buxton. First record for State. Eradication methods taken. (Cal. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - NEVADA - Single adult male collected in cotton field at Overton, Clark County, October 24; bringing total moths collected in Moapa Valley to eight. Det. by R. C. Bechtel. New county record. (Kinard). Interior quarantine extended to include Moapa Valley, Clark County. (Bechtel, Gallaway). ARIZONA - New infestations continued to be detected in Yuma, Maricopa and Pinal Counties. Some controls applied in effort to save top crop. (Ariz. Coop. Sur.). NEW MEXICO - Frost damaged green immature bolls in most cotton-growing areas. (N. M. Coop. Rpt.). OKLAHOMA - Lint cleaner inspections positive in Kiowa, Payne and Washita Counties. Gin trash survey results show 2 per 10 bushels in Hughes County, 9 per 45 bushels in Logan County, 9 per 65 bushels in Pawnee County. (Okla. Coop. Sur.).

CITRUS BLACKFLY (*Aleurocanthus woglumi*) - MEXICO - Chemical Control Zone - Total of 48,182 trees inspected on 2,640 properties. Total of 16 infested trees found on 3 properties in Nuevo Leon; 1 in Hualahuises and 2 in Linares. In Hualahuises, 3,130 trees on 5 properties received first treatment, 1,847 trees on 2 properties received second and 1,504 trees on 3 properties received third treatment. On one property in Linares, 336 trees received first treatment. Biological Control Zone - Total of 29,476 trees inspected on 46 properties in municipios Mainero, Villagran, Hidalgo, Gumez, Victoria and Padilla, Tamaulipas. Total of 4,685 trees on 14 properties found infested. All infestations light except for one each in Padilla and Gumez. (PPC Mex. Reg., Sept. Rpt.).

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - MEXICO - Total of 7,313 trap inspections made during September; results negative. At Matamoros, Tamaulipas, total of 5,200 acres sprayed. (PPC Mex. Reg.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - One adult taken on sticky board in orange tree at Okeechobee, Okeechobee County, October 13. New county record. Adults continue being trapped in Manatee, Pinellas and Lee Counties. Larvae collected in guavas at Bradenton, St. Petersburg and Miami, Dade County. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - ALABAMA - Causing increased concern from Mobile County northward to St. Clair County. Mounds built higher this fall than usual. (Estes et al.).

A SLUG (*Arion ater*) - CALIFORNIA - Adult found in Golden Gate Park, San Francisco, San Francisco County, September 6, 1966. New county record. This approximately 20 miles west of previously reported infestation at Hayward, Alameda County. Pest easily transported on nursery stock and containers. (Harper).

Weather continued from page 1026.

WEATHER OF THE WEEK ENDING OCTOBER 31, 1966

HIGHLIGHTS: Most of the Nation enjoyed mild, sunny days and clear, cool nights with practically no rain.

PRECIPITATION: Skies remained cloudless from Burbank to Boston and from Montana to Mississippi. Only a few stations in that wide area reported any precipitation whatsoever and these received only light sprinkles. Many States reported "no rain at any station." The 11-month drought in the Great Basin intensified. The Far Northwest received light precipitation on Wednesday and Saturday. Rain fell at the lower elevations and snow in the mountains. Light snow flurries fell in northern Minnesota and Upper Michigan with sprinkles in northern Lower Michigan. The lower Rio Grande Valley received light rains on Monday and light showers fell in northern New England on Saturday. Heaviest rainfall occurred from the southern Appalachians to the Atlantic Ocean. Some mountain areas received 1-2 inches with more than 5 inches at Newnan, Georgia. The Piedmont received 0.5 to 1 inch while less than 0.5 inch fell along the coast.

TEMPERATURE: Typical autumn weather with high pressure and clear, quiet conditions prevailed coast to coast. Temperatures averaged unseasonably mild in the West and cool in the East. Record-breaking warmth occurred over portions of the western half. Temperatures climbed to the 70's along the Canadian border of Montana and North Dakota and to the 80's as far north as South Dakota. The mercury dropped 40° to 50° during the lengthening, calm, cloudless nights but climbed again to near-record maximums the following afternoons. In contrast, cool weather continued over the East. Afternoons were mild but the mercury dropped sharply after sundown. On Thursday morning, freezing temperatures occurred as far south as northern Mississippi. North of the Ohio River, freezing temperatures have ended the growing season for most crops. This was the tenth consecutive cold week in northern Louisiana, Mississippi, and Tennessee. (Summary supplied by Environmental Data Service, ESSA).

INSECT DETECTION

New North American Record

A MARGARODID SCALE (Kuwania querus (Kuwana)) - CALIFORNIA - Collected on blue oak along Putah Creek, Yolo County, July 14, 1965, by T. Kono. Det. R. F. Wilkey. (p. 1032).

New State Records

ASIATIC OAK WEEVIL (Cyrtepestomus castaneus) - SOUTH CAROLINA - Collected from oak at Gaffney, Cherokee County, September 12, 1966, by E. V. Jones. Det. R. E. Warner. GEORGIA - Collected from timber at Epworth, Fannin County, August 8, 1966, by E. Goss. Det. R. E. Warner. (p. 1032).

A WEEVIL (Carphonotus testaceus) - NEW MEXICO - Collected from spruce at Pecos, San Miguel County, July 27, 1965, by D. C. Heninger and H. L. Mathews. Det. R. E. Warner. (p. 1032).

A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) - SOUTH CAROLINA - Collected from azalea in Chesterfield County, August 5, 1966, by J. C. Willis. Det. R. E. Warner. (p. 1031).

A JAPANESE WEEVIL (Calomycterus setarius) - KANSAS - Taken in park and homes in Kansas City area, Johnson County, July 7, 1966, by H. L. Brooks. Det. R. E. Warner. (p. 1031).

A MEALYBUG (Phenacoccus solenopsis) - UTAH - Collected on tomatoes at Ogden, Weber County, August 11, 1966. Det. L. E. Carey. (p. 1030).

A COLLEMBOLA (Heteromurus nitidus) - UTAH - Collected on alfalfa at Tremonton, Box Elder County. Det. D. L. Wray. (p. 1029). Also reported on potatoes. (p. 1030).

SMOKY-BROWN COCKROACH (Periplaneta fuliginosa) - CALIFORNIA - Taken in house trailer at Sutter Creek, Amador County, October 9, 1966, by H. Spiva. (p. 1033).

New County and Island Records

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ALABAMA - Collected from corn at Millers Ferry, Wilcox County. (p. 1027).

PINK BOLLWORM (Pectinophora gossypiella) - NEVADA - Single adult collected at Overton, Clark County, October 24, 1966. Det. R. C. Bechtel. (p. 1033).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Taken on sticky board at Okeechobee, Okeechobee County, October 13, 1966. (p. 1034).

LEEK MOTH (Acrolepis assectella) - HAWAII - Collected in green onions on Maui. (p. 1034).

PLUM GOUGER (Anthonomus scutellaris) - NEW MEXICO - Collected at Mesilla Park, Dona Ana County. This is first record in southern part of State. Known to exist in Rio Arriba and Santa Fe Counties. (N. M. Coop. Rpt.).

A SLUG (Arion ater) - CALIFORNIA - San Francisco County, September 6. (p. 1034).

CORRECTIONS

CEIR 16(42):999 - Estimated Losses and Production Costs Attributed to Insects and Related Arthropods - 1965.* Above Legend I - Corn and Sorghum Pest Complex," add the following: Total 52,258.14 -- 34,602.08 -- 127,458.09*

HAWAII INSECT REPORT

Insects of Regional Significance - Adults and larvae of LEEK MOTH (Acrolepis assectella) detected in green onions on Wailuku farm, Maui. This first known record of pest from this island. (Miyahira, Ah Sam).

Turf - Light infestations of a BILLBUG (Sphenophorus venatus vestitus) observed on Zoysia lawns in Hilo, Hawaii Island. (Yamayoshi).

General Vegetables - Nymphs and adults of SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) moderately damaging 1 acre of tomatoes in Hilo, Hawaii Island. (Yoshioka). CHINESE ROSE BEETLE (Adoretus sinicus) heavily damaged backyard plantings of pole beans in Puunene, Maui. (Miyahira). Heavy infestations of MELON FLY (Dacus cucurbitae) occurred on balsampear (Momordica charantia) in Honomalino, Kona, Hawaii Island; 60-70 percent of fruits infested. High rate of parasitism, 20 percent, from larval parasite (Opius fletcheri). (Nakagawa). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on balsampear in Kapaa, Kauai. Expected decline this month. (Au). All stages of a LEAF MINER FLY (Liriomyza sp.) medium to heavy on 0.5 acre of green and white mustard cabbages in Waimanalo, Oahu. (Sato). BLACK CUTWORM (Agrotis ipsilon) larvae light to medium on spinach in Waialua, Oahu. (Higa).

Fruits and Nuts - Heavy populations of BARNACLE SCALE (Ceroplastes cirripediformis) nymphs and adults observed on passion-fruit in Kahului, Maui. Up to 75 adults per linear foot of mature stem; no evidence of parasitism. (Miyahira).

Citrus - All stages of GREEN SCALE (Coccus viridis) heavy on tangerine trees in Hilo orchard, Hawaii Island. Lady beetle larvae feeding on scales. (Yoshioka).

Ornamentals - Light to moderate damage caused by PACIFIC BEETLE COCKROACH (Diploptera punctata) on Mexican cypress in Hilo, Hawaii Island. (Yoshioka).

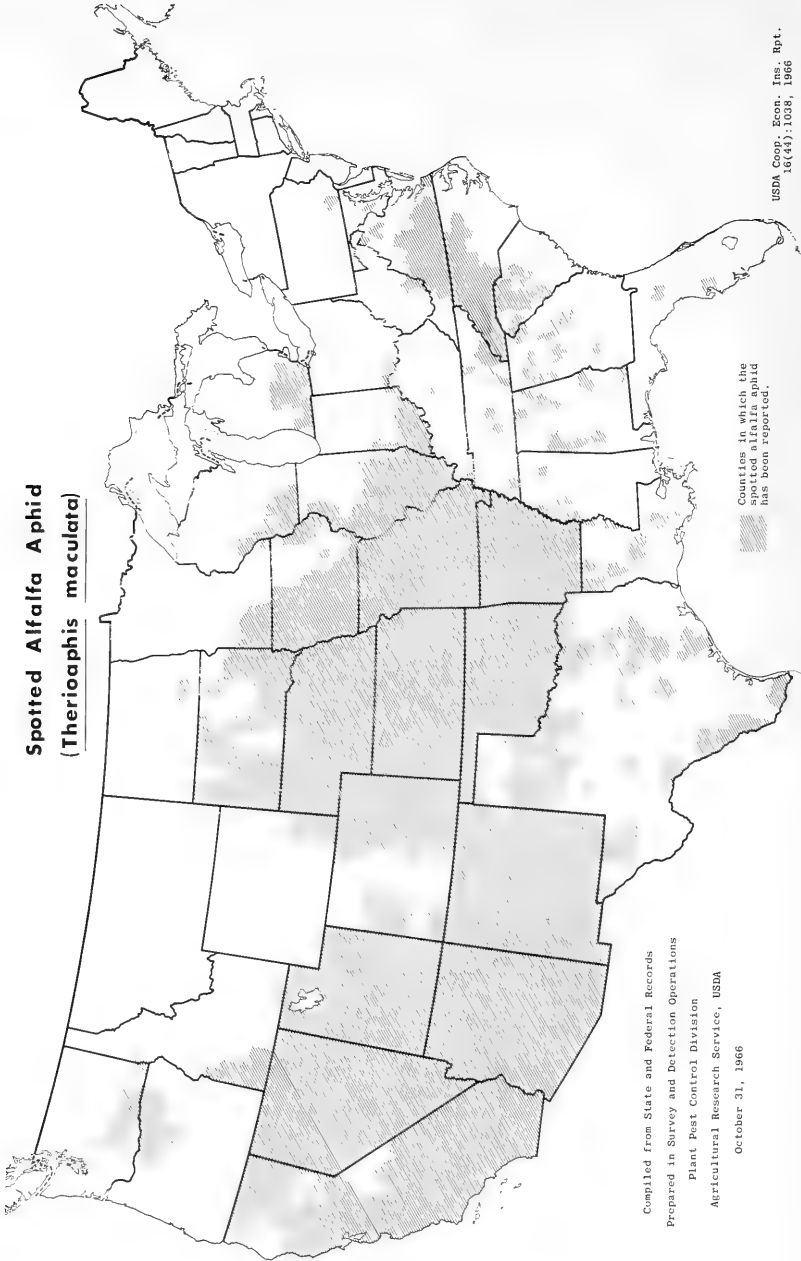
Beneficial Insects - Heavy infestations of an ARCTIID MOTH (Selca brunella) observed on glorybush (Tibouchina semidecandra) between Mountain View and Glenwood, Hawaii Island. Considerable damage observed on terminal shoots and flower buds. Absence of flower buds quite noticeable throughout area. (Davis).

A Change of Name for the Fuller Rose Beetle, Pantomorus godmani
(Crotch). (Coleoptera: Curculionidae).

In the Journal of the Entomological Society of Australia (N. S. W.), Vol. 2, 1965, Chadwick published two papers. The first, pp. 10-20, "A Review of Fuller's Rose Weevil (Pantomorus cervinus (Boheman)) (Col., Curculionidae)," is a review of work done on the nomenclature, morphology, anatomy, and world and Australian distribution of this insect. He concludes that Pantomorus cervinus (Boheman) is the correct scientific name and Fuller's rose weevil the correct common name of this widely distributed insect pest. This weevil is listed as Pantomorus godmani (Crotch), the Fuller rose beetle, in the latest "Common Names of Insects Approved by the Entomological Society of America," December 1965. The second paper, pp. 21-34, "A Check List of the Brachyderinae (Col., Curculionidae) Occurring in Australia," lists all known references to that species.

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Spotted Alfalfa Aphid
(*Therioaphis maculata*)



Compiled from State and Federal Records
Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
October 31, 1966



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Hyattsville, Maryland 20782

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REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CORN EARWORM continues increase on unsprayed soybeans in Seminole County, Florida. Corn earworm and CABBAGE LOOPER damaging beans in Baldwin County, Alabama. (p. 1043).

An APHID very heavy on root systems of oats in Carter County, Oklahoma. (p. 1044).

THREE-CORNERED ALFALFA HOPPER heavy on alfalfa in Yuma and Maricopa Counties, Arizona. (p. 1045).

Severe freeze probably destroyed all BOLL WEEVIL larvae and pupae in northern Alabama. (p. 1045).

DOUGLAS-FIR BEETLE outbreak exceeds that of 1954 in Six Rivers National Forest, California. (p. 1047).

Prediction

FALL ARMYWORM, BLACK CUTWORM, ARMYWORM and YELLOW-STRIPED ARMYWORM should no longer be problem in Texas with onset of cold weather. (p. 1043, 1044). Outlook for CITRUS PEST situation in Florida. (p. 1046).

Detection

New State records include a CHERRY LEAF MINER from Michigan, a LEAF MINER FLY from Indiana and PAVEMENT ANT from Washington. (p. 1051). Also a BARK BEETLE from Hawaii (p. 1052), and a WEEVIL (p. 1048), and a parasitic TORYMID (p. 1049) from California.

For new county records see page 1051.

First Occurrence of Season

WINTER GRAIN MITE and SHORT-NOSED CATTLE LOUSE appearing in Oklahoma. (p. 1044, 1049).

Special Reports

Distribution of ELM LEAF BEETLE (Map). (p. 1054).

- Techniques to Determine Losses. Selected References 1960-1966. Part I. (pp. 1055-1059).

Reports in this issue are for week ending November 4 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	1043
Insects Affecting	
Corn, Sorghum, Sugarcane.....	1043
Small Grains.....	1044
Turf, Pastures, Rangeland.....	1044
Forage Legumes.....	1044
Soybeans.....	1045
Cotton.....	1045
Sugarbeets.....	1045
Potatoes, Tomatoes, Peppers.....	1045
Beans and Peas.....	1045
General Vegetables.....	1045
Deciduous Fruits and Nuts.....	1046
Citrus.....	1046
Ornamentals.....	1047
Forest and Shade Trees.....	1047
Man and Animals.....	1048
Stored Products.....	1049
Beneficial Insects.....	1049
Federal and State Plant Protection Programs.....	1050
Insect Detection.....	1051
Corrections.....	1051
Hawaii Insect Report.....	1052
Light Trap Collections.....	1053
Distribution of Elm Leaf Beetle (Map).....	1054
Techniques to Determine Losses. Selected References 1960-1966. Part I.....	1055

WEATHER OF THE WEEK ENDING NOVEMBER 7, 1966

HIGHLIGHTS: Last week was warm in the Far West and cold in the Central and East. Heavy snow fell from Michigan to Tennessee; record cold reached the Gulf of Mexico.

PRECIPITATION: A major storm system brought record cold weather and record early snows to central areas of the Country. By Tuesday, several inches of snow had fallen in Michigan and flurries over the northern and central Great Plains with rain from the snow area southward to the Gulf of Mexico. On Wednesday the storm center intensified over the southern Appalachians and piled up to a foot of snow in parts of Michigan, Indiana, Ohio, Kentucky and Tennessee. As the storm moved northeastward, rainfall totals exceeded 5 inches in parts of New England. In the storm's wake, rain persisted from Arkansas to New England while several inches of snow fell near the Great Lakes on Saturday. At weekend, the first general storm of the season brought moderate to heavy precipitation to the California area. Snow fell above 2,500 feet in the north and above 5,000 feet in the south. Snow also fell from the Cascades to the eastern slope of the northern Rocky Mountains. A large dry area extended from Nevada and Utah to the lower Rio Grande Valley. Much of the central and northern Great Plains received little or no precipitation.

Weather continued on page 1050.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - TEXAS - This and yellow-striped armyworm heavy on rangeland and oats in Mason County October 13. Heaviest in eastern portion of county, up to 25-30 per square yard. Potential outbreak should no longer be problem with advent of recent cool weather. (Garrett).

CORN EARWORM (*Heliothis zea*) - FLORIDA - Continues to increase on unsprayed plots of soybeans in Sanford, Seminole County. (Greene, Oct. 21). ALABAMA - Larvae damaging 500 acres of beans in Baldwin County. (Turner, Smith et al.). ARIZONA - Severely damaged sweet corn, even with continued controls, in Yuma County. Scattered but heavy populations damaged lettuce in Maricopa County. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEW MEXICO - Medium to heavy on fall barley in Dona Ana County. (Campbell).

GREENBUG (*Schizaphis graminum*) - OKLAHOMA - Very light on wheat in Murray and Carter Counties; ranged 0.25-4 per linear foot. None seen in other south central counties. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - VIRGINIA - Light, 2-8 per sweep, on alfalfa in Montgomery County. (Isakson). OKLAHOMA - Ranged 0-10 per 10 sweeps in south central area alfalfa. (Okla. Coop. Sur.). NEW MEXICO - Remains spotted and light on alfalfa in Chaves and Dona Ana Counties. (Mathews, Campbell).

POTATO LEAFHOPPER (*Empoasca fabae*) - VIRGINIA - Adults 1 per 10 sweeps on alfalfa in Montgomery County. (Isakson).

BEEF LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Fall treatment in southern and western San Joaquin Valley 80 percent complete. Approximately 80,000 acres treated by aircraft. (Cal. Coop. Rpt.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - ALABAMA - Larvae heavy in Jackson, Marshall and De Kalb Counties. Heavier in late corn than early corn. (Estes, Henderson et al.). ARKANSAS - Average number of borers per 100 plants for State, 75.4 compared with 32.4 last year; however, average percent stalk infestations less this year. (Boyer). NEBRASKA - Borers per 100 stalks averaged 48 in north-east and 210 in southeast districts. (Rhine). SOUTH DAKOTA - Fall abundance survey indicates increase in borers per 100 stalks in all but one district; averaged more than 1 per stalk in all districts. (Jones).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ALABAMA - Survey continued in Jackson, Marshall and De Kalb Counties. Several larvae taken from corn in northwest Marshall County. Also taken in Wilcox County. Marshall County new record. (Henderson, Estes et al.). ARKANSAS - Lodged stalks averaged 460 per acre compared with 417 last year. (Boyer). MISSOURI - Infestations low and widely scattered in 10 southwest counties. Average percent girdled plants ranged 0.8 in Dallas County to 13.6 in Barry County. (Munson). OKLAHOMA - Averaged one per stalk in 20 percent of cornstalks in Atoka County. Larvae in nonspotted winter form. (Okla. Coop. Sur.). NEW MEXICO - Generally light in southern counties. (Elson, Campbell).

DRIED-FRUIT BEETLE (*Carpophilus hemipterus*) - CALIFORNIA - Adults heavy in corn ears at Clovis, Fresno County. (Cal. Coop. Rpt.).

CHINCH BUG (*Blissus leucopterus*) - TEXAS - Burrowing roots of several Hegari grain sorghum fields in Cooke, Grayson, and Denton Counties. Averaged 8 adults and nymphs per 2-inch cube of sod. (Turney, Parker).

EASTERN SUBTERRANEAN TERMITES (Reticulitermes flavipes) - ALABAMA - Occurrence general in cornstalks in Jackson, Marshall, and De Kalb Counties. (Henderson, Estes et al.).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Light infestations noted on small grain near Abilene, Taylor County, October 24. Buildup should not continue. This and black cutworm no longer problem in Falls and Robertson Counties. Vast reduction in population probably due to recent cold, dry weather. (Stanley, Parker).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Heavy localized damage to oats in fields previously planted to millet in Orangeburg County. Presumably, partial larval development occurred on millet. (Nettles et al.).

APHIDS - OKLAHOMA - Rhopalosiphum padi averaged 450 per linear foot in wheat near Ardmore, Carter County. Feeding under surface of ground on base of stem and upper part of roots. Macrosiphum avenae light, 0-1 per linear foot, on wheat in Murray and Carter Counties. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - First of season noted in Carter County wheat; averaged 1 per linear foot. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

AMERICAN GRASSHOPPER (Schistocera americana) - FLORIDA - Severe on native grass adjacent to nursery at Avon Park, Highland County. Insecticide treatment failed to stop movement to nursery site. (Fla. Coop. Sur., Oct. 28).

SOUTHERN MOLE CRICKET (Scapteriscus acletus) - ALABAMA - Extremely heavy numbers destroying stand of young white clover and rye grass pasture in Mobile County. Similar conditions occurred previously in Baldwin and other southern counties. (Deakle, Turner et al.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Larvae infesting several pastures of young winter rye in Marion and Sumter Counties. (Strayer).

A SPITTLEBUG (Prosapia bicincta) - FLORIDA - Previously damaged pangolagrass pastures, but now decreasing in Bradenton area, Manatee County. (Kelsheimer, Oct. 21).

AN ANT (Formica perpilosa) - TEXAS - Heavy populations destroying vegetation throughout 200-acre soil bank field in Floyd County by constructing mounds. (Rummel).

A SPIDER MITE (Oligonychus stickneyi) - FLORIDA - Eggs, larvae and adults severe on 75 percent of 5,000 square feet of St. Augustine grass at Lake Worth, Palm Beach County. (Palmer, Murray, Oct. 23).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - VIRGINIA - Light, 10-30 per sweep on alfalfa in Craig and Roanoke Counties. (Isakson). MICHIGAN - Moderate to heavy in Lenawee and Monroe County alfalfa. (Dowdy). NEW MEXICO - Generally light on alfalfa over State; heavier populations noted near Roswell, Chaves County. (N. M. Coop. Rpt.).

LYGUS BUGS (Lygus spp). - VIRGINIA - Adults averaged 3-5 per 10 sweeps in alfalfa in Craig, Botetourt and Roanoke Counties. (Isakson). OKLAHOMA - L. lineolaris ranged 3-10 per 10 sweeps in south central area alfalfa. (Okla. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Ranged 2-8 per 10 sweeps on alfalfa in south central counties. (Okla. Coop. Sur.). TEXAS - This and green cloverworm averaged 3 per sweep in alfalfa throughout Cooke, Grayson and Denton Counties. No economic damage. (Turney, Parker). ARIZONA - Remains heavy on alfalfa; averaged 300 per 100 sweeps in Yuma County and 700 per 100 sweeps in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Larvae, up to 5 per sweep on alfalfa in Craig, Botetourt and Roanoke Counties. (Isakson).

SOYBEANS

SOUTHERN GREEN STINK BUG (Nezara viridula) - TEXAS - Heavy populations damaging soybeans near Orange, Orange County. (Kachtik).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Continues to increase on unsprayed plots of soybeans in Sanford, Seminole County. (Greene, Oct. 21).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Adults and larvae abundant in Jackson, Marshall, De Kalb, and other northern county cotton. Severe freeze November 1 probably destroyed all larvae and pupae. (McQueen). MISSISSIPPI - Approximately 60-70 percent intermediate diapause stage and 30-40 percent in nondiapause stage in Oktibbeha County. (Dinkins).

SUGAR BEETS

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light on sugarbeets in Maricopa County. Infestations moderate in few fields, but damage appears light. (Ariz. Coop. Sur.).

A LEAFHOPPER (Empoasca sp.) - ARIZONA - Moderate to heavy in most sugarbeet fields in Chandler and Mesa areas of Maricopa County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Causing economic damage to 400-acre tomato field at Bradenton, Manatee County. (Kelsheimer, Oct. 21).

LOOPERS - FLORIDA - Trichoplusia ni and Pseudoplusia includens serious on 400 acres of tomatoes at Bradenton; requiring special treatment. (Kelsheimer, Oct. 21).

BEANS AND PEAS

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Larvae damaging 500 acres of beans in Baldwin County. (Turner, Smith et al.).

BEAN LEAF ROLLER (Urbanus proteus) - FLORIDA - Adults less prevalent than previous week; 620 larvae and 498 eggs on 100 bean plants in Sanford, Seminole County. (Greene, Oct. 21).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Heavy larval populations continue to damage lettuce in Maricopa County. Egg numbers high in Yuma County; required extensive control applications. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (*Estigmene acrea*) - ARIZONA - Migrating larval populations damaging unprotected lettuce fields in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

A PSYCHID MOTH (*Apterona crenulella*) - UTAH - Very large numbers attached to apple twigs in orchard at North Ogden, Weber County. (Mathis, Knowlton).

TWIG GIRDLER (*Oncideres cingulata*) - MISSISSIPPI - Moderate girdling noted on pecan twigs and small branches in Oktibbeha County. (Dinkins). TEXAS - Moderate numbers girdling twigs of pecans and mimosa near Wharton, Wharton County. (Smith).

WALNUT CATERPILLAR (*Datana integerrima*) - TEXAS - Moderate to heavy on pecans in Eastland County October 17; causing complete defoliation in isolated cases. (Gordon).

CITRUS

Quarterly Citrus Insect and Mite Outlook in Florida - October through December - This outlook is based on the assumption that weather beyond the period of the current U. S. Weather Bureau's 30-day outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Citrus Insect and Disease Summary" usually released twice each month.

CITRUS RUST MITE (*Phyllocoptruta oleivora*) expected to increase through mid-November followed by gradual decrease. Population will be at high level until early December with about 60 percent of groves having important infestations. CITRUS RED MITE (*Panonychus citri*) expected to be moderately numerous through November with scattered heavy infestations occurring until mid-December. TEXAS CITRUS MITE (*Eutetranychus banksi*) will be less common than citrus red mite and often occur in same grove. October and early November infestations will be fewer and lighter than in recent years. Scattered heavy infestations expected mid-November through December. GLOVER SCALE (*Lepidosaphes gloverii*) not expected to depart from current moderate level. YELLOW SCALE (*Aonidiella citrina*) will fluctuate near present moderate to high range. CHAFF SCALE (*Parlatoria pergandii*) will remain low and below average. WHITEFLIES expected to be near normal abundance and not of great importance. (W. A. Simanton).

Citrus Insect Situation in Florida - End of October - CITRUS RUST MITE infested 67 percent of groves (norm 65 percent); 54 percent economic (norm 43 percent). Population above average and in high range and appears to have reached fall peak. Gradual decrease expected after mid-November and will be more apparent on fruit than on leaves. Highest districts west, south, and north. CITRUS RED MITE infested 35 percent of groves (norm 35 percent); 12 percent economic (norm 10 percent). Population near average and in low range; further increase expected through November. Highest districts north, central and west. TEXAS CITRUS MITE infested 21 percent of groves (norm 32 percent); 5 percent economic (norm 11 percent). Population still below normal and in low range despite recent upward trend. Further increase will occur but heavy infestations not expected to be numerous. Highest districts north and east. YELLOW SCALE infested 67 percent of groves; 18 percent economic. Populations at record high level for October. Further increase expected. Highest districts east, central, west, north, south. GLOVER SCALE infested 57 percent of groves; 11 percent economic. Population average for October and in low to moderate range. Increase expected. Highest districts central, east and south. PURPLE SCALE (*Lepidosaphes beckii*) infested 60 percent of groves; 7 percent economic. Population slightly below average; in low to moderate range but infestations not expected to become much heavier than present. Highest districts central, south and east. CHAFF SCALE infested 39 percent of groves; 6 percent economic. Will continue below average abundance; although increase expected, population will not exceed moderate level. Highest districts east, central, south.

BLACK SCALE (*Saissetia oleae*) crawlers may become abundant in November but not likely to be important in winter. WHITEFLY population will remain low despite slight temporary increase in adult forms. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

ARMORED SCALES - FLORIDA - All stages of *Aonidiella citrina* moderate to severe on stems, leaves and bark of 90 percent of 12,000 sweet orange plants at nursery in Howey, Lake County. (Bentley, Oct. 21). *Unaspis citri* eggs observed on grapefruit and orange in Orange County nurseries. Adults infested 50 percent of orange plants at nursery in Orange County. (Ware, Oct. 19).

BROWN SOFT SCALE (*Coccus hesperidum*) - ARIZONA - Heavy populations on grapefruit in Maricopa County area continue active. Considerable damage occurred during summer. (Ariz. Coop. Sur.).

TEXAS CITRUS MITE (*Eutetranychus banksi*) - FLORIDA - Adults moderate on 1,500 citrus plants in nursery at Ft. Lonesome, Hillsborough County. (Vaughn, Oct. 13).

ORANGE-DOG (*Papilio cresphontes*) - ARIZONA - Larvae damaging backyard citrus in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

ORNAMENTALS

A LEAF BEETLE (*Eurypepla jamaicensis*) - FLORIDA - Larvae and adults severe on 90 percent of Geiger-trees (*Cordia sebestena*) in nursery at Miami, Dade County. (Sloan, Oct. 11).

SHOT-HOLE BORER (*Scolytus rugulosus*) - CALIFORNIA - Adults medium in bark of *Prunus carolinana* in Bellflower, Los Angeles County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - *Neophyllaphis podocarpi* heavy on podocarpus nursery stock in Mill Valley, Marin County. (Cal. Coop. Rpt.). FLORIDA - *Cinara tujafilina* adults moderate to severe on stems and bark of arborvitae in Rockledge store, Brevard County. (Levan).

ARMORED SCALES - FLORIDA - All stages of *Phenacaspis cockerelli* moderate to severe on leaves of magnolia plants at nursery in Ft. McCoy, Marion County; adults infesting 75 percent of magnolia plants in nursery at Union Park, Orange County. (Holder, Crews, Oct. 31). All stages of *Pseudaulacaspis pentagona* infesting 50 percent of goldenrain trees in nursery in Longwood, Seminole County. (Kipp, Oct 20).

CHRYSANTHEMUM GALL MIDGE (*Diarthronomyia chrysanthemi*) - MARYLAND - Galls conspicuous on chrysanthemums at nursery near Rockville, Montgomery County. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) - OKLAHOMA - All stages heavy and damaging chrysanthemums in greenhouse in Payne County. (Okla. Coop. Sur.).

FOREST AND SHADE TREES

BARK BEETLES - CALIFORNIA - *Scolytus ventralis* killed several trees in 10-acre stand of white fir in Barber Creek area. (Cal. Coop. Rpt.). *Dendroctonus pseudo-tugae* caused over 100 fades in 30-acre stand of Douglas-fir in State Creek area, Six Rivers National Forest; infestation increasing. Between 1,000-2,000 Douglas-fir in Elk Creek and Indian Creek drainage and Salmon River district fading. This probably due to beetles, drought, snowdown timber and unusually warm summer. Approximately 14,000 Douglas-fir trees infested in 1,400 acres on Tish Tang Ridge and 1,800 on 3,000-acre stand in Cedar Creek in Six Rivers National Forest. This probably worst outbreak in State and far exceeds 1954 outbreak in same general area. (USFS). *D. ponderosae* and *Ips* spp. killing over 200 Jeffrey pines in 40-acre stand in Chrey Reservoir area, Modoc National Forest. Part of damage result

of thinning operations in Jeffrey pine stands. (Hunt). D. brevicomis and Ips spp. causing about 60 fades in 10-acre stand of ponderosa pine in Bowery Flat, Mendocino County. (Easter). Ips sp. working in green timber in Lassen National Forest; over 20 trees killed in 2-acre area. (Gauger). FLORIDA - Xylosandrus compactus larvae, pupae and adults abundant in dogwood stems, twig killing extensive on trees in Ocala area, Marion County. Severe on stems of 200 maple trees. Det. L. A. Hetrick. (Sands, Oct. 26).

SEQUOIA PITCH MOTH (Vespamima sequoiae) - CALIFORNIA - Infesting 100 ponderosa pines in 25-acre stand in Rhodonite seed production area, Klamath National Forest. (DeGraff, USFS).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - VIRGINIA - Full-grown larvae observed on loblolly pine seedlings in Washington County. (Isakson).

ELM LEAF BEETLE (Pyrrhalta luteola) - CALIFORNIA - Adults heavy on Chinese elm trees in Coalinga, Fresno County. (Cal. Coop. Rpt.).

ASIATIC OAK WEEVIL (Cyrtepestomus castaneus) - NORTH CAROLINA - Collected in Asheville, Buncombe County, June 29, 1965, feeding on white oak. New county record. (Drooz).

A WEEVIL (Proctorus decipiens) - CALIFORNIA - Adults collected from leaf and flower of Sambucus racemosa (red elderberry) at Gasquet, Del Norte County, April 21, 1966, by T. Peacock and R. P. Allen. Det. R. E. Warner. New State record. (PPC).

ASH BORER (Podosesia syringae) - TEXAS - Heavy populations emerging from ash near Mason, Mason County. Averaging 30-40 per trunk with sawdust and frass evident on ground beneath emergence holes. (Garrett).

FALL CANKERWORM (Alsophila pometaria) - MINNESOTA - Female moths observed in Minneapolis area. Egg masses found on trees and some shrubs. Populations light in area this season. (Minn. Ins. Rpt., Oct. 31).

MIMOSA WEBWORM (Homadaula albizziae) - OKLAHOMA - Larvae collected on mimosa in Tulsa, Tulsa County, August 24. Det. by D. M. Weisman. Species believed present in several locations in northeast and east central areas. (Okla. Coop. Sur.).

SYCAMORE TUSSOCK MOTH (Halisidota harrisii) - TEXAS - Heavy populations on sycamore trees in San Angelo, Tom Green County. (Boyd).

MAN AND ANIMALS

MOSQUITOES - FLORIDA - Aedes taeniorhynchus adults light on several islands in Florida Keys. No larvae observed. (Mead, Oct. 27). LOUISIANA - Larval collections in Jefferson Parish contained: Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, C. restuans, C. salinarius, C. territans, and Culiseta inornata. Adults averaged 37.8 per night with Culex salinarius dominant. Aedes sollicitans increasing in Grand Isle area. (Stokes). TEXAS - Light trap collections in Jefferson County for September showed: Psorophora confinnis most numerous; P. howardii taken in one light trap; P. ciliata not uncommon. Culex salinarius uncommon. C. pipiens quinquefasciatus plentiful throughout populated area. Aedes sollicitans occurred in small numbers in southern part of county; almost absent from northern part. Anopheles crucians occurred in small numbers in northern part of county. Uranotaenia spp. occurred in uncommonly large numbers in southern and central parts of county and in moderate numbers in north and airport area. Mansonia perturbans taken in Port Arthur area and in airport area; no specimens occurred in Beaumont area. (Thompson). CALIFORNIA - Populations persisting with some leveling off; breeding continues due to hot, dry fall. Records for Sacramento and Yolo County Mosquito Abatement District show this longest season in 18 years. (Umberger).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Larvae appeared in backs of cattle in Payne County; ranged 3-4 per head on yearlings. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - WASHINGTON - Causing nuisance around homes at Newport, Pend Oreille County. New county record. Det. M. T. James. (Gilliam, Nov. 1).

HORN FLY (Haematobia irritans) - TEXAS - Moderate to heavy on cattle in Jackson County. Some relief expected with influx of recent cool weather. (Wilson).

SCREW-WORM (Cochliomyia hominivorax) - Total of 124 cases reported in U. S. October 30-November 5 as follows: TEXAS: Presidio 6, Medina 1, Maverick 5, Webb 5, Kenedy 1, Dimmit 22, Edwards 3, Zavala 2, Terrell 2, Pecos 4, Frio 2, La Salle 1, Val Verde 8, Brooks 1, Culberson 1, Burnet 1, Kendall 1, El Paso 2, McCulloch 3, Fayette 1, De Witt 1, Reeves 1, Brewster 1, Llano 2, Cameron 1, Gonzales 2, Zapata 1, Atascosa 1, Kimble 1, Jeff Davis 2, Menard 1, Mills 1. ARIZONA: Maricopa 20, Yuma 7, Graham 2, Yavapai 1, Pinal 2, Pima 1, Santa Cruz 1. NEW MEXICO: Eddy 1. CALIFORNIA: Imperial 1, San Diego 1. Total of 262 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 24, Sonora 119, Chihuahua 45, Coahuila 51, Nuevo Leon 15, Tamaulipas 8. No cases reported from Mexico south of Barrier Zone. Barrier Zone area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 59,306,250, New Mexico 1,216,000, Arizona 9,184,000, California 1,216,000, Mexico 45,624,000. (Animal Health Division).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - First of season noted on cattle in Payne County; ranged 1-2 per hair part. (Okla. Coop. Sur.).

STORED PRODUCTS

Stored Product Pests in Delaware - Following collected from pint grain samples in Sussex County: CADELLE (Tenebroides mauritanicus) and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) from wheat and barley; ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) from corn; GRANARY WEEVIL (Sitophilus granarius) from wheat. (Levin, Burbutis).

FOREIGN GRAIN BEETLE (Ahasverus advena) - FLORIDA - Adults severe in truckload of hay in Haynes City, Marion County. (Roberson, Oct. 24).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - UTAH - Infesting flour in several homes in Ft. Duchesne and White Rock area of Uintah County. (Knowlton).

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Larvae found in stored pecans in Dona Ana County. Previously thought to be pecan nut casebearer. (N. M. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - MISSISSIPPI - Hippodamia convergens continued at high level in alfalfa in Oktibbeha County. (Dinkins). FLORIDA - Hyperaspis sp. adults and nymphs present on 10 percent of 1,000 slash pines in nursery at Macclenny, Baker County. (Collins, Oct. 6).

A TORMYID (Ditropinotus aureoviridis) - CALIFORNIA - Female taken in Steiner trap at Hawthorne, Los Angeles County, by A. R. Gillogly on July 21, 1966. Det. by B. D. Burks. New State record. (PPC).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Treatment in eradication area continued on 4-7 day interval in Imperial, Coachella and Borrego Valleys. Nearly 70,000 acres treated. Status so far this year as follows: Imperial County - Bard Valley 971 adults, 822 larvae; Imperial Valley 1,047 adults, 292 larvae, 1 pupa. Riverside County - Palo Verde Valley 2,787 adults, 5,649 larvae, 10 pupae; Coachella Valley 70 adults, 6 larvae. San Diego County - Borrego Valley 24 adults. San Bernardino County - Needles 145 adults, 9 larvae; Sandy Valley 1 adult. Los Angeles and Kern Counties - Antelope Valley 5 adults. First specimens collected October 14, 1966, at Lancaster, Los Angeles County, and October 18, 1966, at Cantil (near Mojave), Kern County. These new county records. (Cal. Coop. Rpt.). ARIZONA - New infestations continue throughout State. (Ariz. Coop. Sur.). NEW MEXICO - Lint cleaner inspections and boll inspections show high counts of larvae from Eddy, Dona Ana and Luna Counties. Boll checks in Hidalgo County indicate little or no infestation present. (N. M. Coop. Rpt.).

SWEETPOTATO WEEVIL (*Cylas formicarius elegantulus*) - FLORIDA - Adults infesting 100 percent of sweetpotato tubers on farm in Jefferson County. (Miller, Oct. 14). Adults severe on sweetpotato plants in Ft. Myers, Lee County. Larvae and adults infesting stems and roots of 6 acres of sweetpotato plants on farm in Quincy, Gadsden County. (Miller, Brown, Oct. 21).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Guava and other fruits examined in several counties, negative for larvae; adults trapped in Manatee, Sarasota, Okeechobee, and Orange Counties. One adult female caught in McPhail trap at Winter Garden, Orange County, October 28, 1966. This is new county record. (Grubbs).

CITRUS WHITEFLY (*Dialeurodes citri*) - CALIFORNIA - Reported from San Diego, San Diego County, in CEIR 16(43):1017. This first record for county and represents spread of 300 miles from nearest infestation in Fresno. Heavy on citrus and Texas umbrella-trees. (Harper).

GRASSHOPPERS - NEW MEXICO - Moderate to heavy in alfalfa fields adjacent to rangeland in Maxwell, Colfax County. (Heninger, Kloeffer).

Weather continued from page 1042.

TEMPERATURE: The early season snow and rain storm brought record-breaking cold from the central Great Plains to the Deep South. On Thursday morning, Topeka, Kansas, registered 10°, a new early season record, and New Orleans, Louisiana, with 28° set a new November record. Mild temperatures returned to the central Plains and South over the weekend with readings in the 70's over most of Kansas. As week ended, however, a new cold wave pushed across the Canadian border, accompanied by near zero temperatures in Montana and the Dakotas. On Tuesday, a desert wind pushed the mercury to record highs for so late in the season in the central and south coastal sections of California. Los Angeles with 101° broke an 82-year November record. San Diego broke a 95-year record with 97°. (Summary supplied by Environmental Data Service, ESSA).

INSECT DETECTION

New State Records

- A CHERRY LEAF MINER (Nepticula slingerlandella) - MICHIGAN - Infestation observed in Oceana County week ending June 17. Adults and larvae collected July 15, 1966, by R. C. Hillman determined by D. R. Davis and D. M. Weisman. New State record. (Hillman).
- A LEAF MINER FLY (Melanagromyza n. sp.) - INDIANA - Larvae found boring in ginseng roots on an herb farm in Salem area of Washington County in April, 1966. Det. by G. C. Steyskal. (Huber).
- PAVEMENT ANT (Tetramorium caespitum) - WASHINGTON - Adult workers collected April 14, 1966, on north bank of drain ditch, tending two species of aphids at Toppenish, Yakima County. Det. by D. R. Smith. (Wallis).
- A WEEVIL (Proctorus decipiens) - CALIFORNIA - Adults collected from Sambucus racemosa at Gasquet, Del Norte County, April 21, 1966, by T. Peacock and R. P. Allen. Det. R. E. Warner. (p. 1048).
- A TORYMID (Ditropinotus aureoviridis) - CALIFORNIA - Collected at Hawthorne, Los Angeles County, by A. R. Gillogly on July 21, 1966. Det. by B. D. Burks. (p. 1049).
- A BARK BEETLE (Hypothenemus vulgaris) - HAWAII - Collected from Sterculia at Lihue, Kauai, in October 1961, and from Gardenia jasminoides at Honolulu, Oahu, in May 1966. Det. S. L. Wood. (p. 1052).

New County Records

- SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ALABAMA - Collected from corn in northwest Marshall County. (p. 1043).
- ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - NORTH CAROLINA - Collected in Asheville, Buncombe County, June 29, 1965, on white oak. (p. 1048).
- FACE FLY (Musca autumnalis) - WASHINGTON - Detected at Newport, Pend Oreille County. Det. M. T. James. (p. 1049).
- PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Collected October 14, 1966, at Lancaster, Los Angeles County, and October 18, 1966, at Cantil, Kern County. (p. 1050).
- CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Collected at Winter Garden, Orange County, October 28, 1966. (p. 1050).
- CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Collected at San Diego, San Diego County, October 17, 1966. (p. 1050).

CORRECTIONS

- CEIR 16(23):528 - SPOTTED ALFALFA APHID (Therioaphis maculata) - COLORADO - Not new record for Prowers County; first occurrence of year.
- CEIR 16(42):992 - TEXAS - SOUTHERN PINE BEETLE (Dendroctonus frontalis) should be A BARK BEETLE (Ips calligraphus).
- CEIR 16(42):995 - A Change of Name for Fuller Rose Beetle, Pantomorus godmani, Line 1 should read: "... , Vol. 2, 1965,..."

HAWAII INSECT REPORT

New State of Hawaii Insect Record - A BARK BEETLE (Hypothenemus vulgaris) - Collected from Sterculia twigs in Lihue, Kauai, October 1961, and heavy on Gardenia jasminoides twigs in Honolulu, Oahu, May 1966. Det. by S. L. Wood. (Chong).

Insects of Regional Significance - AN APHID (Cerataphis orchidearum) - Recently collected from caffleya orchids in Honolulu, Oahu; det. by L. M. Russell. Previously found on orchids and palms, referred to as C. lataniae. (Chong). On Oahu, larvae and adults of a LEAF MINER FLY (Liriomyza sp.) medium on cucumbers in Wai-alua and heavy in cataloup and honeydew melon in Kahuku. Also heavy on Amaranthus spinosus (a weed) adjacent to fields. (Yamamoto, Kim). Larvae of a CERAMBYCID BEETLE (Lagocheirus obsoletus) heavy in 2 large, healthy cassava or tapioca plants (Manihot esculenta) at Poamoho Experimental Farm, Oahu. New host record. Other recorded hosts include Allamanda, Plumeria, Hibiscus, Euphorbia, kukui (Aleurites), Araucaria, Pseudopanax and ceara-rubber. (Mitchell).

Corn - Nymphs and adults of a LONG-HORNED GRASSHOPPER (Conocephalus saltator) heavy on sweet corn and grassy area at Waiulua Homestead, Kauai. (Crozier, Au).

Vegetables - GREEN PEACH APHID (Myzus persicae) medium and caused 20 percent blossom and fruit drop on acre of bell peppers in Kihei, Maui. Aphids observed feeding on flower buds and peduncles of freshly set fruits. (Miyahira). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) continues pest in bean-growing areas in Wai-anae and Waimanalo, Oahu. (Yamamoto, Sato).

Nuts - A FALSE SPIDER MITE (Brevipalpus californicus) light on macadamia nut trees at Poamoho Experimental Farm, Oahu. (Mitchell, Haramoto).

Citrus - RED WAX SCALE (Ceroplastes rubens) nymphs and adults heavy on tangerine trees in Hanapepe, Kauai; 60-75 percent of leaves and branches thickly covered with scales. (Au).

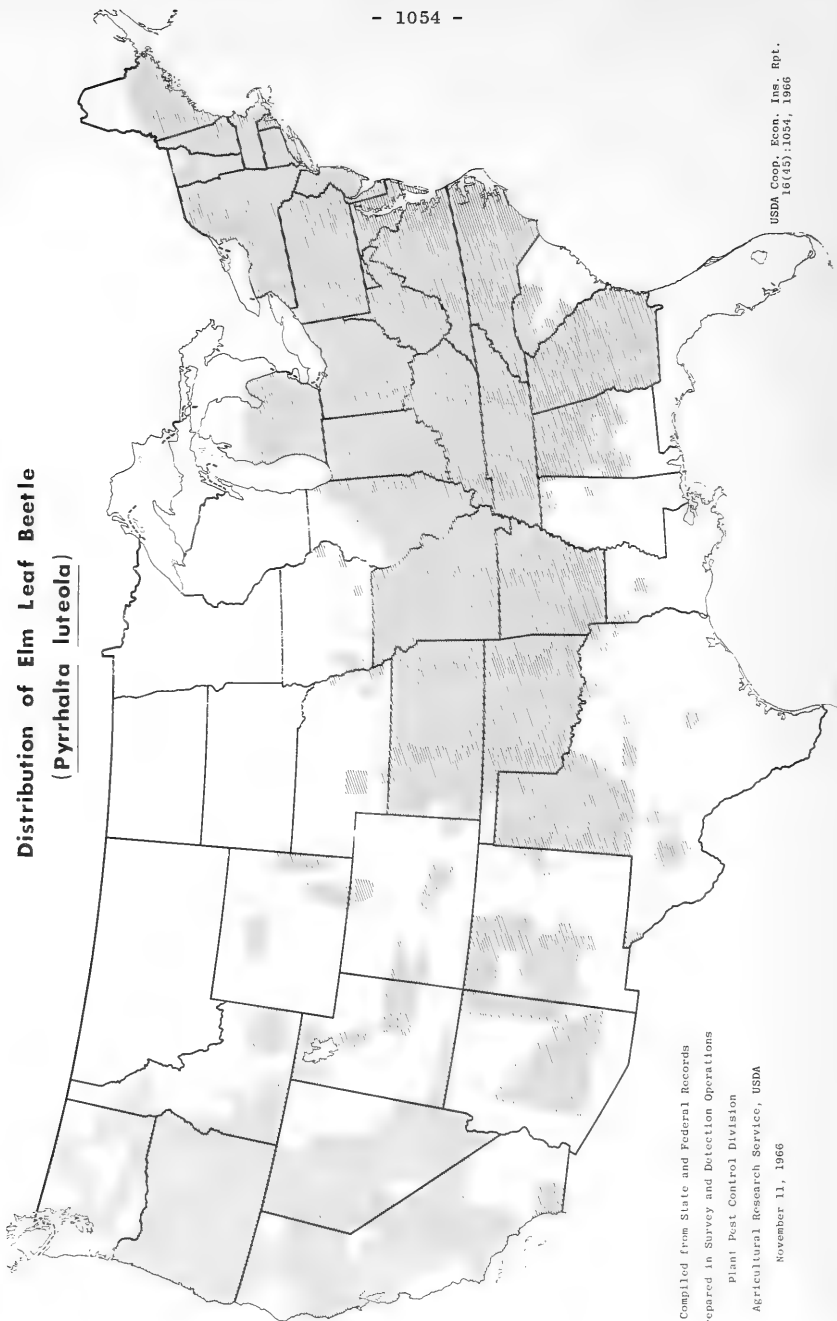
Ornamentals - Eggs, nymphs and adults of a LACE BUG (Corythucha morrilli) on Wedelia trilobata in Pawa area of Honolulu, Oahu. Also breeds on cocklebur (Xanthium sp.) and sourbush (Pluchea odorata). (Davis).

Forest and Shade Trees - Foliar damage by a KOU MOTH (Ethmia colonella) noticeable on kou trees in Kailua-Kona, Hawaii Island. (Yoshioka).

Miscellaneous Pests - Large specimen of GIANT AFRICAN SNAIL (Achatina fulica) discovered in Holualoa, North Kona, Hawaii Island. No other specimens found. Poison bait scattered in area; close surveillance will be maintained. This snail not established on Kauai and Hawaii Islands, but small localized populations occasionally discovered. Prompt detection and eradication measures have prevented establishment on these islands. (Yoshioka, Funasaki).

Beneficial Insects - A TACHINA FLY (Trichopoda pennipes) - High density of adults of this stink bug parasite noted in weedy areas in Pulehu and Lahaina, Maui. (Ah Sam). Larvae of a CECIDOMYIID MIDGE (Zeuxidiplosis giardi) heavy on Klamath-weed on Mt. Hualalai, Hawaii Island; as many as 6 observed in single gall. (Yoshioka). A BRUCHID (Bruchus atronotatus) found established in Hookena, South Kona, Hawaii Island. This seed feeder introduced from Brazil in 1960. Nearest release point at Kiolakoa, Kau District, about 7 miles from Hookena. (Davis). A SCIOMYZID FLY (Sepedon macropus) - This liverfluke predator generally light throughout Hanapepe Valley, Kauai. Taro fields continue favorite habitat. (Au). A NOCTUID MOTH (Catabena esula) - Larvae of this defoliator light on lantana in Hilo, Hawaii Island. Usually active from November to February. Introduced from California in 1955. (Yoshioka).

Distribution of Elm Leaf Beetle
(*Pyrrhalta luteola*)



Compiled from State and Federal Records
Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
November 11, 1966

USDA Coop. Econ. Ins. Rpt.
16(15):1054, 1966

TECHNIQUES TO DETERMINE LOSSES

Selected References 1960-1966

Introduction

Part I

Interest in the need for scientific methods for determining losses caused by insects continues to increase. It is believed that a survey of the literature in this area will be helpful in establishing the present status of the work and provide an available reference source for further studies. The references below cover the period 1960-66. Additional lists will be issued as they are prepared. Separates of this list are available from Survey and Detection Operations.

References

- ADKISSON, P. L. 1960. Effect of pink bollworm infestation on cotton produced under high moisture conditions. *Tex. Agr. Expt. Sta. Progress Rpt.* 2156, 7 pp.
- ADKISSON, P. L., BAILEY, C. F. and HANNA, R. L. 1964. Effect of the bollworm, Heliothis zea, on yield and quality of cotton. *J. Econ. Ent.* 57(4):448-450.
- ADKISSON, P. L., BRAZZEL, J. R. and GAINES, J. C. 1963. Yield and quality losses resulting from pink bollworm damage to cotton. *Tex. Agr. Expt. Sta. MP-632*, 8 pp.
- ADKISSON, P. L., HANNA, R. L. and BAILEY, C. F. 1964. Estimates of the numbers of Heliothis larvae per acre in cotton and their relation to the fruiting cycle and yield of the host. *J. Econ. Ent.* 57(5):657-663.
- AGRICULTURAL RESEARCH SERVICE. 1965. Losses in agriculture. U. S. Dept. Agr. *Handb. No. 291*, 120 pp.
- ANDERSON, N. L. 1961. Seasonal losses in rangeland vegetation due to grasshoppers. *J. Econ. Ent.* 54(2):369-378.
- ANGLADE, P. 1961. Tests on the application of an American method of judging varieties of maize by rating the damage caused by artificial infestation with the pyralid (Ostrinia (=Pyrausta) nubilalis Hubn.). *Rev. Zool. Agr.* 60(10/12):139-150. Refs. In Fr.
- ANGLADE, P. 1961. The influence on the yield of maize of infestation of the stalks by the second generation of Sesamia nonagrioides Lef. (Lep. Noctuidae). Methods of comparison of hybrids by artificial infestation. *Ann. Epiphyt.* 12(4):357-372. Refs. In Fr.
- BALOCK, J. W. and KOZUMA, T. T. 1964. Notes on the biology and economic importance of the mango weevil, Sternochetus mangiferae (Fabricius), in Hawaii (Coleoptera: Curculionidae). *Hawaii Ent. Soc. Proc.* 18(3):353-364. Refs.
- BEGUM, A. and EDEN, W. G. 1965. Influence of defoliation on yield and quality of soybeans. *J. Econ. Ent.* 58(3):591-592.
- BIGGER, M. 1966. The biology and control of termites damaging field crops in Tanganyika. *Bul. Ent. Res.* 56(3):417-444.
- BLICKENSTAFF, C. C. 1960. Effect of sample location within fields on corn earworm and rice weevil infestation and damage. *J. Econ. Ent.* 53(5):745-747.

BOWDEN, J. 1965. Sorghum midge, Contarinia sorghicola (Coq.), and other causes of grain-sorghum loss in Ghana. Bul. Ent. Res. 56(1):169-189.

BOWLING, C. C. 1963. Cage tests to evaluate stink bug damage to rice. J. Econ. Ent. 56(2):197-200.

BRITISH DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. 1963. The death-watch beetle. For. Prod. Res. Lab. Leaf. 4, 9 pp.

CANERDAY, T. D. and ARANT, F. S. 1964. The effect of spider mite populations on yield and quality of cotton. J. Econ. Ent. 57(4):553-556.

CARLSON, E. C. 1961. Lygus bug damage to table beet seed plants. J. Econ. Ent. 54(1):117-119.

CARLSON, E. C. 1962. Flower thrips damages safflower--buds bronzed and blasted. Calif. Agr. 16(4):4.

CARLSON, E. C. 1964. Damage to safflower plants by thrips and lygus bugs and a study of their control. J. Econ. Ent. 57(1):140-145.

CARLSON, E. C. 1964. Effect of flower thrips on onion seed plants and a study of their control. J. Econ. Ent. 57(5):735-741.

CHIANG, H. C. and HODSON, A. C. 1963. European corn borer damage to sweet corn as affected by the date of planting. J. Econ. Ent. 56(3):243-248.

CHIANG, H. C., HOLDAWAY, F. G., BRINDLEY, T. A. and NEISWANDER, C. R. 1960. European corn borer populations in relation to the estimation of crop loss. J. Econ. Ent. 53(4):517-522.

CLEARE, L. D. 1962. Damage and loss caused by insects to stored rice and paddy in British Guiana. Rice Storage Invest. Pub. (Br. Guiana) No. 4, 18 pp.

DAUGHERTY, D. M. and Coworkers. 1964. An evaluation of damage to soybeans by brown and green stink bugs. J. Econ. Ent. 57(5):719-722.

DAVIS, A. C., McEWEN, F. L. and ROBINSON, R. W. 1963. Preliminary studies on the effect of lygus bugs on the set and yield of tomatoes. J. Econ. Ent. 56(4):532-533.

DIVISION OF AGRICULTURAL SCIENCES, UNIVERSITY OF CALIFORNIA. 1965. Estimates of crop losses and disease-control costs in California, 1963, 102 pp.

DOERING, G. W. and RANDOLPH, N. M. 1960. Field methods to determine the infestation of the sorghum webworm and the damage by the sorghum midge in grain sorghum. J. Econ. Ent. 53(5):749-750.

ECKENRODE, C. J. and DITMAN, L. P. 1963. An evaluation of potato leafhopper damage to lima beans. J. Econ. Ent. 56(5):551-553.

EVERLY, R. T. 1960. Loss in corn yield associated with the abundance of the corn leaf aphid, Rhopalosiphum maidis, in Indiana. J. Econ. Ent. 53(5):924-932.

FLOYD, E. H., CLOWER, D. F. and MASON, L. F. 1960. Effect of sugarcane borer infestation on the yield and grade of corn. J. Econ. Ent. 53(5):935-937.

FRANSSSEN, C. J. H. 1960. The determination of damage caused by Contarinia pisi and the control of this insect. Tijdschr. PLZiekt. (Wageningen). 66(4):249-258. Refs. In Dutch, Engl. Sum.

- GEORGE, K. S., LIGHT, W. I. ST. G. and GAIR, R. 1962. The effect of artificial defoliation of pea plants on the yield of shelled peas. *Plant Path.* 11(2):73-80. Refs.
- GOULD, G. E. 1963. Japanese beetle damage to soybeans and corn. *J. Econ. Ent.* 56(6):776-781.
- GRIGOROV, S. 1964. A study of the damage caused by the wheat-stalk fly in the Sofia region. *Rast. Vud. Nauki* 1(5):145-152. Refs. Sofia. In Bulg., Engl. and Rus. Sum. [Chlorops pumilionis.]
- HARDING, J. A. 1960. Control of the lesser cornstalk borer attacking peanuts. *J. Econ. Ent.* 53(4):664-667.
- HATCHER, R. J. 1964. Spruce budworm damage to balsam-fir in immature stands, Quebec. *Forest. Chron.* 40(3):372-383.
- HOSNY, M. M. 1964. Damage threshold of Thrips tabaci Lind. on cotton seedlings. *Alexandria J. Agr. Res.* 12(1):245-246.
- HURLOCK, E. T. 1965. Some observations on the loss in weight caused by Sitophilus granarius (L.) (Coleoptera, Curculionidae) to wheat under constant experimental conditions. *J. Stored Prod. Res.* 1(2):193-195. Refs.
- JACOBSON, L. A. and PETERSON, L. K. 1965. Interrelations of damage to wheat and feeding by the pale western cutworm, Agrotis orthogonia Morrison (Lepidoptera: Noctuidae). *Canad. Ent.* 97(2):153-158.
- KALRA, A. N. and CHAUDHARY, J. P. 1964. Assessment of losses by sugarcane pests--loss caused by top borer of sugarcane. *Indian J. Sugarcane Res. Develop.* 8(3):261-264. Refs. [Scirpophaga nivella.]
- KORTING, A. 1963. Further studies on weight losses of wood by larval metabolism of old-house borer infestation. *Nachrbl. des Deut. Pflanzenschutzdienstes* 15(11):167-171. In Ger., Engl. Sum.
- KULMAN, H. M. and HODSON, A. C. 1961. The jack-pine budworm as a pest of other conifers with special reference to red pine. *J. Econ. Ent.* 54(6):1221-1224.
- LeROUX, E. J. 1961. Variation between samples of fruit, and of fruit damages mainly from insect pests, on apple in Quebec. *Canad. Ent.* 93(8):680-694. Refs.
- LISCOMBE, E. A. R. 1962. Milling losses caused by insect infestation of wheat. *Cereal Chem.* 39(5):372-380. Refs.
- LUKEFAHR, M. J. and MARTIN, D. F. 1963. Evaluation of damage to lint and seed of cotton caused by the pink bollworm. *J. Econ. Ent.* 56(5):710-713.
- McKINLAY, K. S. 1965. Insect damage, crop formation and the yield of coconuts. *Bul. Ent. Res.* 56(1):67-78.
- MITTLER, T. E. and SYLVESTER, E. S. 1961. A comparison of the injury to alfalfa by the aphids, Therioaphis maculata and Macrosiphum pisi. *J. Econ. Ent.* 54(4):615-622.
- MÖLLERSTRÖM, G. 1963. Different kinds of injury to leaves of the sugar beets and their effect on yield. *Medd. Vaxtskyddsanst.* 12(95):299-309. Refs.

MOORE, S., III, PETTY, H. B., LUCKMANN, W. H. and BYERS, J. H. 1966. Losses caused by the Angoumois grain moth in dent corn. J. Econ. Ent. 59(4):880-882.

NERNEY, N. J. 1960. Grasshopper damage on short-grass rangeland of the San Carlos Apache Indian Reservation, Arizona. J. Econ. Ent. 53(4):640-646.

OATMAN, E. R. 1964. Bionomics of the destructive prune worm, Mineola scitulella, on sour cherry in Wisconsin. J. Econ. Ent. 57(1):100-102.

OATMAN, E. R. 1966. Insect injury to sour cherries in the absence of insecticide sprays. J. Econ. Ent. 59(1):30-32.

OATMAN, E. R., LEGNER, E. F. and BROOKS, R. F. 1966. An ecological study of arthropod populations on apple in northeastern Wisconsin: Species affecting the fruit. J. Econ. Ent. 59(1):165-168.

ORTMAN, E. E. and PAINTER, R. H. 1960. Quantitative measurements of damage by the green bug, Toxoptera graminum, to four wheat varieties. J. Econ. Ent. 53(5):798-802.

PERJU, T. 1966. The damaging degree of barley and oat crops following attacks by the dipterous insects Chlorops pumilionis Meig. and Oscinella frit L. under the Cluj region conditions. Probleme Agricole 18(2):22-30. In Roum., Engl. Sum.

PRASAD, S. K. 1960. The nature and extent of damage to potatoes in relation to density of potato flea beetles. Indian J. Ent. 22(3):231-232.

PRASAD, S. K. 1961. Quantitative estimation of damage to cabbage by cabbage worm, Pieris rapae (Linn.). Indian J. Ent. 23(1):54-61. Refs.

PRASAD, S. K. 1961. Quantitative estimation of damage to potatoes caused by potato leafhopper, Empoasca fabae (Harris). Indian Potato J. 3(2):105-107. Refs.

PRASAD, S. K. 1963. Quantitative estimation of damage to crucifers caused by cabbageworm, cabbage looper, diamondback moth and cabbage aphid. Indian J. Ent. 25(3):242-259. Refs.

PUTNAM, L. G. 1962. The damage potential of some grasshoppers (Orthoptera: Acrididae) of the native grasslands of British Columbia. Canad. J. Plant Science. 42(4):596-601. Refs.

SPACKMAN, E. W., HOUSE, V. W. and FRARY, R. F. 1966. Effects of grasshoppers on Wyoming rangeland. Wyo. Dept. Agr., 8 pp.

STARKS, K. J., COX, H. C., McMILLIAN, W. W. and BURTON, R. L. 1966. Damage to corn by the pink scavenger caterpillar and its relationship to corn earworm and rice weevil damage. J. Econ. Ent. 59(4):931-934.

STOJANOVIC, T. 1965. Effect of the initial population density of weevils on wheat damages under constant laboratory conditions at 25-26°C. Savremena Poljoprivreda 13(7/8):635-644. In Serb., Engl. Sum.

STRONG, F. E. 1960. Sampling alfalfa seed for clover seed chalcid damage. J. Econ. Ent. 53(4):611-615.

TSAO, C. H. and LOWRY, W. L. 1963. Control of the pink bollworm and a method for estimating losses in cotton yield. J. Econ. Ent. 56(2):158-160.

TURČEK, F. J. 1964. Investigations on the damaging of pine needles by Scythropus mustela Herbst (Coleoptera: Curculionidae). Beitr. Ent. 14(3/4):501-505. Refs. In Ger., Engl. Sum.

WATERS, N. D. 1964. Effects of Hypera nigrirostris, Hylastinus obscurus, and Sitona hispidula populations on red clover in southwestern Idaho. J. Econ. Ent. 57(6):907-910.

WERNER, R. A. 1964. White spruce seed loss caused by insects in interior Alaska. Canad. Ent. 96(11):1462-1464.

WOO, W. C. and TSAI, N. H. 1963. Effect of European corn borer on the yield loss of summer-sown field corn at ear--a preliminary report. Acta Phytophyl. Sinica 2(2):135-139. Refs. In Chin., Engl. Sum.



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

SPOTTED ALFALFA APHID ranged 100-2,700 per 100 sweeps in southeastern Illinois. Light in four south central States. (p. 1063).

GREENBUG noneconomic in New Mexico and Oklahoma; none found in Kansas or Arkansas. (p. 1063). A GRAIN APHID heavy on roots of wheat near Throckmorton, Texas. (p. 1064).

Average number of EUROPEAN CORN BORER larvae higher in Indiana and central Nebraska compared with 1965; caused 10 percent dropped ears in central Iowa. (p. 1063).

HORN FLY heaviest in many years in Crockett County, Texas. (p. 1066).

PINK BOLLWORM situation in California. (p. 1067).

Detection

New State records include two BRACONID WASPS in Hawaii. (p. 1069).

For new county records see page 1068.

First Occurrence of Season

SPOTTED ALFALFA APHID appearing in Arizona. (p. 1063).

Special Reports

Spruce Budworm Survey Methods in the Northern Region. (pp. 1071-1072).

Estimating Defoliation Caused by Spruce Budworm from Undamaged Shoots. (pp. 1073-1074).

Distribution of MIMOSA WEBWORM (Map). (p. 1075).

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

CONTENTS

Special Insects of Regional Significance.....1063

Insects Affecting

Corn, Sorghum, Sugarcane.....1063	General Vegetables.....1065
Small Grains.....1064	Deciduous Fruits and Nuts.....1065
Turf, Pastures, Rangeland.....1064	Ornamentals.....1065
Forage Legumes.....1064	Forest and Shade Trees.....1066
Cotton.....1065	Man and Animals.....1066
Sugarbeets.....1065	Households and Structures.....1067
	Stored Products.....1067

Federal and State Plant Protection Programs.....1067

Insect Detection.....1068

Corrections.....1068

Hawaii Insect Report.....1069

Light Trap Collections.....1070

Spruce Budworm Survey Methods in the Northern Region.....1071

Estimating Defoliation Caused by Spruce Budworm from Undamaged Shoots.....1073

Distribution of Mimosa Webworm (Map).....1075

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-NOVEMBER TO MID-DECEMBER 1966

Weather Bureau's 30-day outlook for mid-November through mid-December calls for temperatures to average above seasonal normals from the central and southern Plateau eastward through the central and southern Plains to the Appalachians. Below normal temperatures should be confined to the Northeast and the Northwest while near normal values are expected in unspecified areas. Precipitation is expected to exceed normal over the western quarter of the Nation and in parts of the southern Plains. Subnormal totals are indicated for most areas east of the Mississippi as well as eastern portions of the northern and central Plains. In unspecified areas near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 1076.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - TEXAS - This and fall armyworm activity continues decline as expected with no economic infestations noted. (Texas Coop. Rpt.).

CORN EARWORM (*Heliothis zea*) - IOWA - Infestation caused less than 1 percent loss in east central, west central and southeast areas this season. (Iowa Ins. Inf.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - MISSISSIPPI - Adults and nymphs moderate, 10 per square foot on alfalfa in Pontotoc County. (Dinkins). ARKANSAS - Ranged 100-200 per 100 sweeps in Washington County alfalfa. (Boyer). OKLAHOMA - Ranged 72-82 per 10 sweeps in alfalfa in Sequoyah and Le Flore Counties. (Okla. Coop. Sur.). ARIZONA - Light and scattered on alfalfa in Gila Valley, Yuma County. This first indication of fall infestations in area. (Ariz. Coop. Sur.). KANSAS - Very light, 0-5 per 10 sweeps, in alfalfa in north central, northwest, central and south central districts week ending November 4. (Simpson, Redding). Currently 0-5 per 10 sweeps in alfalfa in southwest and south central districts. (Simpson). ILLINOIS - Ranged 100-2,700 per 100 sweeps in southeast district. (White).

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Very light on wheat in Curry County. (Mathews). OKLAHOMA - Averaged 10 per linear foot on wheat in Le Flore County. Ranged 2-3 per linear foot in Cotton County. Averaged 2 per linear foot in oats in Haskell County. (Okla. Coop. Sur.). ARKANSAS - Survey negative in northwest area. (Boyer). KANSAS - No aphids found on wheat in southwest or south central districts. (Simpson).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEW MEXICO - Medium to heavy on fall barley in Dona Ana and Eddy Counties. (Campbell, Nielsen).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - ALABAMA - Larvae caused light damage to corn in Blount and Chilton Counties. (Upton, Futral). KANSAS - Percent infestation 8 in field of corn in Crawford County, 36 in Bourbon County field. (Simpson, Nov. 4). Infestation 12 percent in Neosho County field, 28 percent in Woodson County field. (Redding). NEBRASKA - Fall survey shows infestation in east about equal to last year; in central part of State population much higher this year. Average number of borers per 100 stalks 233 in central area, 120 in east area. (Rhine). IOWA - Fall survey indicates large buildup of second brood. Averaged 10 percent dropped ears in central area. (Iowa Ins. Inf.). INDIANA - Number of borers per 100 plants averaged 44.3 in State compared with 37.5 last year. (Huber).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ALABAMA - Survey for eastward movement completed. No new counties found infested. (McQueen). TENNESSEE - Survey revealed infestations in Robertson, Cheatham, Davidson and Bedford Counties. All new county records. (Williams). MISSOURI - Average percent girdled stalks ranged 0.8-13.6 in 9 southwest counties and up to 36.0 in 10 southeast counties. (Munson). KANSAS - One borer found in 25 plants inspected in field of corn in Neosho County; 3 found in 25 plants in Woodson County. No other infested fields observed in these 2 counties. (Simpson). One field in Crawford County found with 20 percent infestation. No borers found in any other field checked in Wilson, Crawford or Bourbon Counties. (Simpson, Nov. 4).

CORN ROOTWORMS (*Diabrotica* spp.) - IOWA - Incidence highest in western area. Single *D. virgifera* adult taken in Allamakee County, September 15, 1966. New county record. Clayton County only county in State where western corn rootworm not reported. (Iowa Ins. Inf.).

CHINCH BUG (*Blissus leucopterus*) - IOWA - Ranged 100-200 per plant in field of corn near Farmington. (Iowa Ins. Inf.).

SMALL GRAINS

GRAIN APHIDS - ALABAMA - Heavy numbers damaging oats in Chambers County; considerable yellowing evident. (Farrar, Stewart). TEXAS - Rhopalosiphum rufiabdominalis heavy on wheat near Throckmorton, Throckmorton County; congregating on roots and around base of plants. Averaged 8-10 per plant. (Lindsey). OKLAHOMA - R. padi ranged 2-6 per linear foot on wheat in Cotton and Le Flore Counties and oats in Haskell County. Macrosiphum avenae averaged 12 per linear foot on oats in Haskell County. (Okla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - KANSAS - Up to 90 percent of plants infested in one Jewell County field and 100 percent in Norton County field, November 4. Wheat samples collected in south central and southwest districts indicate infestation absent in most fields; however, up to 50 percent of plants infested in Seward County field and 60 percent in one Hodgeman County field. (Simpson).

WINTER GRAIN MITE (Penthaeus major) - OKLAHOMA - Ranged 4-7 per linear foot in wheat in single Cotton County field; none noted in other fields checked. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

A SOD WEBWORM (Crambus luteolellus) - TEXAS - Larvae recently damaged many St. Augustine grass lawns throughout Corpus Christi area, Nueces County. (Garrett).

FIRE ANT (Solenopsis geminata) - TEXAS - Light infestations noted on rangeland near Goliad, Goliad County. Few mounds present, some 14-16 inches high. (Hajdik).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MICHIGAN - Adults collected from alfalfa in Lenawee County November 1 and from Monroe and Hillsdale Counties November 1 and 9 respectively. Ranged 1-8 per 2,000 sweeps. Det. R. E. Warner and A. C. Dowdy. These new county records. (Hanna et al.). MARYLAND - Several adults collected inside home in Baltimore County. (U. Md., Ent. Dept.). MISSISSIPPI - Very light on alfalfa in Pontotoc County; 1 larva per square foot. No adults found. Damage negligible. (Dinkins). ARKANSAS - Survey negative in Washington County. (Boyer).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Light in alfalfa throughout State. (N. M. Coop. Rpt.). OKLAHOMA - Averaged 10 per 10 sweeps in alfalfa in Le Flore County. (Okla. Coop. Sur.). KANSAS - Populations light, 0-5 per 10 sweeps in north central, northwest, central and south central districts week ending November 4. Occasional alfalfa field with 5 per 10 sweeps in southwest and south central areas. None present in most fields checked. (Simpson). ARKANSAS - Very low in alfalfa and vetch in northwest area. (Boyer). MISSISSIPPI - Very light, 1-2 per square foot, on alfalfa in Pontotoc and Oktibbeha Counties. (Dinkins). ILLINOIS - Range 140-3,300 per 100 sweeps in southeast district. (White).

SWEET CLOVER APHID (Therioaphis riehmi) - UTAH - Severe on Hubam clover in experimental greenhouse at Logan, Cache County. (Knowlton, Nielsen).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - MISSISSIPPI - Light on alfalfa in Pontotoc County; damage light. (Dinkins). ARIZONA - Observed on alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Ranged 7-10 per 10 sweeps in alfalfa in Sequoyah and Le Flore Counties. (Okla. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Survey in Marshall County cotton revealed 16 live and 11 dead adults in fields following 23 degree temperatures. Few pupae in bolls still alive. (Murphy et al.).

For Boll Weevil complex in Arizona see page 1067.

SUGARBEETS

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Few moderate infestations continue to require controls in Maricopa County sugarbeets. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Protection of seedling sugarbeets necessary in many areas of Maricopa County. (Ariz. Coop. Sur.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Heavy populations continue serious to vegetable growers in Yuma, Maricopa, Pima and Pinal Counties. (Ariz. Coop. Sur.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Moderate to heavy numbers caused light to moderate damage to lettuce and sugarbeets in areas of Maricopa County. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Light to moderate adult flights moving into lettuce fields in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Feeding on new growth of peach; 45 percent of adult females still living, 50 percent have unhatched eggs. Of females attached to bark on trunks, only 23 percent still living; eggs under 85 percent of females, hatched. Crawlers very abundant, some settling down on unsprayed observation trees at Gainesville, Alachua County. (Kuitert, Nov. 9).

ORNAMENTALS

TWIG GIRDLER (Oncideres cingulata) - TEXAS - Large population girdling twigs and branches of pecans, roses, honeylocust, and several other shade trees in Austin, Travis County. (Schumann).

A PYRAUSTID MOTH (Undulambia polystichalis) - FLORIDA - Larvae and pupae moderate on stems of holly fern at rate of 1 plant per square foot in fernery at Orange City, Volusia County. (Roberts, Nov. 1).

AZALEA LEAF MINER (Gracillaria azaleella) - CALIFORNIA - Locally heavy on azalea nursery stock at Lodi, San Joaquin County. (Cal. Coop. Rpt.).

AN APHID (Cinara tujafilina) - NEW MEXICO - Medium to heavy on arborvitae around Los Lunas, Valencia County, and Albuquerque, Bernalillo County. (Henger).

ARMORED SCALES - OKLAHOMA - Fifth-generation Unaspis euonymi crawlers active in Payne County. Numbers much lower than earlier generations; ranged 5-10 per leaf. (Okla. Coop. Sur.). FLORIDA - All stages of Ischnaspis longirostris moderate on leaves of 80 percent of 30 yellow palms at nursery in Tampa, Hillsborough County. (Hale, Nov. 3). Adults of Pseudaonidia clavigera light on stems of 22

percent of 2,600 camellia plants at nursery in Tampa, Hillsborough County. (Hale, McFarlin, Nov. 7).

MEALYBUGS - CALIFORNIA - Pseudococcus obscurus medium on azalea nursery stock at Sacramento, Sacramento County. Heavy populations of Trionymus diminutus infesting New Zealand flax nursery stock in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - Epidemic populations on Federal land continue on Francis Marion National Forest in SOUTH CAROLINA, on Homochitto National Forest in MISSISSIPPI, and on Big Thicket and Angelina Districts in TEXAS. On private land, epidemic populations continue in ALABAMA, LOUISIANA, MISSISSIPPI, NORTH CAROLINA and VIRGINIA. (South. For. Pest Rptr., Oct.).

ENGRAVER BEETLES (Ips spp.) - Populations increased to near epidemic proportions in ARKANSAS and NORTH CAROLINA, probably due to insufficient rainfall. (South. For. Pest Rptr., Oct.).

BRONZE BIRCH BORER (Agrilus anxius) - MINNESOTA - Survey in nursery blocks indicates 33 percent of birch trees infested. Infested trees condemned and will be destroyed. (Minn. Ins. Rpt.).

TWIG GIRDLER (Oncideres cingulata) - TEXAS - Moderate populations cited on pecan and oak trees throughout New Braunfels, Comal County. (Schumann).

FALL CANKERWORM (Alsophila pometaria) - INDIANA - Emerged November 7 in Warren and Tippecanoe Counties. Emergence earlier than in past few years; male activity considerably greater. (Chandler).

OBSCURE SCALE (Melanaspis obscura) - MARYLAND - Heavy on oaks in Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

DOGWOOD CLUB-GALL MIDGE (Mycodiplosis alternata) - ALABAMA - Galls light to medium on native dogwood throughout State. Some larvae emerged. (McQueen).

MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, and Culiseta inornata. Light trap collections decreased due to cooler, windy weather; Culex salinarius dominant. Aedes sollicitans counts high in Grand Isle area. (Stokes). TEXAS - Jefferson County collections for 1966 remain considerably above 1965 with exception of the Port Arthur trap. Culex salinarius appears on increase, C. pipiens quinquefasciatus remains plentiful. Anopheles crucians increased throughout county, particularly in northern section. Mansonia perturbans continues to appear in small numbers in Port Arthur trap. Uranotaenia spp. very common throughout area. (Thompson).

HOUSE FLY (Musca domestica) - ARKANSAS - Cold weather greatly reduced activity. Few flies seen in poultry houses. Reproduction believed ceased. (Simco).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged less than 10 per head on cattle in Noble and Payne Counties. (Okla. Coop. Sur.). TEXAS - Widespread populations heaviest in many years in Crockett County this fall on cattle and sheep. (Jacoby).

SCREW-WORM (Cochliomyia hominivorax) - Total of 69 cases reported in U. S. November 6-12 as follows: TEXAS - Presidio 7, Dimmit 3, Jeff Davis 1, Webb 4, Val Verde 1, Llano 3, Frio 1, Bell 3, Mills 1, San Saba 1, Kinney 1, McCulloch 2,

Maverick 2, Brewster 1, Blanco 1, Duval 1, Sutton 1, Hays 1, La Salle 1, Reeves 1. ARIZONA - Mohave 2, Yavapai 1, Yuma 4, Maricopa 11, Pinal 8. NEW MEXICO - Eddy 1. CALIFORNIA - Riverside 3, Imperial 2. Total of 312 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California Sur 60, Sonora 121, Chihuahua 55, Coahuila 37, Nuevo Leon 18, Tamaulipas 21. Total of 295 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 60,912,260, Arizona 10,900,000, New Mexico 1,080,000, California 1,716,000, Mexico 47,640,000. (Anim. Health Div.).

WINTER TICK (*Dermacentor albipictus*) - OKLAHOMA - Ranged 200-300 per head on deer checked in Pittsburg County. None observed on cattle in area. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

CLOVER MITE (*Bryobia praetiosa*) - MARYLAND - Very heavy in homes in Carroll and Prince Georges Counties. (U. Md., Ent. Dept.). PENNSYLVANIA - Very abundant and annoying at new development in State College, Centre County. (Gesell, Menusan).

STORED PRODUCTS

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) - PENNSYLVANIA - Collected at school cafeteria in Bradford, McKean County. (Gesell, Sept. 31). ALABAMA - This species, rice weevil and square-necked grain beetle infesting much of corn in Lee County still in field. (Teague).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Survey in San Joaquin Valley continues with 250 additional traps. Collections continue in desert areas, adjacent to Arizona. Status of collections this season: Imperial County - Bard Valley 976 adults, 925 larvae, 2 pupae, 756 acres treated; Imperial Valley 1,106 adults, 409 larvae, 1 pupa, 91,126 acres treated. Riverside County - Palo Verde Valley 2,807 adults, 6,846 larvae, 10 pupae; Coachella Valley 68 adults, 9 larvae, 12,848 acres treated. San Diego County - Borrego Valley 24 adults, 900 acres treated. San Bernardino County - Needles 145 adults, 9 larvae; Sandy Valley 1 adult. Los Angeles County - Lancaster 5 adults. Kern County - Cantil 2 adults. Frosts in Antelope Valley, Cantil and Lancaster areas eliminated growing cotton. (Cal. Coop. Rpt.). NEW MEXICO - Boll checks in Eddy County reveal mortality rate of 10-20 percent of larvae left in cotton fields. (Nielsen, Campbell). OKLAHOMA - Taken in lint cleaner surveys in Custer, Washita and Kiowa Counties. (Okla. Coop. Sur.).

BOLL WEEVIL COMPLEX (*Anthonomus grandis* complex) - ARIZONA - Increased populations found in cotton in Stanfield area of western Pinal County. (Ariz. Coop. Sur.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ARKANSAS - Eight properties involving 100 acres found infested in northwest area of West Memphis, Crittenden County. (Frazier).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - CALIFORNIA - No unmarked native flies trapped for some time. In area along Mexican border in San Diego County, fly catches dropped materially with advent of cooler weather and rain. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Larvae taken from navel orange at Belle Glade, Palm Beach County. (Simanton, Starling, Nov. 7).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - In San Diego, San Diego County, more than 150 city blocks now infested. Treatment anticipated in 300 city blocks. In Sacramento, Sacramento County, approximately 700 city blocks will receive treatment and in Fresno, Fresno County, about 200 city blocks. No live whiteflies taken in Fresno area this summer. (Cal. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Survey negative in previously infested areas in Kings, Yolo and Sacramento Counties. (Cal. Coop. Rpt.).

INSECT DETECTION

New State Records

A BRACONID WASP (Meteorus n. sp.) - HAWAII - Reared from LIGHT-BROWN APPLE MOTH (Epiphyas postvittana) at Olinda, Maui, in October 1964 and July 1966. Det. by R. D. Eady. (p. 1069).

A BRACONID WASP (Doryctes parvus) - HAWAII - Collected from kiawe (Prosopis pallida) twigs infested with bark beetles in February 1966 at Honouliuli, Oahu. Det. by C. F. W. Muesebeck. (p. 1069).

New County Records

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - TENNESSEE - Collected in Robertson, Cheatham, Davidson and Bedford Counties. (p. 1063).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - IOWA - Adult collected September 15, 1966, in Allamakee County. (p. 1063).

ALFALFA WEEVIL (Hypera postica) - MICHIGAN - Collected November 1, 1966, in Lenawee and Monroe Counties and November 9, 1966, in Hillsdale County. Det. by R. E. Warner and A. C. Dowdy. (p. 1064).

CORRECTIONS

CEIR 16(28):677 - Citrus Insect Situation in Florida - End of June - CITRUS RUST MITE (Phyllocoptura oleivora)...All districts will have 10-30 percent...

CEIR 16(34):840 - Line 3 should read: "...Highest district east. BLACK SCALE (Saissetia oleae) infested 69 percent of groves; 55 percent economic. Population decreased greatly..."

CEIR 16(44):1035, 1036 - LEEK MOTH (Acrolepis assectella) - Should read: LEEK MOTH (Acrolepis assectella) - HAWAII - Collected in green onions on Maui. (p. 1036).

HAWAII INSECT REPORT

New State of Hawaii Insect Records - Several adults of a parasitic BRACONID WASP (Meteorus n. sp., near ictericus) reared from LIGHT-BROWN APPLE MOTH (Epiphyas postvittana) at Olinda, Maui, in October 1964 and July 1966. Det. by R. D. Eady. (Chong). One adult of a parasitic BRACONID WASP (Doryctes parvus) collected from kiawe (Prosopis pallida) twigs infested with bark beetles in February 1966. Twigs collected from Honouliuli, Oahu. Det. by C. F. W. Muesebeck. (Chong).

Insects of Regional Significance - Adult survey conducted over 15 square miles in Waiohinu, Hawaii Island, at 950-2,000 feet elevation. Counts per trap day averaged 964 Dacus dorsalis, 9 D. cucurbitae and 0.009 Ceratitis capitata; 40 traps used for each species, 0.2 miles apart. (Hawaii Fruit Fly Investigations). Adults of a PLATASPID BUG (Coptosoma xanthogramma) light on peduncles and twigs of fruiting and flowering acerola (Malpighia punicifolia) in Lanikai, Oahu. May have caused some premature fruit drop. (Davis). SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults increasing but remain light on wild weed hosts in Kahului, Maui; 67 percent of adults bore eggs of a TACHINA FLY (Trichopoda pennipes). (Miyahira).

General Vegetables - IMPORTED CABBAGEWORM (Pieris rapae) adults medium to heavy in cabbage plantings in Omaopio, Maui. (Miyahira).

Ornamentals - FULLER ROSE BEETLE (Pantomorus cervinus) adults abundant on weeping willow in Waimea, Hawaii Island. Foliar damage evident. (Yoshioka).

Miscellaneous Pests - Continuous rainfall caused heavy activity of GIANT AFRICAN SNAIL (Achatina fulica) in generally dry Koko Head area of Oahu. Movements from bordering thickets to residential areas evident. (Nakao).

Beneficial Insects - Adults of a BRACONID WASP (Meteorus laphygmae) reared from Selca brunella (an arctiid moth) in March 1966. Larvae collected from Kulani, Hawaii Island. This new host record for M. laphygmae. Some other hosts include armyworm, corn earworm, beet armyworm, nutgrass armyworm, lawn armyworm, sugarcane leaf roller and black cutworm. (Chong). Adults of a PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) heavy in and on dead puncture-vine stems in Kamiloloa, Molokai. Many plants in area riddled with emergence holes and severely damaged. (Funasaki).

SPRUCE BUDWORM SURVEY METHODS IN THE NORTHERN REGION

T. T. Terrell 1/

Detection Surveys - New outbreaks of spruce budworm, (Choristoneura fumiferana (Clem.)) are frequently discovered during aerial detection surveys.

Foliar damage caused by spruce budworm is most evident in the Northern Region during mid-August. Flights are made, however, from about August 1 through September 15. Before this period, light foliar damage has not turned red enough to be readily seen; after mid-September, fall storms decrease the evidence of feeding.

Flights are made over the timber type from 8 a.m. to about 2 p.m. Shadows are too long on northern and western slopes to permit earlier flights, and rough air terminates the afternoon flights.

Early morning light is best, however, for detecting infestations because it shows red better than noon-time light.

Flights are made at approximately 800 feet above the terrain. A contour pattern is flown in most of the Northern Region because the terrain does not lend itself to strip flights. We strive for practically 100-percent coverage of areas surveyed.

When evidence of spruce budworm damage is discovered, the outbreak areas are mapped on $\frac{1}{2}$ -inch to-the-mile maps.

Biological evaluation (Aerial) - Biological evaluations of spruce budworm include an aerial survey of known infestations. These are made in much the same manner as detection surveys. The damage is classified as to degree of intensity; light, moderate, or heavy. These classes cover fairly large areas of perhaps a small drainage or some topographical unit and are described by appearance as follows:

Light - The damage ranges from barely visible to reddening of the upper one-fourth of the tree crown. Damage is not necessarily continuous throughout the stand. There may be a few heavier spots of damage.

Moderate - Damage is clearly visible. The upper one-third to one-half of the crown is red. The damage is not necessarily continuous, and there may be some heavily damaged spots.

Heavy - Damage is visible on most trees to the bottom of the crown. The damage is nearly continuous throughout the stand. There may be some top killing.

Subsequent ground examinations usually show that aerial observation classes fall into the following percentages of defoliation of current needle growth: Light 25 to 40, moderate 35 to 60, heavy 55 to 85.

Biological evaluation (Ground) - Samples of foliage are collected from the lower midcrown of intermediate trees to determine the number of budworm egg masses. Two samples each of sufficient quantity to cover a 4 by 4 foot canvas are collected from opposite sides of one-tree plots located in various parts of the area surveyed. They are taken in September or October after the eggs have hatched. The foliage is placed in large plastic bags and brought into the laboratory and stored in a cold room (about 38° F.). Twenty to 30 one-tree plots per area are desirable.

1/ Forest Pest Control Branch, Northern Region, Forest Service, USDA

A crew of temporary employees is then hired to examine the foliage and remove all needles that have foreign material attached. This crew is supervised by an entomologist who measures the sample and estimates the percentage of current defoliation. We have observed that women are more adept to this task because they seem to have more patience in performing routine, monotonous jobs.

The foliage is measured by spreading it loosely on a canvas covered table marked gridiron fashion from an end line to show the number of square inches of surface up to 2,000. The foliage is discarded.

The percent defoliation of current growth is estimated by examining 50 new growth shoots. Research note INT No. 86 on the following page will explain the procedure.

The complement of foliage remaining from previous years is also recorded because it has a bearing on the trees' chance of survival when current defoliation is severe.

The foliage is then passed to the examiners. The examiners remove and place all the needles, with foreign material attached, into pill boxes. These needles are then examined by the entomologist who removes the needles having budworm egg masses. He then separates the current year's egg masses from those of previous years. Old egg masses are discarded because they were found to be invalid as a measure of egg populations for the previous year in the Northern Region. Current egg masses are also examined to determine the percent parasitized by Trichogramma sp.

The graph below is used to predict the defoliation for the next season. It shows the correlation between egg masses and subsequent defoliation in the Northern Region, and it is quite accurate in 3 out of 4 years.

This estimate and all information regarding the past history of the outbreak are the bases of recommending for or against control projects.

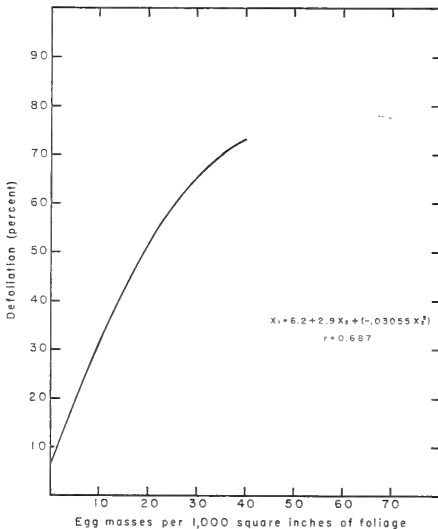


Figure 3.--Defoliation resulting from spruce budworm egg masses; 1959-1960, 1961-1962, and 1962-1963

ESTIMATING DEFOLIATION CAUSED BY SPRUCE BUDWORM FROM UNDAMAGED SHOOTS 1/Tom T. Terrell 2/

Spruce budworm (*Choristoneura fumiferana* (Clem.)) is a destructive pest in Douglas-fir forests, particularly in Montana, where more than 4 million acres of forest have been infested during the past decade. Surveys and control projects in infested areas have required thousands of man-days during the period of the outbreak. Much of this time is spent making operational surveys to delineate areas of infestation. Entomologists and foresters use various methods for measuring budworm activity, but estimates of defoliation caused by budworm larvae feeding on new-growth shoots is most commonly used. Damage to foliage is expressed in percent of foliage destroyed. All of the several methods for estimating defoliation require considerable field training.

In 1959 and 1960, while measuring defoliation on new-growth Douglas-fir shoots in Montana, an inverse relation was found between the percent of undamaged shoots and the percent of defoliation. This relation offers a simple method of estimating defoliation for survey personnel. Defoliation can be estimated by merely determining the percent of undamaged shoots which are easy to recognize and count.

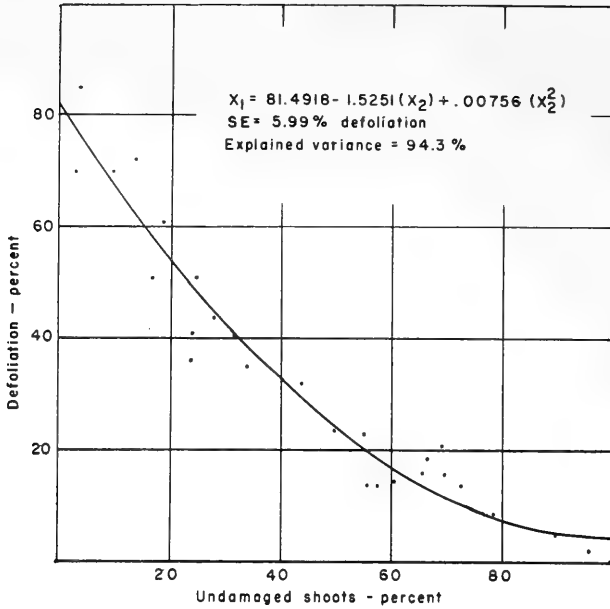
The graph on the following page shows the relation between undamaged shoots and defoliation. The data are from 27 samples of foliage taken from permanent sample plots in Montana. The data were taken incidentally to an appraisal of defoliation and consist of notes taken by survey personnel. These notes clearly showed that the numbers of shoots with no defoliation were related inversely to the amount of defoliation for the sample. The degree of defoliation in the 27 samples ranged from light to very heavy and represented a good cross section of defoliation in Douglas-fir in Montana.

The data were analyzed by a multiple curvilinear regression treatment when the plotted data suggested a parabolic curve. T-tests of the coefficients show the data to be highly significant at the 99-percent level. The regression in the following figure was the basis for constructing the accompanying table, which converts the percent of undamaged shoots into percent of defoliation.

In practice, 50 shoots examined at midcrown give a good sample, but 100 shoots are better and give a count immediately convertible to percent.

1/ Research Note, No. 86, USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah. October 1961.

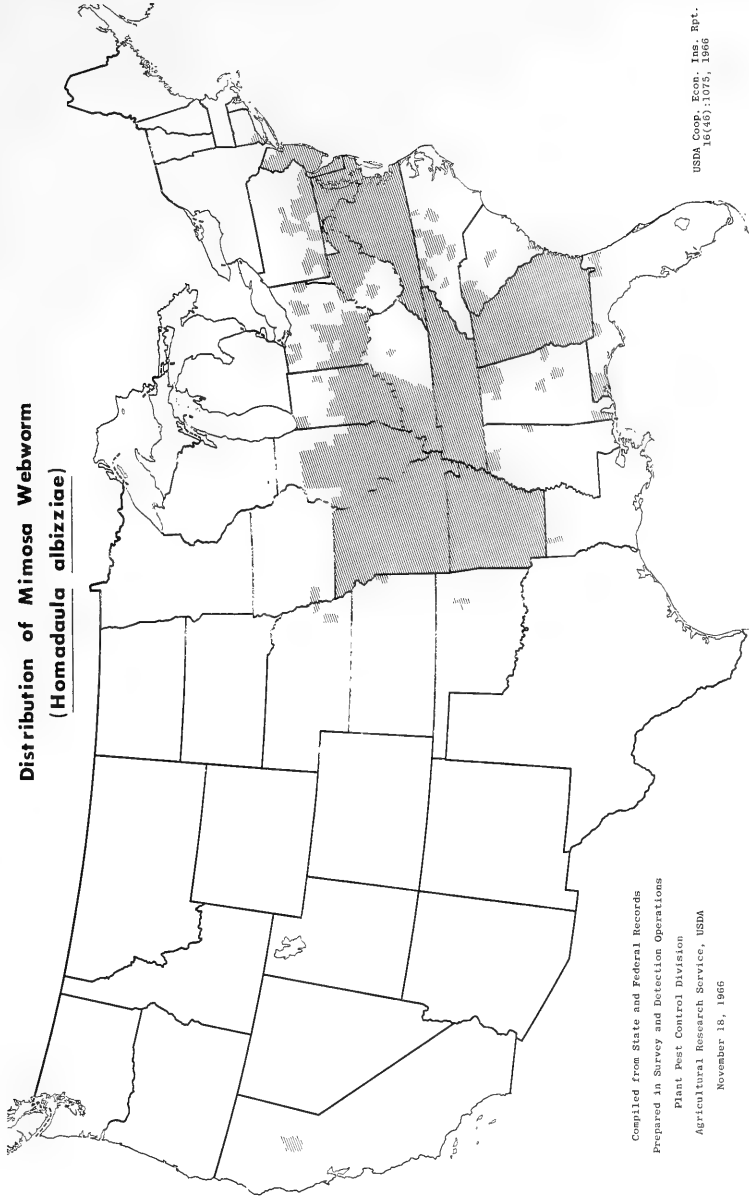
2/ Division of Forest Insect Research.



Relation between undamaged shoots and defoliation

<u>Percent undamaged shoots</u>	<u>Percent defoliation (±6%)</u>
0	81+
5	74
10	67
15	60
20	54
25	48
30	43
35	37
40	33
45	28
50	24
55	20
60	17
65	14
70	12
75	10
80	8
85	6
90	5
95	4.8
100	4.6

Distribution of Mimosa Webworm
(*Homadaula albizziae*)



Compiled from State and Federal Records
Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
November 18, 1965

USDA Coop. Econ. Ins. Rpt.
16(46)-1075, 1966

Weather continued from page 1062.

WEATHER OF THE WEEK ENDING NOVEMBER 14, 1966

HIGHLIGHTS: The coldest weather of the season moved into the north central United States while tropical air brought abundant precipitation to much of the East.

PRECIPITATION: The conflict between cold northerly winds and warm moist air from the Gulf of Mexico caused moderate showers, sleet, and some freezing rain from Arkansas to Michigan, while heavy thundershowers and a few tornadoes visited the Deep South. Scattered localities from eastern Texas to Georgia received 4 to 5 inches or more. Most of the middle and lower Mississippi, the Ohio and the Tennessee River Valleys received weekly totals exceeding 1 inch. Two-inch totals occurred across northern Indiana and northern Ohio. Rains occurred daily in the Pacific Northwest beginning Wednesday, and were still falling on Monday. Totals exceeded 2 inches along the coast. Snow fell above 2,500 feet in Washington, Oregon, and northern California, and above 5,000 feet in southern California, Arizona, and New Mexico. Flagstaff, Arizona, received 6 inches of wet snow on Tuesday. Snow also occurred along the eastern slope of the northern and central Rockies. Snow depths ranged up to 6 inches in western South Dakota and to 4 inches in western Nebraska.

TEMPERATURE: Last week's weather showed a strongly contrasting temperature pattern, with temperatures over the northern Great Plains averaging 10° to 20° below normal while temperatures over the Deep South were 8° to 12° above normal. The cold daily became more and more intense until Tuesday, when some stations registered minimums as much as 35° below the daily normals. Temperatures averaged near normal from the Pacific Ocean to the Continental Divide. Unseasonably mild weather prevailed over the Southeast and until Thursday in the Northeast, preceding a cooler weekend. Early in the week, a cold front brought subfreezing temperatures as far south as central Texas, the Boston Mountains in Arkansas, and the southern Appalachians. Arctic air crossed into the northern Great Plains later in the week with subzero temperatures over parts of 10 States. Some stations in North Dakota remained below freezing for the entire week. Brisk southerly winds brought unusual warmth to the eastern half of the Nation. In Kentucky, this warm week followed 9 consecutive cool weeks. The warm weather persisted throughout the week over the Southeast, but temperatures in the Northeast returned to near normal over the weekend. (Summary supplied by Environmental Data Service, ESSA).

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

VOL. 16 No. 47

November 25, 1966

SB
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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

SPOTTED ALFALFA APHID heavy in northeast Oklahoma; increasing in Yuma County, Arizona. May increase in northwest Arkansas if mild, dry weather continues. (p. 1079).

ALFALFA WEEVIL collected in Wisconsin for first time. (p. 1079).

EUROPEAN CORN BORER larval population higher Statewide in Nebraska than in 1965. (p. 1079).

FALL CANKERWORM active and mating in southeast Michigan. (p. 1082).

CHICKEN BODY LOUSE and NORTHERN FOWL MITE problem on poultry in northern Arkansas. (p. 1083).

Buildup of PINK BOLLWORM indicated in Waco area of Texas; high percent of cotton bolls infested in Dona Ana County, New Mexico. Adult collections decreasing in California. (p. 1084).

Detection

New State records include ALFALFA WEEVIL in Wisconsin, (p. 1079), and WOOLLY WHITEFLY in California (p. 1081).

For new county records see page 1085.

First Occurrence of Season

MELON APHID appearing on citrus in California. (p. 1081).

Special Reports

- Formosan Subterranean Termite: Guidelines for Survey. (p. 1087).
- Key to Eight Termite Genera. (p. 1091).

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

CONTENTS

Special Insects of Regional Significance.....	1079
Insects Affecting	
Corn, Sorghum, Sugarcane.....	1079
Small Grains.....	1079
Turf, Pastures, Rangeland.....	1079
Forage Legumes.....	1079
Cotton.....	1080
Cole Crops.....	1080
General Vegetables.....	1081
Deciduous Fruits and Nuts.....	1081
Citrus.....	1081
Other Trop. & Subtrop. Fruits...	1082
Ornamentals.....	1082
Forest and Shade Trees.....	1082
Man and Animals.....	1083
Households and Structures.....	1084
Stored Products.....	1084
Federal and State Plant Protection Programs.....	1084
Insect Detection.....	1085
Corrections.....	1085
Hawaii Insect Report.....	1085
Light Trap Collections.....	1086
Formosan Subterranean Termite: Guidelines for Survey.....	1087
Key to Eight Termite Genera.....	1091

WEATHER OF THE WEEK ENDING NOVEMBER 21, 1966

HIGHLIGHTS: Warm, dry weather prevailed over most of the Nation. Rain fell daily along the central and northern Pacific coast. High pressure and warm air persisted over the Rockies confining major storminess to the west coast.

PRECIPITATION: Most areas from the southwestern deserts to the middle and southern Atlantic coast and from the Dakotas to Mexico and the gulf received no rain or only widely scattered, very light showers in the past week. Measurable amounts fell at a number of stations from the Ozark Mountains in Missouri to Louisiana and Mississippi. One area in Louisiana received more than 4 inches in a locally heavy shower. A few heavy showers also fell in southeastern Florida. Precipitation was frequent but light from the Great Lakes to New England. A low-pressure area, stalled off the Washington coast since the previous week, brought rains every day along the northern and central Pacific coast. Weekly totals ranged from about 1 inch in the Puget Sound area to about 16 inches in the Mendocino, California, vicinity, to less than 0.5 inch south of San Francisco.

SNOWFALL: Snow accumulated seasonally at higher elevations near the west coast but was lighter in the Cascades and absent from the Rockies. At midweek, light snows accumulating to as much as 2 to 4 inches in local areas fell in the upper Great Lakes region, upper New York, and northern New England.

Weather continued on page 1083.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

SPOTTED ALFALFA APHID (Therioaphis maculata) - VIRGINIA - Light, 5 per 10 sweeps on alfalfa in Alleghany County. (Isakson). ARKANSAS - Little change, 100-200 per 100 sweeps in northwest area; may increase if mild, dry weather continues. (Boyer). OKLAHOMA - Ranged 50-65 per 10 sweeps on alfalfa in Rogers and Washington Counties. Averaged 225 per square foot in fall-seeded alfalfa in Tulsa County. Building up in scattered areas of Major County. (Okla. Coop. Sur.). NEW MEXICO - Light in all alfalfa fields checked. (N. M. Coop. Rpt.). ARIZONA - Increasing in alfalfa fields in Yuma and Gila Valleys, Yuma County; decreasing in Maricopa County fields. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Medium on barley in Dona Ana County. (Campbell).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged 0-6, average 2 or less, per linear foot on wheat in northeast area. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - State average 68 percent plants infested and 130 borers per 100 stalks. Statewide average higher than last year. (Rhine).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - ARIZONA - Heavy in many Yuma County sorghum fields; however, buildup probably too late to cause economic loss to rapidly maturing sorghum. (Ariz. Coop. Sur.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Ranged 0-7 per linear foot on oats in Craig and Ottawa Counties; 0-3 per linear foot on wheat in northeast area. (Okla. Coop. Sur.). ARKANSAS - Low, 75-100 per 100 sweeps on wheat in northwest area. (Boyer).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Present in most wheat fields in northeast area; up to 2 per linear foot. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

A SPITTLEBUG (Prosapia bicincta) - FLORIDA - Populations rapidly declining at Belle Glade, Palm Beach County. (Genung).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - NEBRASKA - Damaged bluegrass in Lincoln, Lancaster County, during summer. This new county record. (Roselle, Rhine).

A SNAIL (Vallonia pulchella) - CALIFORNIA - Locally heavy in dichondra lawn at Garden Grove, Orange County. (Cal. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Collected from alfalfa near Tobin, Kenosha County, November 15, 1966, by M. S. Conrad and O. L. Lovett. Det. by R. E. Warner. New State record. (Wis. Ins. Sur.). MICHIGAN - Adult taken in 2,000-sweep sample from Branch County alfalfa field November 17. New county

record. Three adults taken from Livingston County alfalfa field. This second infestation found in Livingston County. (Holton et al.). MASSACHUSETTS - Surveys in Berkshire County indicate 0-2 adults and 3-23 larvae per 100 sweeps. Damage noticeable in few fields. (Miller, Oct. 14). VIRGINIA - Adults averaged 7 per sweep in Alleghany County field. Ranged 3-6 per 10 sweeps in other Alleghany, Botetourt and Roanoke County fields; larvae 2-6 per 10 sweeps. (Isakson). MISSISSIPPI - Light infestation found in Oktibbeha County alfalfa, 1-2 larvae per square foot in most areas. Infestation noneconomic. (Dinkins).

CLOVER LEAF WEEVIL (Hypera punctata) - MICHIGAN - Collected 116 adults from 2 Livingston County alfalfa fields. (Cooper et al.).

CLOVER ROOT CURCULIO (Sitona hispidula) - WISCONSIN - This and clover leaf weevil common in most Kenosha County fields checked. Averaged 500 per 2,000 sweeps. (Wis. Ins. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - VIRGINIA - Averaged 1 per 30 sweeps on alfalfa in Alleghany, Botetourt and Roanoke Counties. (Isakson). MICHIGAN - Total of 5 adults taken in 2,000-sweep sample from 2 Livingston County alfalfa fields. (Newman).

A CUTWORM (Feltia ducens) - WISCONSIN - Larvae common in several Kenosha County alfalfa fields. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Damaging young alfalfa in Chaves County. (Mathews). OKLAHOMA - Ranged 30-45 per 10 sweeps on alfalfa in Rogers and Washington Counties. Averaged 12 per square foot in fall-seeded alfalfa in Tulsa County. (Okla. Coop. Sur.). ARKANSAS - Remains low in legumes in northwest area; may continue low with warm, dry weather. (Boyer). MISSISSIPPI - Moderate on alfalfa in Oktibbeha County. (Dinkins). VIRGINIA - Light, 5-20 per sweep on alfalfa in Alleghany and Botetourt Counties. (Isakson). MICHIGAN - Greatly reduced on alfalfa during past 2 weeks; alfalfa foliage has dried and turned brown. (Dowdy).

LYGUS BUGS (Lygus spp.) - VIRGINIA - Ranged 2-5 per 10 sweeps on alfalfa in Alleghany, Botetourt and Roanoke Counties. (Isakson). OKLAHOMA - L. lineolaris averaged 53 per 10 sweeps on alfalfa in Washington County and 14 per 10 sweeps in Rogers County. (Okla. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Continues to damage alfalfa in Graham, Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Dead larvae and pupae observed in dying cotton bolls resulting from 26 degree temperature November 2 in Lee County. Live adults observed in same fields. (Mott et al.).

For Boll Weevil in Texas and Boll Weevil Complex in Arizona and California, see page 1084.

COTTON APHID (Aphis gossypii) - CALIFORNIA - Medium on cotton in Fresno, Fresno County. (Cal. Coop. Rpt.).

COLE CROPS

BLACK CUTWORM (Agrotis ipsilon) - FLORIDA - This and granulate cutworm larvae heavy on untreated cabbage at Belle Glade, Palm Beach County. (Genung).

TURNIP APHID (Hyadaphis pseudobrassicae) - OKLAHOMA - Up to 500 per leaf on commercial turnips in Bixby area of Tulsa County; up to 300 per leaf in home garden turnips in Mayes County. (Okla. Coop. Sur.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Decreased in lettuce fields of Yuma and Maricopa Counties; control efforts continue. (Ariz. Coop. Sur.).

CELERY LEAF TIER (Udea rubigalis) - ARIZONA - Light on lettuce in Yuma County; one field required control. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Numerous larvae in shucks of pecan and hickory nuts on ground in Lee and other counties. (McQueen).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Continues active on pecans in Mayes County. (Okla. Coop. Sur.).

A FALSE POWDER-POST BEETLE (Xylobiops basilaris) - ALABAMA - Adults heavy on large pecan orchard in Barbour County; infesting limbs hanging in trees from breakage earlier in year. Few observed in healthy branches. (Hagler).

APPLE MAGGOT (Rhagoletis pomonella) - MARYLAND - Collected from apricot September 15, 1966, in Prince Georges County; this is new host record. Det. by R. H. Foote. (Gentry).

CITRUS

Citrus Insect Situation in Florida - Mid-November - CITRUS RUST MITE (Phyllocop-truta oleivora) infested 67 percent of groves (norm 65 percent); 51 percent economic (norm 49 percent). Populations near normal and decreasing but still in high range. Although further decrease expected, about 20 percent of groves will have heavy infestations. Highest districts south, west and north. CITRUS RED MITE (Panonychus citri) infested 39 percent of groves (norm 38 percent); 13 percent economic (norm 12 percent). Population near normal and in moderate range; little change expected. Highest districts north and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 22 percent of groves (norm 40 percent); 5 percent economic (norm 16 percent). Continues below average and in low range; population will remain low in all districts. Highest district north. YELLOW SCALE (Aonidiella citrina) infested 63 percent of groves; 16 percent economic. Population decreased to moderate range but will continue higher than normal for November. Highest districts east, central and south. GLOVER SCALE (Lepidosaphes gloverii) infested 60 percent of groves; 15 percent economic. Population slightly above normal and in moderate range; decrease expected. Highest districts central and east. PURPLE SCALE (L. beckii) normal; low to moderate range; decreasing. CHAFF SCALE (Parlatoria pergandii) below normal; low range; little change. BLACK SCALE (Saissetia oleae) below normal; low range; little change. WHITEFLY population below normal; low range; decrease expected. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Locally heavy on citrus in San Diego, San Diego County. This is first record in State. Coll. by J. H. Rosenberger, November 9. Det. by R. F. Wilkey. (Cal. Coop. Rpt.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Moderate, damaging terminals of citrus and peach trees in Yuma County. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - CALIFORNIA - This and winged adults of rusty plum aphid light in 20 acres of citrus at Reedley, Fresno County. This early date for citrus to be infested with melon aphid. (Cal. Coop. Rpt.).

OTHER TROP. & SUBTROP. FRUITS

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium on olive trees in Redding. This is first record for Shasta County. (Cal. Coop. Rpt.).

ORNAMENTALS

A BARK BEETLE (Xylosandrus compactus) - FLORIDA - Larvae, pupae and adults infesting dogwood at Gainesville, Alachua County. (Weber).

POTATO PSYLLID (Paratrioza cockerelli) - CALIFORNIA - Medium on Jerusalem-cherry nursery stock at Paradise, Butte County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Medium to heavy on ornamental apple trees in downtown Albuquerque, Bernalillo County. (Heninger).

PAINTED MAPLE APHID (Drepanaphis acerifoliae) - CALIFORNIA - Nymphs and adults medium on silver maple nursery stock in Selma, Fresno County. (Cal. Coop. Rpt.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Medium on locust nursery stock in Colma, San Mateo County. (Cal. Coop. Rpt.).

A PIT SCALE (Asterolecanium puteanum) - MARYLAND - Heavily infesting several American holly trees at Salisbury, Wicomico County. (U. Md., Ent. Dept.).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy populations infesting cedar nursery stock in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

ARMORED SCALES - NEW MEXICO - Phenacaspis pinifoliae medium to heavy on ponderosa and piñon pines in ornamental plantings at shopping centers in Albuquerque, Bernalillo County. (Heninger). FLORIDA - Adults of Pseudaulacaspis pentagona severely infesting 45 golden-rain trees in nursery at Plant City, Hillsborough County. (Vaughn).

YUCCA PLANT BUG (Halticotoma valida) - ALABAMA - Heavy on yucca in nursery near Florala, Covington County. (Dean, Stevenson).

LARGE MILKWEED BUG (Oncopeltus fasciatus) - CALIFORNIA - Nymphs heavy on jasmine in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

A SPIDER MITE (Oligonychus milleri) - CALIFORNIA - Medium on pine tree nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - VIRGINIA - Larvae feeding on Scotch pine at Blacksburg, Montgomery County. (Amos, Isakson).

TWIG GIRDLER (Oncideres cingulata) - ALABAMA - Heavy girdling causing breakage of small limbs in isolated persimmon and hickory trees in Jackson, Marshall and De Kalb Counties. (McQueen).

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Collected from locust at Deerfield, Lake County, November 18, 1966, by F. R. Walker. Det. by W. E. LaBerge. New county record. (White).

FALL CANKERWORM (Alsophila pometaria) - MICHIGAN - Adults active and mating in Ingham and Wayne Counties during recent warm evenings. (Hoffman).

MAN AND ANIMALS

CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Problem on turkeys in Cleburne County. Brought under control with treatment. (Roberts).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Increasing; medium in some northwest area flocks. (Simco).

BLACK-LEGGED TICK (Ixodes scapularis) - OKLAHOMA - Collected on dogs in Mayes County. (Okla. Coop. Sur.).

MOSQUITOES - FLORIDA - Collections of freshwater species much higher than salt-marsh species during early November from light traps in Indian River County. Trend expected downward, provided no high tides, rain, or grove irrigation. (Fla. Coop. Sur.). LOUISIANA - Larval collections in Jefferson Parish contained: Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, C. salinarius, and Culiseta inornata. Light trap collections averaged 17.2 mosquitoes per night with 20 light traps operated throughout the parish. Dominant species, Culex salinarius and Culiseta inornata. (Stokes).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Ranged 10-15 per animal in Oktibbeha and Lowndes Counties. (Dinkins). OKLAHOMA - Light, 5 per head, on dairy cows in Mayes County. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 70 cases reported in U. S. November 13-19 as follows: TEXAS - Hudspeth 1, Presidio 4, Brewster 2, Val Verde 1, Kinney 3, Maverick 6, Zavala 1, Dimmit 4, La Salle 2, Jim Hogg 2, Starr 2, Willacy 2, Cameron 2, Blanco 1, Lee 1, Webb 1, Uvalde 1, Reeves 1. ARIZONA - Maricopa 11, Yuma 3, Gila 1, Graham 1, Pinal 1, Mohave 3. CALIFORNIA - Imperial 13. Total of 297 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 24, Sonora 155, Chihuahua 47, Coahuila 41, Nuevo Leon 22, Tamaulipas 8. No cases were reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 47,590,250, New Mexico 2,704,000, Arizona 14,456,000, California 1,716,000, Mexico 54,140,000. (Anim. Health Div.).

Weather continued from page 1078.

TEMPERATURE: Bright, sunny skies and light southerly winds kept temperatures above normal over most of the Nation. Some areas in the Great Basin and western Great Plains averaged more than 10° above normal. Afternoon temperatures climbed to the 70's in the southern parts of Illinois and Indiana at midweek and to the 60's over parts of Montana over the weekend. Temperatures dropped to near zero over northern Montana and northwestern North Dakota on Thursday morning. Weekly mean temperatures were generally below normal from the Continental Divide in Montana to northern Minnesota; also, from New York to South Carolina and north-eastward to New England. (Summary supplied by Environmental Data Service, ESSA).

HOUSEHOLDS AND STRUCTURES

BROWN-BANDED COCKROACH (Supella supellectilium) - CALIFORNIA - Medium in apartment house at Marysville, Yuba County; more numerous this fall than usual, probably due to continued warm weather. (Cal. Coop. Rpt.).

CIGARETTE BEETLE (Lasioderma serricorne) - ALABAMA - Annoying in several homes in Mobile and Madison Counties. (Watford, Hood).

A SOLDIER BEETLE (Chauliognathus sp.) - VIRGINIA - Larvae abundant and entering homes in Prince Edward and Westmoreland Counties. (Isakson et al.).

STORED PRODUCTS

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - MARYLAND - Building up in stored corn near Quantico, Wicomico County. (U. Md., Ent. Dept.).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Moth collections decreased; results of treatment evident in areas where regular applications made. With advent of seasonal rains and local frosts in some areas, growing plants reduced. Cotton harvest well underway in San Joaquin Valley. (Cal. Coop. Rpt.). NEW MEXICO - Boll checks at Las Cruces, Dona Ana County, reveal 75-80 percent of bolls infested with larvae. (Campbell). TEXAS - Lint cleaner inspections in Waco district indicate steady population buildup; commercial damage evident in El Paso area. Larvae per bale averaged 10 in Waco district, 12 in Pecos area, as shown by lint cleaner inspections. (PPC South. Reg., Oct. Rpt.). OKLAHOMA - Lint cleaner inspections positive in Beckham, Custer, Tillman and Okfuskee Counties. (Okla. Coop. Sur.). ARKANSAS - No positive specimens recovered from either gin trash or lint cleaner inspections. (Frazier).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Survey in El Paso area negative; infestations found in 4 Howard County fields and in several cotton stubble fields near Presidio. (PPC South. Reg., Oct. Rpt.).

BOLL WEEVIL COMPLEX (Anthonomus grandis complex) - ARIZONA - None observed in 1965-infested fields. CALIFORNIA - None taken from gin trash collections in Bard Valley. (PPC West. Reg., Oct. Rpt.).

A WHITE-FRINGED BEETLE (Graphognathus leucoloma striatus) - KENTUCKY - Collected at Hopkinsville, Christian County. New county record. Survey negative in McCracken and Graves Counties. (PPC Cent. Reg., Oct. Rpt.). SOUTH CAROLINA - Collected in Georgetown County. New county record. (PPC South. Reg., Oct. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Few larvae collected in carissa at Vero Beach, Indian River County, and in calamondin at St. Petersburg, Pinellas County. Adults trapped at Cortez, Manatee County; Lake Wales, Polk County; and Vero Beach. (Kendrick et al.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Small extensions detected in Alabama, Arkansas, Florida, Georgia, Mississippi, North Carolina and Texas. (PPC South. Reg., Oct. Rpt.).

GRASSHOPPERS - UTAH - Late-fall populations below normal in northern and central areas. (Knowlton).

HAWAII INSECT REPORT

Insects of Regional Significance - All stages of ORIENTAL FRUIT FLY (Dacus dorsalis) heavy in 0.25 acre of citrus in Wailuku, Maui. Nearly mature fruits 80 percent infested. (Takishita). All stages of MELON FLY (Dacus cucurbitae) light to medium in 1 acre of cucumbers in Hauula, Oahu. (Sato). An adult female GRASS-HOPPER (Schistocerca vaga) collected on island of Kauai, November 8, 1966, on bean plant in Eleele. This is second specimen caught on Kauai. (Au). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and LEAF MINER FLIES (Liriomyza spp.) medium to heavy on eggplant, beans, cucumber, and tomato throughout Waialua and Waianae, Oahu. Increased after heavy rains; wet fields hampered spray operations. (Yamamoto).

Beans - A PYRALID MOTH (Maruca testulalis) and BEAN BUTTERFLY (Lampides boeticus) larvae infesting hyacinth-bean and lima bean in Ewa, Oahu. (Hironaka, Funasaki).

Fruits - BARNACLE SCALE (Ceroplastes cirripediformis) continues heavy in 200 acres of passion-fruit at Kahului, Maui. (Miyahira). CARMINE SPIDER MITE (Tetranychus telarius) heavily damaged 3 acres of passion-fruit in Haiku, Maui. Dead vines evident. (Miyahira).

Ornamentals - COWPEA APHID (Aphis craccivora) heavy on nanea (Vigna marina), a beach legume, in Moloaa, Kauai. (Au).

Miscellaneous Pests - Continuous wet weather caused heavy activity by GIANT AFRICAN SNAIL (Achatina fulica) on Maui and Oahu. Large numbers reported in Hana, Wailuku and Kihei, on Maui. On Oahu, medium to heavy populations reported from windward area. Snails caused light damage in 0.50 acre of eggplant in Hauula, Oahu. (Miyahira, Funasaki, Sato).

INSECT DETECTION

New State Records

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Collected from alfalfa at Tobin, Kenosha County, November 15, 1966, by M. S. Conrad and O. L. Lovett. Det. R. E. Warner. (p. 1079).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Collected from citrus at San Diego, San Diego County, by J. H. Rosenberger November 9, 1966. Det. R. F. Wilkey. (p. 1081).

New County Records

BLUEGRASS BILLBUG (Sphenophorus parvulus) - NEBRASKA - Collected from bluegrass in Lincoln, Lancaster County, during summer. (p. 1079).

ALFALFA WEEVIL (Hypera postica) - MICHIGAN - Collected from alfalfa in Branch County, November 17, 1966. (p. 1079).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Collected on olive at Redding, Shasta County. (p. 1082).

A WHITE-FRINGED BEETLE (Graphognathus leucoloma striatus) - KENTUCKY - Collected at Hopkinsville, Christian County. SOUTH CAROLINA - Collected in Georgetown County. (p. 1084).

CORRECTIONS

CEIR 16(45):1052 - A BRUCHID (Bruchus astronotatus) should read "...at Kiolakaa, Kau District, about 30 miles from Hookena. (Davis)."

LIGHT TRAP COLLECTIONS

State	County	Locality	Date	Collector	Number of Traps	Number of Specimens	Number of Collections	Number of Species	Number of Genera	Number of Families	Number of Orders	Number of Classes	Number of Phyla
FLORIDA	Gainesville	11/15-17			13	7	2	17	2				
GEORGIA	Tifton	11/10-16	35-79	2.18	BL	20	5	50					
SOUTH CAROLINA	Charleston	11/7-13	49-84	None	BL	12	12	2					
TENNESSEE	Maury	11/1-7			11	3	12	1					
	Robertson	11/1-7			3	1	4	1					
	Cumberland	11/1-7			12	1	1	14					
TEXAS	Waco	11/12-18	55-86	Trace	BL	44	1	609	18	38	3		
	Brownsville	11/12-18			71	77	6	286	109	237	41		

Formosan Subterranean Termite

Guidelines for Survey

Background

Formosan subterranean termite, Coptotermes formosanus, was first found in continental United States July 1965 in a shipyard warehouse at Houston, Texas. An eradication treatment was applied against this infestation and it is believed that the pest had been eliminated. New infestations were found, however, in May and June 1966 in the port area of New Orleans and at Lake Charles, Louisiana. New infestations were found, also, in the Houston shipyard and in a shipyard at Galveston, Texas. Total sites known to be infested as of June 30 were as follows: New Orleans 16, Lake Charles area 6, Houston 2, and Galveston 1. Damage has been severe in many of the infested structures. The infestations in Lake Charles, Louisiana, area were found principally in dead trees and stumps in a swampy woodland estimated to cover 3,000 acres. Since three shipyards have been found infested and the focal point of the infestations in New Orleans centers on Camp Leroy Johnson, a World War II Transportation Corps installation near Lake Pontchartrain, it appears that the pest may have been introduced through marine equipment or cargo which had been infested and returned from overseas. Many of the buildings on this site have been dismantled and removed from the property.

Formosan subterranean termite has been known in China, Guam, Hawaii, Japan, Philippines, South Africa, and Taiwan for many years where its damage to various structures has been a serious problem. Introduced into Hawaii around 1900, it is one of the Islands' most serious pests, causing 2 to 3 million dollars damage annually in Honolulu alone.

Geographical extent of survey

The gulf coast, the west coast, the Atlantic coast to Philadelphia and the Mississippi River to Memphis. All other inland waterways receiving material or equipment from Asia or the known infested areas of Louisiana and Texas should receive attention; also, any site in the United States where material suspected to be harboring the termite has been received.

Survey through cooperator assistance

1. Contact commercial pest control operators, military pest control officers, county agents, and others involved with pest control. Examine any termite specimens on hand. Encourage them to submit specimens and to cooperate in the program.
2. Work closely with plant quarantine inspectors at ports and follow up leads supplied by them.
3. Contact power and telephone companies to determine if termite damage has been seen on poles. Severe damage to treated poles has been found in Louisiana.

Principal locations to be surveyed

1. Air and water ports, especially those serving countries or States infested with the termite. In or near loading areas, inspect piers, structures, pilings, logs, utility poles, and other timber in contact with the soil.
2. Military bases and business establishments receiving material from infested areas. Give attention to warehouses, storage areas, and dumps containing wooden debris.

3. Old military camps.
4. Wrecking company storage areas and lumber companies.
5. Any other location including private homes suspected of having a termite infestation.

Structures and materials to be inspected

Check all types of structures, piers, pilings, old boats and barges, posts, logs, utility poles and other timber in contact with soil. Give special attention to warehouses, storage areas, buildings under repair and dumps containing wooden debris.

What to look for

1. Watch for flights of the reproductives in the spring. There may be fall swarms in the warmer and more humid areas. Special attention should be given to picture windows in homes, service stations, street lights, and other well-lighted areas. Light traps may be useful for detection of the winged forms. Surveillance for winged forms is the most practical and economical method of survey for this pest.
2. Cobwebs, window sills and any other areas around lights that may collect debris should be closely examined for presence of winged forms or shed wings of termites. This is perhaps the best method to determine rapidly if there is a Formosan termite infestation in the area. Wings may not be evident several months after the flight season, however.
3. In structures check inside and out for tunneling that breaks through the wall surface. Also watch for clusters of tunnels on the walls, in and around door and window frames, and along adjoining areas of asbestos siding. Tap the walls, baseboards, floors, etc. A hollow sound or soft surface suggests an infestation. Check for tunnels and other evidence of infestation underneath structures.
4. On wood products or debris, tunnels or damage may or may not be evident; therefore it would be well to probe or to cut into interior of selected samples for evidence of infestation.

Instructions for inspection of special structures

1. Concrete slab construction
 - a. Check for evidence of attack at or near any plumbing through the slab. Entry around bathtub plumbing is common.
 - b. Look for earthen shelter tubes around baseboards.
 - c. Tap baseboards and around walls.
 - d. Check on side of foundation for earthen shelter tubes.
 - e. Check for wood that extends into or through the slab, such as door frames.
2. Structures on piers or other types of raised foundations
 - a. Check for earthen shelter tubes on the foundation and on ceilings and joists. Pay particular attention to areas where the soil is moist, in corners, and areas poorly ventilated. Hidden entrances through the bases of chimneys and through hollow brick foundations are common.

Submission of specimens

Examine all termite specimens collected. Sort out those suspected to be Coptotermes formosanus and send them in for determination. The key on pages 1091-1098 will aid in screening specimens. Winged forms or soldiers are needed for positive identification. Plant Pest Control Division employees should follow instructions in the survey manual for preparation and submission of specimens. If cooperators have a standard identification form available, this may be used to submit specimens. When forms are not available, send the following information with the specimens: State, county, city, name and address of property, type of property, degree of infestation, name and address of collector, date of collection. All specimens should be preserved in alcohol. Although 70 percent alcohol is preferred, common rubbing alcohol will suffice. Submit at least 10 specimens if available. Send suspect specimens to:

C. C. Fancher
Plant Pest Control Division
P. O. Box 989
Gulfport, Mississippi 39501

(Compiled in Survey and Detection from information supplied by PPC Southern Region personnel and U. S. Forest Service.)



Soldiers and workers. The two soldiers locking pinchers is a common occurrence. (Photo by A. A. LaPlante, Hawaii Ext. Serv.).

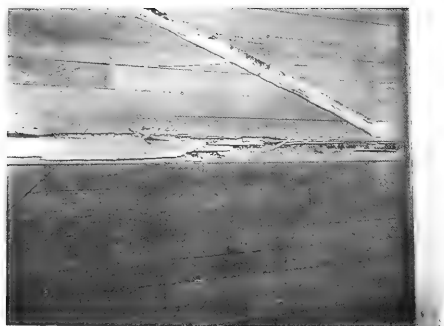
DAMAGE BY FORMOSAN SUBTERRANEAN TERMITE



Note tunnels around
window frame



Damage to floor and
base of cabinet



Damage to flooring



Damage to structural timbers
(Wallboard removed to expose damage)

Key to Eight Termite Genera

Kalotermes; Incisitermes, Cryptotermes, Zootermopsis,
Heterotermes, Reticulitermes, Coptotermes, and Amitermes

Kumar Krishna

Department of Entomology

American Museum of Natural History

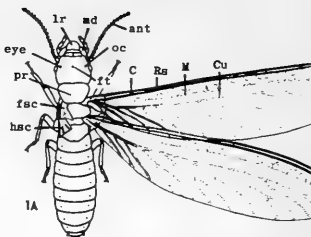
New York

The following keys have been prepared as aids for recognition of Coptotermes formosanus Shiraki. This species will key out to Coptotermes while all other indigenous or already established species known to occur in the United States will key out to one or another of the seven remaining genera. Separate illustrated keys are provided for the imago and soldier castes. No key is provided for workers, as members of this caste are difficult to identify generically; however, as the mandible dentition of workers is almost the same as that of the imagoes, this character can, in some cases, be used to identify subfamilies and genera. The dentition characters noted in the Key Based on the Imago Caste (See Figs. 3A-H) may, therefore, be helpful but must be used with caution as dentition in the imago castes of several genera is nearly identical.

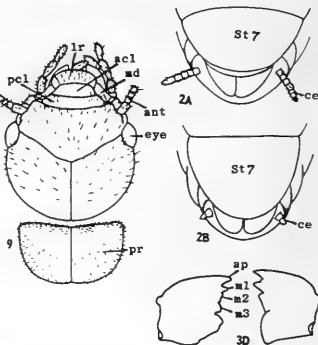
Key Based on the Imago Caste

Note: Mandibles must be exposed for examination.

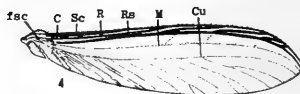
1. Ocelli (oc) present, antennae less than 24 joints (Fig. 1A); cerci (ce) two-jointed (Fig. 2B).....2



- Ocelli absent, antennae 24-jointed (Fig. 9); cerci (ce) four-eight jointed (Fig. 2A); mandible dentition as in (Fig. 3D).....Zootermopsis



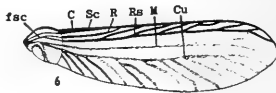
2. Forewing radial sector vein (Rs) with branches (Figs. 4, 5, 6).....3



- Forewing radial sector vein (Rs) without branches (Fig. 1B).....5



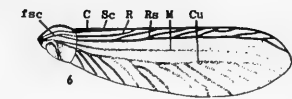
3. Forewing median vein (M) joining radial sector (Rs) (Fig. 5); mandible dentition as in (Fig. 3C).....Cryptotermes



- Forewing median vein (M) running between radial sector (Rs) and cubitus (Cu), not joining radial sector.....4



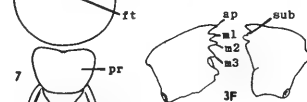
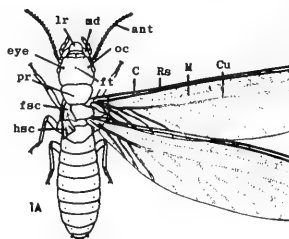
4. Forewing broad between radial sector (Rs) and costa (C) (Fig. 6); left mandible with posterior margin of first marginal tooth (m_1) equal to anterior margin of second marginal tooth (m_2) (Fig. 3A).....Kalotermes



- Forewing narrow between radial sector (Rs) and costa (C) (Fig. 4); left mandible with posterior margin of first marginal tooth (m_1) shorter than anterior margin of second marginal tooth (m_2) (Fig. 3B).....Incisitermes



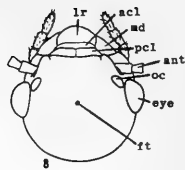
5. Left mandible with three marginal teeth (m_1 , m_2 , m_3), right mandible with subsidiary tooth (sub) (Figs. 3E, 3F, 3G); forewing scale (fsc) large and partially covering hind wing scale (hsc) (Figs. 1A, 7).....6



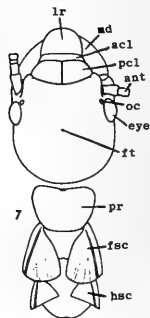
- Left mandible with two marginal teeth (m_1 , m_2), right mandible without subsidiary tooth (Fig. 3H); forewing scale small and not overlapping hind wing scale.....Amitermes



6. Head round, ocelli (oc) large and well developed (Fig. 8); wing membrane with many minute hairs.....
Coptotermes



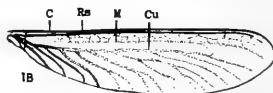
- Sides of head parallel, ocelli (oc) small (Fig. 7); wing membrane without hairs.....7



7. Anterior costal margin (C) of forewing with definite row of small, fine hairs; second marginal tooth (m_2) of left mandible distinctly longer than first marginal tooth (m_1) (Fig. 3E).....
Heterotermes



- Anterior costal margin (C) of forewing with sparse or no hairs (Fig. 1B); second marginal tooth (m_2) of left mandible about same length as first marginal tooth (m_1) (Fig. 3F).....
Reticulitermes



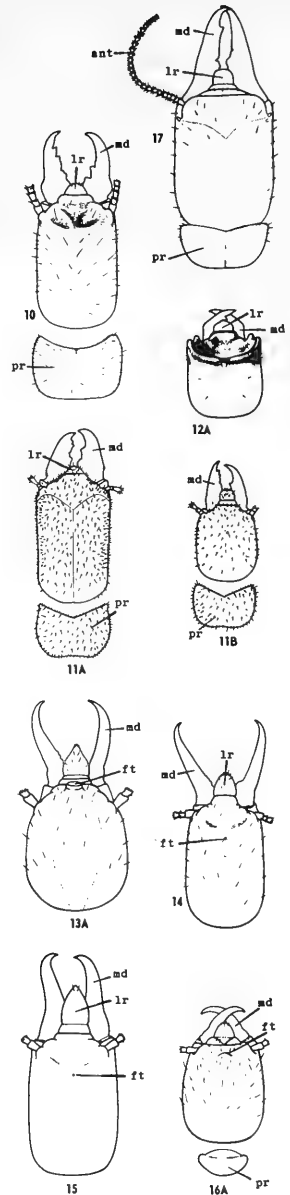
Key Based on the Soldier Caste

1. Antennae with at least 23 joints (Fig. 17);
 cerci long and four-five jointed.....
Zootermopsis
 Antennae with fewer than 23 joints; cerci short
 and two-jointed.....2

2. Head short, truncated in front, mandibles com-
 paratively short (Fig. 12A).....
Cryptotermes
 Head long and narrow, not truncated in front...
3

3. Head without a fontanelle (Figs. 10, 11A, 11B)
4
 Head with a fontanelle (ft) (Figs. 13A, 14, 15,
 16A).....5

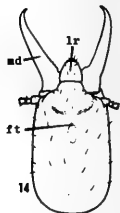
4. Pronotum (pr) with anterior margin deeply
 incised and angular (Figs. 11A, 11B).....
Incisitermes
 Pronotum (pr) with anterior margin concave
 (Fig. 10).....
Kaloterme



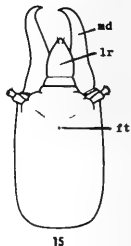
5. Fontanelle (ft) large and tubular (Fig. 13A).....Coptotermes
 Fontanelle (ft) not large and tubular, some-
 times very small, circular, and distinct.....6



6. Head long and narrow, mandibles (md) without
 prominent tooth, basal inner margin of left
 mandible with serrations, fontanelle (ft) small
 and circular, pronotum flat (Figs. 14, 15).....7



7. Mandibles (md) long, slender, and curved slight-
 ly inward at tips (Fig. 14).....Heterotermes
 Mandibles (md) short, thick, and hooked at tips
 (Fig. 15).....Reticulitermes



Abbreviations Used in Figures

acl -- anteclypeus	m ₂ -- second marginal tooth
ant -- antennae	m ₃ -- third marginal tooth
ap -- apical tooth	md -- mandible
C -- costa vein or costal margin	oc -- ocellus
ce -- cerci	pcl -- postclypeus
Cu -- cubitus vein	pr -- pronotum
fsc -- forewing scale	R -- radius vein
ft -- fontanelle	Rc -- radial sector vein
hsc -- hind wing scale	Sc -- subcosta vein
lr -- labrum	St -- sternite
M -- median vein	sub -- subsidiary tooth
m ₁ -- first marginal tooth	t -- tooth

Captions for Figures

- Fig. 1A. Imago of Reticulitermes flavipes (Kollar) with wings spread out (dorsal view). B. Forewing of same species.
- Fig. 2A. Ventral tip of abdomen of female of Zootermopsis nevadensis (Hagen), showing five-jointed cerci. B. Ventral tip of abdomen of female of Kalotermes approximatus Snyder, showing two-jointed cerci.
- Fig. 3. Imago mandibles of A. Kalotermes flavicollis (Fabricius)
B. Incisitermes schwarzi (Banks)
C. Cryptotermes cavifrons Banks
D. Zootermopsis angusticollis (Hagen)
E. Heterotermes aureus (Snyder)
F. Reticulitermes flavipes (Kollar)
G. Coptotermes formosanus Shiraki
H. Amitermes wheeleri (Desneux)
- Fig. 4. Forewing of Incisitermes schwarzi (Banks).
- Fig. 5. Forewing of Cryptotermes cavifrons Banks.
- Fig. 6. Forewing of Kalotermes approximatus Snyder.
- Fig. 7. Head and thorax of imago of Heterotermes aureus (Snyder) (dorsal view).
- Fig. 8. Head of imago of Coptotermes formosanus Shiraki (dorsal view).
- Fig. 9. Head of imago of Zootermopsis angusticollis (Hagen) (dorsal view).
- Fig. 10. Head of soldier of Kalotermes approximatus Snyder (dorsal view).
- Fig. 11A. Head and pronotum of large soldier of Incisitermes schwarzi (Banks) (dorsal view). B. Head and pronotum of small soldier of Incisitermes schwarzi (Banks) (dorsal view).
- Fig. 12. Head of soldier of Cryptotermes cavifrons Banks. A. Dorsal view.
B. Side view.
- Fig. 13. Head of soldier of Coptotermes formosanus Shiraki. A. Dorsal view.
B. Side view.

- Fig. 14. Head of soldier of Heterotermes aureus (Snyder) (dorsal view).
- Fig. 15. Head of soldier of Reticulitermes flavipes (Kollar) (dorsal view).
- Fig. 16. Soldier of Amitermes wheeleri (Desneux). A. Head and pronotum (dorsal view). B. Head (side view). C. Mandibles.
- Fig. 17. Head and pronotum of soldier of Zootermopsis nevadensis (Hagen) (dorsal view).



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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Washington, D. C. 20250

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

SPOTTED ALFALFA APHID heavy on alfalfa in two southwest Oklahoma counties; light in New Mexico and decreasing in Arizona. (p. 1101).

TURNIP APHID is damaging turnips in east central Mississippi; light in central Alabama. (p. 1102). CABBAGE LOOPER increasing on lettuce in Yuma and Maricopa Counties, Arizona. (p. 1102).

Heavy infestations of WOOLLY WHITEFLY observed in San Diego, California. (p. 1102). CITRUS WHITEFLY continues to be collected in Sacramento area, California; approximately 220 city blocks infested in San Diego. (p. 1105). Single specimen of ORIENTAL FRUIT FLY collected in Orange County, California; this second collection this year. (p. 1105).

First collection of PINK BOLLWORM from okra in Arizona. (p. 1105). WHITE GARDEN SNAIL leaving aestivation in Los Angeles, California. (p. 1107).

Detection

New State records include a LONG-HORNED BEETLE in Florida, an ERIOPHYID MITE in Illinois and two WEEVILS in Maine. (p. 1103).

For new county records see page 1106.

First Occurrences of Season

BROWN WHEAT MITE in Oklahoma. (p. 1101)..

COTTON LEAFWORM in Arizona. (p. 1102).

Special Reports

Distribution of Mexican Bean Beetle (Map). (p. 1109).

Black Stem Rust Quarantine (Map). See centerfold.

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

CONTENTS

Special Insects of Regional Significance.....	1101
Insects Affecting	
Corn, Sorghum, Sugarcane.....	1101
Small Grains.....	1101
Turf, Pastures, Rangeland.....	1101
Forage Legumes.....	1101
Cotton.....	1102
Sugarbeets.....	1102
Cole Crops.....	1102
General Vegetables.....	1102
Deciduous Fruits and Nuts.....	1102
Citrus.....	1102
Ornamentals.....	1103
Forest and Shade Trees.....	1103
Man and Animals.....	1104
Stored Products.....	1105
Federal and State Plant Protection Programs.....	1105
Insect Detection.....	1106
Corrections.....	1106
Hawaii Insect Report.....	1107
Light Trap Collections.....	1108
Distribution of Mexican Bean Beetle (Map).....	1109
Black Stem Rust Quarantine (Map) - See centerfold.	

WEATHER OF THE WEEK ENDING NOVEMBER 28, 1966

HIGHLIGHTS: Heavy snow fell in the Great Lakes area while dry weather continued over most of the West. The week was unusually warm in the Central States.

PRECIPITATION: Moderate rains fell west of the Cascades in Washington, along the Oregon coast, and in northern California. A storm developed in the central Great Plains at midweek and in the next several days produced precipitation over the eastern half of the United States. Amounts were fairly generous from Arkansas to the Great Lakes, but light along the gulf and Atlantic coasts. Snow fell above 3,000 feet in northern California and above 5,000 feet in the central Sierras. The heaviest snow - up to 15 inches locally in Michigan - fell in the Great Lakes area. Parts of Pennsylvania and New York received 5-6 inches. Lighter amounts were general in parts of West Virginia and Virginia, with flurries in eastern Tennessee and western North Carolina. Dry weather continued from Nevada and southern California to the western Great Plains. An exception was Reno, Nevada, where about 0.3 inch of rain fell during the week - the heaviest rain in the area in almost a year. Wichita, Kansas, meanwhile, received only a light sprinkle. Wichita has had less than 12 inches of rain since January 1, 1966 - far less than in any previous year of record and less than 40 percent of normal.

Weather continued on page 1107.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - SOUTH CAROLINA - Heavy population destroyed 30 acres of fall-planted beans in Orangeburg County. (Nettles et al., Nov. 15).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Averaged 200 per 10 sweeps on alfalfa in Payne County. Ranged 110-150 per square foot in Kiowa and Greer Counties. (Okla. Coop. Sur.). NEW MEXICO - Light in alfalfa near Albuquerque, Bernalillo County. (Heninger). ARIZONA - Populations unchanged in Yuma County; continue to decrease in alfalfa in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEW MEXICO - Remains moderately heavy, 100 per 25 sweeps, on barley in southern Dona Ana County. (Elson).

GREENBUG (*Schizaphis graminum*) - OKLAHOMA - Ranged 1-4 per linear foot on wheat in Tillman, Kiowa, Payne and Lincoln Counties. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - NEW MEXICO - Moderately heavy on corn in Portales area, Roosevelt County. (Mathews).

SMALL GRAINS

BROWN WHEAT MITE (*Petrobia latens*) - OKLAHOMA - Ranged 75-100 per linear foot on wheat in 2 fields in Grandfield area, Tillman County. First report of season. (Okla. Coop. Sur.).

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Ranged 200-250 per linear foot on wheat in Tillman County, 20-40 in Kiowa County. (Okla. Coop. Sur.).

A SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) - NEW MEXICO - Averaged 6 per 25 sweeps in barley in southern Dona Ana County. (Elson).

TURF, PASTURES, RANGELAND

MOLE CRICKETS - SOUTH CAROLINA - Completely destroyed stand of rye planted for grazing in Colleton County. (Nettles et al., Nov. 15).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - INDIANA - Adult night sampling counts per 100 sweeps in the Ohio River flood plain area of Harrison County as follows: September 28 - trace numbers; October 12 - 92; October 26 - 48; November 9 - 128. Surveys in Clinton, Tipton, Howard, Carroll and White Counties, negative. (Hintz, Huber). MISSISSIPPI - Averaged 1-2 larvae per square foot in Pontotoc County alfalfa. Not increasing as expected. (Dinkins, Nov. 23).

A SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) - NEW MEXICO - Averaged 6 per 25 sweeps in alfalfa near Las Cruces, Dona Ana County. (Elson).

FALL ARMYWORM (*Spodoptera frugiperda*) - ARIZONA - New hatch resulted in heavy populations on alfalfa in Gila Valley, Yuma County; damage light to moderate. (Ariz. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Light in alfalfa in southern Dona Ana County. (Elson).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Averaged 90 per 100 sweeps on alfalfa in Payne County and 3 per square foot in Greer County. (Okla. Coop. Sur.). NEW MEXICO - Light on alfalfa in Albuquerque area, Bernalillo County, and Portales area of Roosevelt County. Light to moderate near Las Cruces, Dona Ana County and in fields near Roswell, Chaves County. (Heninger, et al.).

COTTON

COTTON LEAFWORM (Alabama argillacea) - ARIZONA - Light on cotton in Solomon area of Graham County. First report of season. (Ariz. Coop. Sur.).

SUGAR BEETS

BET ARMYWORM (Spodoptera exigua) - ARIZONA - New infestations appearing on sugarbeets in Chandler and Mesa areas of Maricopa County. (Ariz. Coop. Sur.).

COLE CROPS

TURNIP APHID (Hyadaphis pseudobrassicae) - MISSISSIPPI - Heavy and severely damaging leaves of turnips in Oktibbeha County. (Dinkins, Nov. 23). ALABAMA - Light on turnips and mustard in central area. (McQueen).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Increased in lettuce fields of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Moderate adult flights detected in vegetable and melon areas of Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

A THRIPS (Frankliniella sp.) - NEW MEXICO - Light on onions in Mesquite area of Dona Ana County. (Elson).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - ALABAMA - Full-grown larvae observed emerging from pecans on ground to enter soil for pupation in Lee and Barbour Counties. (Bagby).

TWIG GIRDLER (Oncideres cingulata) - ALABAMA - Light to medium on several pecan trees in Tallapoosa and Lee Counties. Limbs 24-48 inches long have fallen, following girdling and egg laying by adults. (Barwood).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Larval feeding caused heavy gum masses at and below ground line on numerous isolated and untreated peach trees in Lee County. (McQueen).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW JERSEY - Collected from apple June 6 in Hunterdon County, June 7 in Mercer County and June 2 in Warren County by W. R. Straley. Det. by D. R. Smith. These are new county records. (PPC).

CITRUS

WOOLLY WHITEFLY (Aleurothrix floccosus) - CALIFORNIA - Additional heavy infestations observed in San Diego, San Diego County, where pest first detected November 9, 1966. Considerable smut fungus evident on leaves. Pest not known to occur elsewhere in State. (Cal. Coop. Rpt.). See CEIR 16(47):1081.

ORNAMENTALS

A LONG-HORNED BEETLE (Moneilema armata) - FLORIDA - Adults collected from a cactus (Homalocephala texensis) at nursery in Fannin Springs, Gilchrist County. Det. R. E. Woodruff. (Graham). This first record of genus east of Mississippi River. Subsequent inspection revealed several plants of same species with damage; cactus imported from out of State in January 1966. (Fla. Coop. Sur., Nov. 23).

PINE BARK APHID (Pineus strobi) - MARYLAND - Heavy on several young ornamental pines at Snow Hill, Worcester County. (U. Md., Ent. Dept.).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy and damaging various ornamentals in nurseries and yards in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

AZALEA LACE BUG (Stephanitis pyrioides) - FLORIDA - Nymphs and adults infesting over 1,000 azalea plants at Fairville, Orange County; still present after 2 control applications. (Ware, Nov. 17).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - All stages moderate to severe on stems of 10 of 16 Chinese Ligustrum in nursery at Eau Gallie, Brevard County. Scale also infesting pokeweed in Madison County. Pokeweed is new host record. (Lovan, Van Duhn, Nov. 15).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - CALIFORNIA - Locally heavy in hollyleaf cherry at Los Altos, Santa Clara County. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - SOUTH CAROLINA - Very heavy infestation observed at Greenwood. This farther south than heavy infestations usually occur in State. (Nettles et al., Nov. 11).

A SCIARID MIDGE (Sciara sp.) - CALIFORNIA - Larvae heavy in stems of 1,000 pointsettia plants at nursery in Palo Alto, Santa Clara County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Nalepella halourga) - ILLINOIS - Damaging Black Hills spruce (Picea glauca) at nursery in De Kalb County. Collected by F. Dodd, October 31, 1966. Det. by H. H. Keifer. New State record. (Stannard).

FOREST AND SHADE TREES

AN OLETHREUTID MOTH (Rhyacionia sp.) - FLORIDA - Larvae severely infesting stems of 1,400 pine trees at Dade City, Pasco County. (Williams, Nov. 8).

A BARK BEETLE (Phloeosinus sp.) - CALIFORNIA - Locally heavy in Arizona cypress trees at Dos Palos, Merced County; increasing in northern areas. (Cal. Coop. Rpt.).

Bronze Birch Borer (Agrilus anxius) - MINNESOTA - Survey of birch trees continued. One field of native trees condemned out of two inspected; approximately 40 trees condemned in 10 nurseries inspected. (Minn. Ins. Rpt., Nov. 18).

A WEEVIL (Conotrachelus recessus) - MAINE - Collected from spruce at Sandy Bay near Rangeley, Franklin County, August 13, 1960, by A. E. Brower. Det. R. E. Warner. New State record. (PPC).

A WEEVIL (Homorus undulatus) - MAINE - Taken from Betula papyrifera (paper birch) log at Strong, Franklin County, July 10, 1947, by A. E. Brower. Det. R. E. Warner. New State record. (PPC).

AN APHID (Myzocallis platani) - CALIFORNIA - Medium on elm trees in William Land Park, Sacramento, Sacramento County. Warm fall extended season. (Cal. Coop. Rpt.).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy on English-laurel trees in Sacramento, Sacramento County. Noticeable buildup observed in area this year on shade trees and other hosts. (Cal. Coop. Rpt.).

MAN AND ANIMALS

CATTLE BITING LOUSE (Bovicola bovis) - ALABAMA - This and short-nosed cattle louse irritating cattle in Lee and other central counties. (McQueen).

LESSER MEALWORM (Alphitobius diaperinus) - ARKANSAS - Collected from litter in 98 poultry houses surveyed throughout State. Larger numbers of adults and larvae found in older litter. (Simco, Lancaster).

A STRATIOMYID FLY (Stratiomys laticeps) - ARKANSAS - Larvae continue to cause droppings to liquefy in poultry houses in southwest area; also developing in northwest area. (Simco).

A MOSQUITO (Culiseta inornata) - OKLAHOMA - Adults annoying in local areas of Stillwater, Payne County. (Okla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - OKLAHOMA - Heavy on small flock of sheep in Payne County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Average 5-10 per animal in Oktibbeha and Loundes Counties. (Dinkins). OKLAHOMA - Ranged 5-10 per head on cattle in Payne and Major Counties. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Up to 5 per head on cattle in Payne County. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Larvae up to 5 per head in cattle in Payne County. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 62 cases reported in U. S. November 20-26 as follows: TEXAS - Dimmit 2, Jim Hogg 2, Webb 7, Zavala 1, Presidio 7, Ward 1, Maverick 2, Bexar 1, La Salle 2, McMullen 1, Atascosa 1, Duval 1, Kinney 1, Starr 2, Hidalgo 1, Val Verde 1. ARIZONA - Pinal 4, Maricopa 10, Yavapai 2, Yuma 6, Gila 3. CALIFORNIA - Imperial 4. Total of 259 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 7, Sonora 115, Chihuahua 46, Coahuila 54, Nuevo Leon 25, Tamaulipas 12. Total of 299 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 39,814,250, Arizona 10,264,000, California 3,416,000, Mexico 49,480,000. (Anim. Health Div.).



Restrictions are imposed on the interstate movement of regulated articles as follows:

1. Berberis, Mahoberberis and Mahonia Plants:

- a. Rust-susceptible plants--movement prohibited.
- b. Rust-resistant plants--movement allowed under certificate or from nurseries on approved list without certificate.

2. Seeds and Fruits of Berberis and Mahoberberis Plants:

- a. Between white or from shaded into white-- no restrictions.
- b. From white into shaded--movement prohibited.
- c. Between shaded--movement allowed under permit.

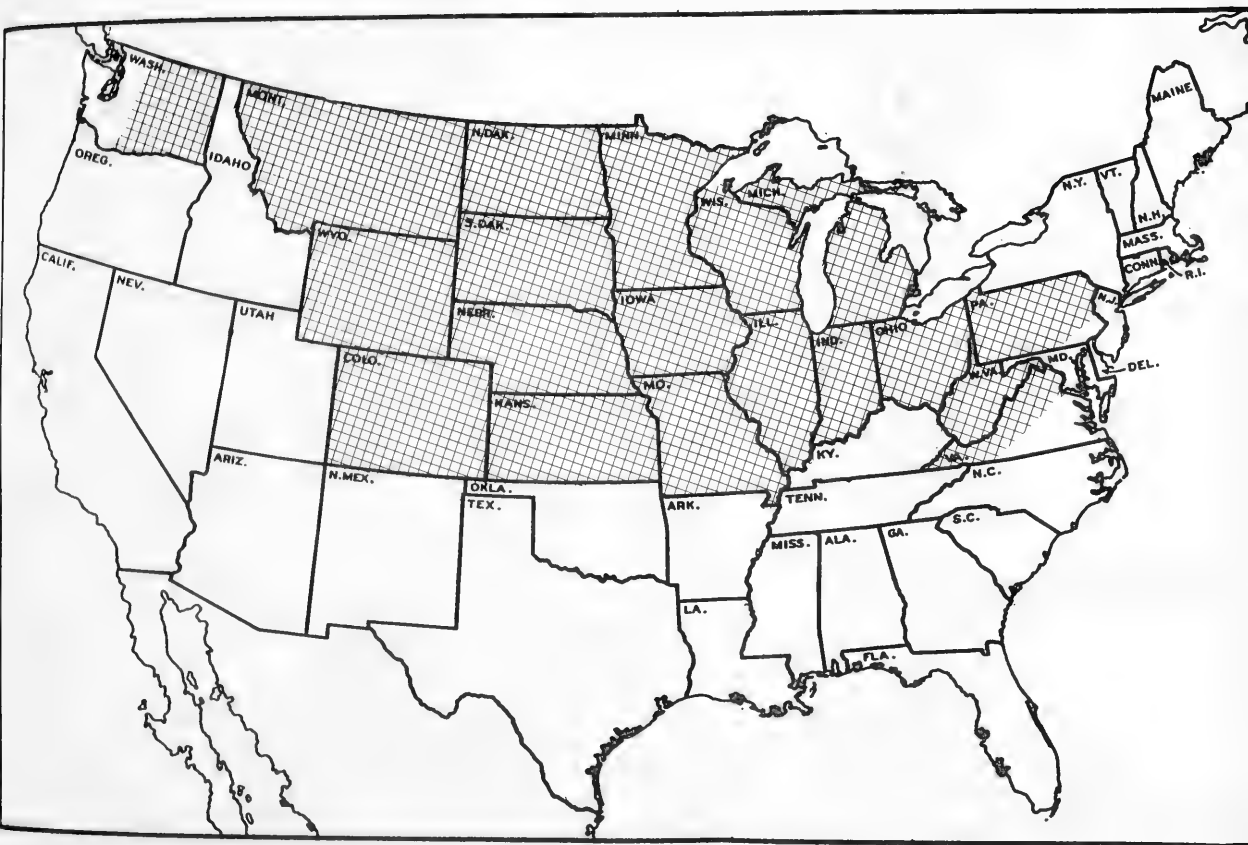
3. Seeds and Fruits of Mahonia Plants:

- a. Between white or from shaded into white--no restrictions.
- b. From white to shaded or between shaded--movement allowed under permit.

Consult your State or Federal plant pest control inspector or county agent for assistance regarding exact boundaries of eradication areas and quarantine regulations affecting the movement of regulated articles.

BLACK STEM RUST QUARANTINE

Regulations apply to all States; Areas shaded are designated as eradication areas.



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Consult your State or Federal plant pest control inspector or county agent for assistance regarding exact boundaries of eradication areas and quarantine regulations affecting the movement of regulated articles.

U. S. Department of Agriculture
Agricultural Research Service
Plant Pest Control Division
Cooperating with affected States

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STORED PRODUCTS

FLOUR BEETLES (Tribolium spp.) - ARIZONA - T. confusum and T. castaneum heavy and damaging stored wheat in Wellton area, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - T. confusum light in sacked feed at Portales, Roosevelt County. (Mathews).

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Light to heavy in sacked feed at Portales, Roosevelt County. (Mathews).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Larvae and adults continue to be collected in desert cotton areas. Considerable reduction in moth collections after chemical treatments began. No confirmed larvae taken in Los Angeles, Kern, Inyo County areas; crop being harvested with early shredding and plow-up planned. Plow-up dates for desert areas set for January 1, 1967, with host-free period to March 1, 1967. In 1968, plow-up date scheduled for December 15. (Cal. Coop. Rpt.). ARIZONA - Collected from cotton near Camp Verde, Yavapai County, October 26, 1966. Det. by H. H. Blakemore and D. M. Weisman. This is new county record. (Fullerton). Moderate to heavy on okra in Maricopa County. This is first infestation of okra by pink bollworm in State. (Ariz. Coop. Sur.). OKLAHOMA - Lint cleaner inspections positive in Cotton, Tillman, Jefferson, Stephens, Canadian, and McIntosh Counties. No unusually high counts found; gin trash inspections per 100 bushels show 26 in Hughes, 35 in Jefferson, 52 in Love and 11 in Stephens Counties. (Okla. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey in Sacramento area, continues to reveal live specimens. Treatment scheduled for later in season. Approximately 220 city blocks now detected in San Diego; eradication treatment scheduled for early December. Local frosts predicted in most areas of State following 2 weeks of heavy rain. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Few larvae collected from carissa fruit, at Vero Beach, Indian River County; also collected from 60 percent of fruit on 10 navel orange trees in backyard at Belle Glade, Palm Beach County. Adults collected as follows: 2 females at Belle Glade; 1 female at Sarasota, Sarasota County and 2 females at La Belle, Hendry County. (Fla. Coop. Sur., Nov. 23).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Single male fly collected near Buena Park, Orange County, November 2 by C. Johnson. Det. by M. Wasbauer. Only other occurrence this year was single male taken in Los Angeles harbor area. (Cal. Coop. Rpt.).

WHITE GARDEN SNAIL (Theba pisana) - CALIFORNIA - Locally heavy in Manhattan Beach, Los Angeles County. Beginning to leave aestivation and start feeding. Baiting now in progress for pest; infestation now includes 8 city blocks. (Cal. Coop. Rpt.).

INSECT DETECTION

New State Records

A LONG-HORNED BEETLE (Moneilema armata) - FLORIDA - Collected from cactus at Fannin Springs, Gilchrist County. Det. R. E. Woodruff. (p. 1103).

AN ERIOPHYID MITE (Nalepella halourga) - ILLINOIS - Collected from spruce in De Kalb County, by F. Dodd, October 31, 1966. Det. H. H. Keifer. (p. 1103).

A WEEVIL (Conotrachelus recessus) - MAINE - Collected from spruce at Sandy Bay, Franklip County, August 13, 1960, by A. E. Brower. Det. R. E. Warner. (p. 1103).

A WEEVIL (Homorus undulatus) - MAINE - Collected from birch at Strong, Franklin County, July 10, 1947, by A. E. Brower. Det. R. E. Warner. (p. 1103).

New county records

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW JERSEY - Collected from apple during June in Hunterdon, Mercer and Warren Counties, by W. R. Straley. Det. D. R. Smith. (p. 1102).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Collected from cotton near Camp Verde, Yavapai County, October 26, 1966. Det. H. H. Blakemore and D. M. Weisman. (p. 1105).

CORRECTIONS

CEIR 14(44):1038 - SPOTTED ALFALFA APHID (Therioaphis maculata) map. Delete shaded area in Pennsylvania.

HAWAII INSECT REPORT

Insects of Regional Significance - Two adult females of a GRASSHOPPER (Schistocerca vaga) collected on Kauai; to date, total of 4 females collected on island, 2 in Elele and one each in Kalaheo and Kekaha. (Au). Surveys indicate populations of SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) at very low levels on Oahu. No significant infestations noted on crops and preferred weed hosts. Trace numbers of nymphs and adults observed on snap beans in Hakipu and on yard-long beans in Waimanalo. Caused 35 percent damage to mature macadamia nuts in small planting at Haiku, Maui. (Sato et al.). Survey made after recent heavy rains in Ewa, Oahu, to determine status of a GRASSHOPPER (Trimerotropis pallidipennis). None observed in area, including site of original infestation. (Funasaki et al.). Larvae and adults of LEAF MINER FLIES (Liriomyza spp.) heavy in 0.25 acre of snap beans and cucumbers in Hanapepe Valley, Kauai; damage serious on 60-70 percent of leaves. (Au). Nymphs and adults of a PLATASPID BUG (Coptosoma xanthogramma) light on maunaloa (Canvalia cathartica) in Waimanalo, Oahu. Not previously recorded in this area. (Funasaki).

Turf - LAWN ARMYWORM (Spodoptera mauritia acronyctoides) heavily damaging 1.5 acres of Bermuda grass bordering landing strips at Lihue Airport, Kauai. This is most extensive damage ever recorded on this island. (Au).

General Vegetables - COWPEA APHID (Aphis craccivora) light to medium on yard-long beans in Waimanalo, Oahu. (Funasaki). BEEF ARMYWORM (Spodoptera exigua) larvae medium, caused 50 percent damage to green onions in Koko Head area, Oahu; averaged one per 2 leaves. (Funasaki).

Man and Animals - Total of 2,145 Aedes vexans nocturnus and 5,571 Culex pipiens quinquefasciatus taken in light traps operated by Mosquito Control Branch, Department of Health, on Oahu during October. (Haw. Ins. Rpt.).

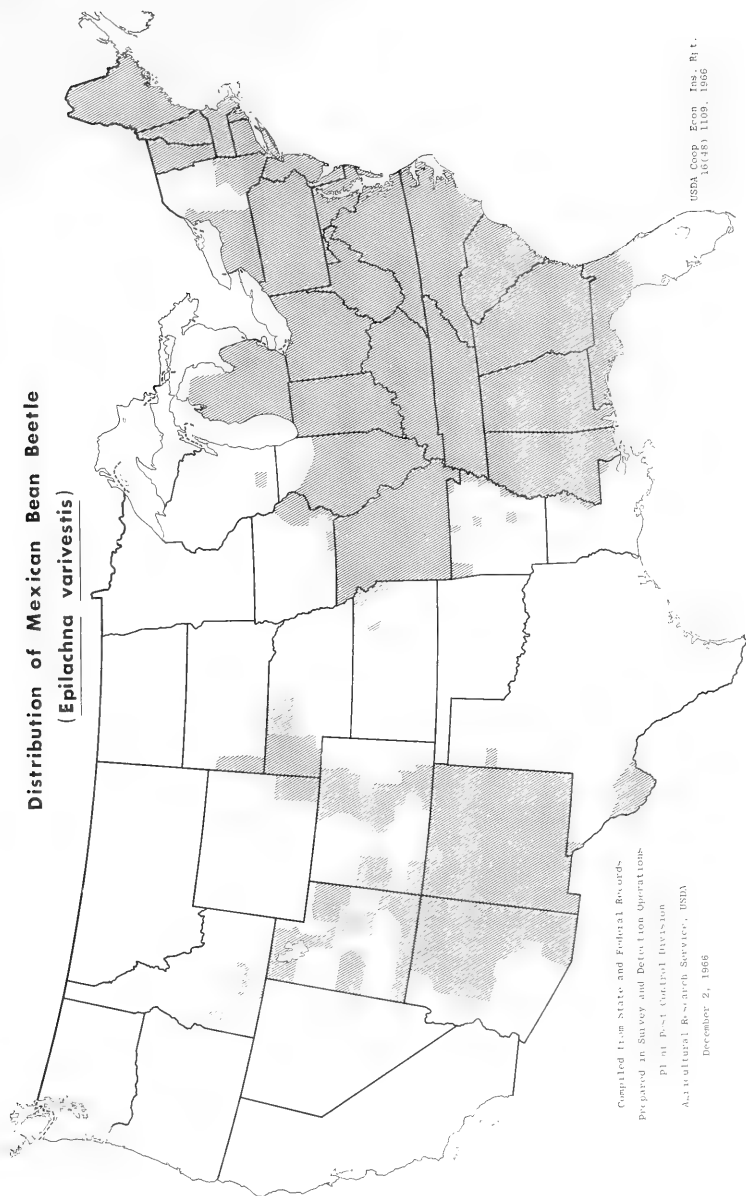
Miscellaneous Insects - Heavy outbreak of a NOCTUID MOTH (Achaea janata) occurred in Honolulu, Oahu. Larvae migrated from weeds to residential areas, causing concern to residents. (Funasaki, Jackson). A female SPHINX MOTH (Tinostoma smaragdita) collected in building at Kokee, Kauai, November 3, 1966, at 4,000 feet elevation. This is fourth specimen collected in State. The last specimen was collected in July, 1962. (Au).

Weather continued from page 1100.

TEMPERATURE: Unseasonably mild weather continued from Washington to Arizona and eastward to the Appalachians. Much of mid-America from Texas to the Great Lakes averaged 12° to 20° above normal. It turned colder in the Central States over the weekend, but in the East mild weather continued until Monday, when blustery, northerly winds brought a wintry chill to the gulf and Atlantic coasts.

AIR POLLUTION: Air pollution reached dangerous levels in New York City and other urban areas as stagnant air blanketed the Northeast. The condition remained serious for several days, but decreased in severity over the weekend. (Summary supplied by Environmental Data Service, ESSA).

Distribution of Mexican Bean Beetle
(Epilachna varivestis)



Compiled from State and Federal Records
Prepared in Survey and Detection Operations
PL of Pest Control Division
Agricultural Research Service, USDA
December 2, 1966

USDA Coop. Econ. Infs. Rpt.
16(45) 1109, 1966



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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

All correspondence pertaining to additions, deletions and changes of addresses for the mailing list for this report should be sent to:

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United States Department of Agriculture
Washington, D. C. 20250

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

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

Large numbers of ARMYWORM adults present in southern Oklahoma. (p. 1113).

ALFALFA WEEVIL egg laying underway in Arkansas, up to 70 eggs per square foot or 3 million per acre in Mississippi County. Increasing in Pontotoc County, Mississippi. (p. 1114).

PINK BOLLWORM detected on okra in Southwest; very heavy on cotton in Pecos, Reeves, El Paso and Hudspeth Counties, Texas. (p. 1117).

Detection

An ERIOPHYID MITE new to Hawaii. (p. 1119).

For new county records see page 1120.

Prediction

Existing conditions are indicative of tremendous potential threat of PINK BOLLWORM to 1967 cotton crop in western Texas. (p. 1117).

Special Reports

Important Insects and Snails Most Frequently Intercepted at United States Ports of Entry in Fiscal Year 1965. (p. 1121).

Distribution of Cattle Grubs (Map). (p. 1129).

Reports in this issue are for week ending December 2 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	1113
Insects Affecting	
Corn, Sorghum, Sugarcane.....	1113
Small Grains.....	1113
Turf, Pastures, Rangeland.....	1114
Forage Legumes.....	1114
General Vegetables.....	1114
Deciduous Fruits and Nuts.....	1115
Citrus.....	1115
Ornamentals.....	1115
Forest and Shade Trees.....	1115
Man and Animals.....	1116
Households and Structures.....	1117
Stored Products.....	1117
Beneficial Insects.....	1117
Federal and State Plant Protection Programs.....	1117
Hawaii Insect Report.....	1119
Light Trap Collections.....	1120
Insect Detection.....	1120
Corrections.....	1120
Important Insects and Snails Most Frequently Intercepted at United States Ports of Entry in Fiscal Year 1965.....	1121
Distribution of CATTLE GRUBS (Map).....	1129

WEATHER BUREAU'S 30-DAY OUTLOOK

DECEMBER 1966

The Weather Bureau's 30-day outlook for December calls for temperatures to average below seasonal normals over the eastern half of the Nation. Above normal averages are indicated for areas west of the Continental Divide while near normal temperatures are expected in unspecified areas. Precipitation is expected to exceed normal over New England as well as the Pacific Northwest. Subnormal totals are called for over the Southwest and also over eastern portions of the Great Plains, the Mississippi Valley, and the East Gulf Coast Region. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 1118.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - OKLAHOMA - Large numbers of adults present in many areas in southern half of State. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - VIRGINIA - Several barley and oat fields infested in Mathews County; farmers considering control treatment. (Dinwiddie). SOUTH DAKOTA - Approximately 50 percent of specimens collected during October from volunteer oats at Bruce, Brookings County, infested with barley yellow dwarf virus. (Jones). KANSAS - Light, 1-3 per linear foot on wheat in south central region. (Simpson). ARKANSAS - Occasional specimen found on wheat in Mississippi and Craighead Counties. (Boyer). OKLAHOMA - Ranged 0-4 per linear foot on wheat in Washita and Beckham Counties. (Okla. Coop. Sur.). MISSISSIPPI - Light on 6-8 inch oats in Humphreys County. (Dinkins). For GREENBUG in Texas, see SMALL GRAIN section below.

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Survey negative in Independence County. (Boyer). NEW MEXICO - Light infestations noted on alfalfa in Chaves, Eddy and De Baca Counties. (Mathews).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Ranged 1-3 per stalk in 90 percent of dry cornstalks checked in Harmon County. (Okla. Coop. Sur.). MISSOURI - Collected from Butler County, October 27, 1962; this is first record from this county. (Munson).

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - Results of summer adult corn rootworm surveys showed increase in proportion of NORTHERN CORN ROOTWORM (D. longicornis) in northeast during 1964, 1965 and 1966. In remainder of State, WESTERN CORN ROOTWORM (D. virgifera) is dominant species. (Rhine).

SMALL GRAINS

Small Grain Pest Survey in Texas - During the period November 21-30, small grain pest survey was conducted in following 21 panhandle counties: Oldham, Hartley, Dallam, Sherman, Moore, Potter, Randall, Deaf Smith, Castro, Parmer, Swisher, Briscoe, Floyd, Hale, Carson, Hutchinson, Hansford, Ochiltree, Hemphill, Roberts, Gray, Armstrong, Donley, Hall, Childress, Collingsworth and Wheeler. GREENBUG (Schizaphis graminum) found in all but Dallam and Hartley Counties. Populations, in general, ranged 5-25 per linear foot; however, ranged 25-100 per linear foot in some Swisher, Floyd, Hale, Hansford and Ochiltree County fields. CORN LEAF APHID (Rhopalosiphum maidis) was light in many fields. Light populations of APPLE GRAIN APHID (R. fitchii) and an unspecified crown aphid, or combination of both species, noted in few locations. Populations per linear foot ranged 200-500 in one field in Ochiltree County and 100-300 in 2 Parmer County fields. Low numbers of CONVERGENT LADY BEETLE (Hippodamia convergens) active in Floyd and Parmer Counties. WHEAT CURL MITE (Aceria tulipae) observed, but very light, during spot checks in Randall, Briscoe, Oldham, Hansford, Swisher, Floyd and Sherman Counties. Wheat appears generally good over area, but in need of rain. In no case was significant damage noted. (Daniels).

GRAIN APHIDS (Rhopalosiphum spp.) - SOUTH DAKOTA - Populations on winter wheat this fall reacted as in the past; R. maidis decreased sharply after wheat plants passed whorl stage; R. padi and R. rufiabdominalis increased slowly, infesting 100 percent of plants at Centerville, Clay County, November 21. (Kieckhefer, Miller). MISSISSIPPI - R. fitchii light to moderate on 6-8 inch oats in Humphreys County; little damage observed. (Dinkins). NEW MEXICO - R. maidis moderate in Dona Ana County barley fields. (Campbell).

HESSIAN FLY (Mayetiola destructor) - ILLINOIS - Survey in east-southeast area indicates population extremely low. (Petty, White, Nov. 10).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus) - KANSAS - Annual survey completed in 59 counties in eastern two-thirds of State. Bunch grass samples collected during mid-November. Infestations noneconomic in all but 8 counties. Highest count, 774 bugs per square foot in Neosho County; light to moderate in Lyon, Chautauqua, Neosho, Clay, Washington, Saline, Sedgwick and Sumner Counties. (Simpson).

AUSTRALIAN SOD FLY (Altermetoponia rubriceps) - CALIFORNIA - Taken in frick traps baited to attract fruit flies in San Francisco, San Francisco County. (Cal. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - None taken in samples of alfalfa sweepings from Kenosha County during night of November 22. (Wis. Ins. Sur.). ARKANSAS - Egg laying well underway in northeast area. Samples of alfalfa stems being collected in Mississippi County. Egg numbers much higher this year; overall egg deposition probably greater than in 1965. In December 1965, 20-30 eggs per square foot were found or approximately 1 million per acre. As many as 70 eggs per square foot or 3 million per acre found in some samples taken in late November this year. (Miner, Boyer). MISSISSIPPI - Increasing in Pontotoc County, compared with last week. (Dinkins). TEXAS - Survey negative in Pecos, Reeves, Hudspeth and El Paso Counties. (Texas Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - High numbers of adults noted in Kenosha County. (Wis. Ins. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - ARIZONA - No increase, but spreading to new alfalfa fields in Gila and Yuma Valleys; averaged 65 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae increasing on alfalfa in Gila and Yuma Valleys, Yuma County; averaged 100 per 100 sweeps. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - New infestations appearing on alfalfa in Yuma Valley, Yuma County; numbers moderate, damage light. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Adults still numerous. (Wis. Ins. Sur.). ARKANSAS - Infestations very low, 5-10 per square foot on vetch in northeast area. (Boyer). TEXAS - Very light throughout Trans-Pecos area. (Texas Coop. Rpt.). NEW MEXICO - Generally light in alfalfa throughout State with some heavy populations noted in Chaves and northern Eddy Counties. (Mathews, Nielsen).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Few noted, but not economic in Trans-Pecos area. (Neeb, Parker).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Increase continues, requiring controls on lettuce in scattered areas of Yuma County; some decrease observed in Maricopa County. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - TEXAS - Very light on pecans near Gilmer, Upshur County, and Circleville, Williamson County. (Smith, Wakefield).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Light on pecans in Kaufman County. (Roberts).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Collected in Mono County. This is new county record and first time fly has been taken in high eastern desert area. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Adults moderate on stems of 60 percent of 4,500 peach plants in nursery at Balm, Hillsborough County. (Vaughn, Nov. 18).

CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Adults light on stems of 50 of 5,000 orange plants in nursery at Mascotte, Lake County. (Henderson, Nov. 21). Infesting stems and bark of 16 percent of 8,000 sweet orange plants in nursery at Eustis, Lake County. (Simpson, Fatic).

ORNAMENTALS

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Larvae and pupae infesting 20 percent of 1,000 variegated privet at nursery in Glen Saint Mary, Baker County. (Collins, Nov. 21).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Eggs, nymphs and adults heavy on hibiscus at Vista, San Diego County. (Cal. Coop. Rpt.).

HEMISPHERICAL SCALE (Saissetia coffeae) - FLORIDA - All stages infesting 25 of 100 aquatic plants, Honduras radicans, in water garden at Winter Haven, Polk County. (Henderson, Nov. 15).

A PIT SCALE (Cerococcus deklei) - FLORIDA - Requiring controls on hibiscus at Opa-Locka, Dade County. All stages infesting stems of 2,030 plants inspected. (Dillon, Nov. 17).

A GEOMETRID MOTH (Coryphista meadii) - CALIFORNIA - Larvae infesting leaves and twigs of Oregon-grape at Gridley, Butte County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - VIRGINIA - Continues problem in loblolly pine plantations throughout Coastal Plain area. (For. Pest Surv. Rpt., Oct. Sum.).

PINE WEBWORM (Tetralopha robustella) - VIRGINIA - Noted on occasional loblolly pine seedlings in many plantations in Nansemond and Isle of Wight Counties. (For. Pest Surv. Rpt., Oct. Sum.).

ENGRAVER BEETLES (Ips spp.) - VIRGINIA - Active in Westmoreland and Accomack Counties. Associated with southern pine beetle at three locations in Charlotte County, single tree in Amherst County. (For. Pest Surv. Rpt., Oct. Sum.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - No new infestations reported in Coastal Plain counties. Activity remains relatively static with only small number of new active spots reported; often associated with Ips spp. (For. Pest Surv. Rpt., Oct. Sum.).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - VIRGINIA - Larvae infested occasional pine seedling in Coastal Plain. Larvae active, along with occasional pine webworm, in Lunenburg County; thought to have damaged several trees in 300-500 acre loblolly plantation in Spotsylvania County. Feeding noted in Wise and Scott Counties with negligible damage. (For. Pest Surv. Rpt., Oct. Sum.).

AN OAK LEAF ROLLER (Croesia semipurpurana) - VIRGINIA - Twig sampling revealed high egg numbers in Peters Mountain area, George Washington National Forest, Alleghany County. Severe defoliation occurred in area previous 2 years, with mortality of scarlet oak estimated at 75 percent in most severely affected area. (For. Pest Surv. Rpt., Oct. Sum.).

GIANT BARK APHID (Longistigma caryae) - TEXAS - Moderate on ornamental shade trees near Bellville, Austin County. (Texas Coop. Rpt.).

MAN AND ANIMALS

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Very light on calves in Noble County. Probably this species, heavy on cattle in Choctaw County and moderate in Sequoyah County. (Okla. Coop. Sur.).

MOSQUITOES - FLORIDA - Populations low throughout State. In Indian River County, 24 light trap collections November 14-25; yielded 2 salt-marsh mosquitoes, and 867 freshwater specimens. Outlook for county is stable with very light numbers. (Fla. Coop. Sur.). LOUISIANA - Larval collections in Jefferson Parish contained Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, C. salinarius and Culiseta inornata. Mosquitoes averaged 10.9 per night in collections from 18 light traps throughout parish. Culex salinarius, Anopheles quadrimaculatus, and Culiseta inornata dominant. (Stokes).

HORSE BOT FLY (Gasterophilus intestinalis) - TEXAS - Adults moderate and depositing eggs on horses throughout Limestone County. (Brown).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Moderate on cattle in Cotton and Choctaw Counties. (Okla. Coop. Sur.).

For distribution map of CATTLE GRUBS (Hypoderma spp.) see page 1129.

SCREW-WORM (Cochliomyia hominivorax) - Total of 69 cases reported in U. S. November 27-December 3 as follows: TEXAS - Presidio 5, Hidalgo 5, Jim Hogg 5, Reeves 1, Webb 11, Starr 5, Brooks 2, Maverick 4, Uvalde 1, Val Verde 3, Dimmit 2, Willacy 2, Duval 1, La Salle 1, Midland 1, Zapata 1. CALIFORNIA - San Diego 1, Riverside 1, Imperial 3. ARIZONA - Pinal 5, Maricopa 7, Mohave 1, Yuma 1. Total of 436 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 56, Sonora 221, Chihuahua 53, Coahuila 33, Nuevo Leon 35, Tamaulipas 38. Total of 17 cases reported from Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 51,057,650, Arizona 10,480,000, California 3,132,000, Mexico 61,839,000. (Anim. Health Div.).

HOUSEHOLDS AND STRUCTURES

BLACK CARPET BEETLE (Attagenus piceus) - MARYLAND - Numerous larvae observed inside homes in Anne Arundel and Baltimore Counties. (U. Md., Ent. Dept.).

CONFUSED FLOUR BEETLE (Tribolium confusum) - DELAWARE - Several heavy infestations reported in homes in New Castle County. (Burbutis).

A COREID BUG (Arhyssus crassus) - CALIFORNIA - Attaining increasing importance as household pest. Aestivating and overwintering adults continue to annoy housewives throughout State by defecating on drapes, bedspreads and rugs. Latest complaint comes from Santa Rosa, Sonoma County. (Cal. Coop. Rpt.).

STORED PRODUCTS

Stored Product Insects in California - BROWN SPIDER BEETLE (Ptinus clavipes), VARIED CARPET BEETLE (Anthrenus verbasci), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), a DERMESTID BEETLE (Trogoderma parabile), BEET ARMYWORM (Spodoptera exigua) taken in trogotraps placed in mill at Gridley, Butte County. (Cal. Coop. Rpt.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - FLORIDA - Adults infesting cough drops stored in cardboard boxes for several years at Gainesville, Alachua County. (Mead, Nov. 30).

BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - MISSISSIPPI - Several adults swept from oats in Humphreys County. (Dinkins).

LADY BEETLES - MISSISSIPPI - Several Coccinella novemnotata adults observed on oats in Humphreys County; this only species observed. (Dinkins). ARKANSAS - Large numbers of Coleomegilla maculata observed hibernating at base of trees on farm in Craighead County. No insecticides used on farm this year. (Boyer, Tugwell).

A PUNCTURE-VINE SEED WEEVIL (Microlarinus lareynii) - CALIFORNIA - Found between railroad tracks at El Toro Marine Base, Orange County; also at trailer park and milling plant in Anaheim, Orange County. (Cal. Coop. Rpt.).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - Detected on okra in Dona Ana County, NEW MEXICO and two okra fields in the Coachella Valley, Riverside County, CALIFORNIA. (Dutton, Nov. 29). Also infested okra in ARIZONA. See CEIR 16(43):1105. (PPC). Lint cleaner inspections in New Mexico revealed high counts in most gins in Dona Ana, Luna, Chaves and Eddy Counties. (N. M. Coop. Rpt.). TEXAS - Counts very heavy in 60 percent of cotton fields in Pecos, Reeves, El Paso and Hudspeth Counties. Many of these fields contained 95-100 percent green bolls as result of early frost. Conditions represent tremendous potential threat to next year's crop. Lint cleaner inspections in Waco area also indicate steady buildup; larvae averaged 10 per bale in Pecos area. (Texas Coop. Rpt.). OKLAHOMA - Lint cleaner inspections positive in Comanche, Cotton, Kiowa, Tillman, Grady and McClain Counties. Gin trash inspections show 52 per 90 bushels in Comanche County, 8 per 34 bushels in Tillman County. (Okla. Coop. Sur.). ARKANSAS - Detection surveys using gin trash examinations, lint cleaner inspections and sex lures terminated. Results negative. (Frazier).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Egg clusters detected at 20 locations in 4 counties of 1966 positive trap sites. (PPC East. Reg., Oct. Rpt.).

WINTER MOTH (Operophtera brumata) - MAINE - Survey in Calais and Ellsworth areas negative. (PPC East. Reg., Oct. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - NEW JERSEY - Surveys negative in Vineland area. (PPC East. Reg., Oct. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Total of 42,210 trees inspected on 2,809 properties in 9 municipios in Nuevo Leon, Tamaulipas, Sonora and Baja California; infestations found on 12 trees at 6 properties in Linares, Nuevo Leon. At Linares, 1,504 trees on 62 properties received initial spray application and 1,088 trees on one property received second treatment. Biological Control Zone - Total of 26,866 trees inspected on 62 properties in 4 municipios in southern Tamaulipas. Infestations found in 8,149 trees on 48 properties. All infestations light except several properties in Padilla, which were medium to heavy. Parasites released: 168,000 Amitus hesperidum and 100,000 Prospaltella opulenta at two groves in Padilla. (PPC Mex. Reg., Oct. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Total of 100 trap inspections in Nogales, Sonora, and 597 at Ensenada, 240 at Tecate, and 2,292 at Tijuana, Baja California, negative during October. (PPC Mex. Reg.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Three larvae collected from fruit of sour orange trees causing fruit drop and one larva taken directly off tree; pupal case found inside sound fruit, all in nursery at Ft. Lauderdale, Broward County. At same nursery, 3 larvae taken from fruit of box-orange (Severinia buxifolia). This is new host record. (Clinton, Nov. 28).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Total of 4,635 trap inspections made during October; results negative. (PPC Mex. Reg.).

Weather continued from page 1112.

WEATHER OF THE WEEK ENDING DECEMBER 5, 1966

HIGHLIGHTS: Following several weeks of mild weather, successive blasts of Arctic air brought the coldest weather since February to portions of the East. In the West, warm weather continued.

PRECIPITATION: A deep storm in the Northeast moved out of the Country on Tuesday, leaving an inch or more of precipitation in Pennsylvania and lesser amounts in nearby States. Rain fell along the Washington, Oregon, and northern California coasts every day of the week with snow in the Cascades, northern Sierras, and eastward to the Rockies. On Saturday, precipitation fell from the Pacific coast to the eastern slopes of the Rocky Mountains. Weekly totals exceeded 6 inches along portions of the Washington and Oregon coasts with about 2.5 inches reported at Mount Wilson and nearby Los Angeles, California. Freezing rain, sleet, and fog made driving hazardous in parts of Nebraska and Kansas and eastward to Michigan and Ohio. The precipitation changed quickly to snow in the northern portions of Minnesota, Wisconsin, and Michigan.

Weather continued on page 1120.

HAWAII INSECT REPORT

New State of Hawaii Record - An ERIOPHYID MITE (Aceria aloinis) medium on Aloe sp. at Foster Gardens, Honolulu, Oahu. Caused wart-like galls on flower heads. Det. by F. Haramoto. (Nakagawa, Haramoto).

Insects of Significance - SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) at very low levels on islands of Kauai, Oahu, Maui and Hawaii. Trace numbers on cowpeas in Lihue, Kauai, and light on pumpkins, beans and Floras paint-brush (Emilia sonchifolia) at Hilo, Hawaii Island. (Au et al.).

Turf - Typical damage by BERMUDAGRASS MITE (Aceria neocynodonis) noted on 200 square yards of Bermuda grass in Kailua, Oahu. (Barlow). LAWN ARMYWORM (Spodoptera mauritia acronyctoides) heavy on Bermuda grass in Lanikai, Oahu. Grass completely stripped of all leaves; egg clusters numerous on tangerine foliage. (Davis).

Miscellaneous Field Crops - WATERLILY APHID (Rhopalosiphum nymphaeae) nymphs and adults heavy on foliage of lotus (Nelumbo nucifera) in Waihee, Maui. One leaf with 350 aphids. (Miyahira).

Citrus - FLORIDA RED SCALE (Chrysomphalus aonidum) light to medium on fruit and foliage of orange trees in Omaopio, Maui. Counts on nearly mature fruits ranged 5-28. (Funasaki, Jackson).

Ornamentals - A SPIDER MITE (Eotetranychus lewisi) severe and discolored leaves of poinsettia in Hilo, Hawaii Island. Also present on Oahu. Det. by F. Haramoto. (Yoshioka).

Forest and Shade Trees - An APHID (Neophyllaphis araucariae) medium in 40 acres of Norfolk-Island pine trees at Kapoho, Hawaii Island. (Hu).

Man and Animals - All stages of SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) heavy at Pohakuloa Training Area, Hawaii Island, at 6,400 feet. Mosquitoes breeding in 5 uncovered grease traps of unused mess halls. Last collection of this species in area was November 23, 1959. (Sugerman).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) heavy in park and hotel areas in Iao Valley and Wailuku, Maui. (Takishita).

Beneficial Insects - Larvae of an ARCTIID MOTH (Selca brunella) heavy on Tibouchina semidecandra in Hilo, Hawaii Island; up to 16 larvae noted on single leaf. Larvae also boring into terminals and leaf petioles. Indian rhododendron (Melastoma malabathricum) heavily damaged by larvae throughout Hilo. (Yoshioka) On Kauai, a LEAF MINING HISPID (Uroplata girardi) infesting lantana plants in Hanapepe Valley. This is first occurrence on lantana in Hanapepe Valley. First released 6 miles away in Lawai Valley. (Au). LANTANA LACE BUG (Teleonemia scrupulosa) nymphs and adults heavy on some lantana plants in Hoouliuli, Oahu; causing complete defoliation. Most plants, however, relatively free of bug. (Davis).

LIGHT TRAP COLLECTIONS

TEXAS - Waco, 11/26-12/2, 1 blacklight trap - Armyworm (Pseudaletia unipuncta) 240; beet armyworm (Spodoptera exigua) 40; fall armyworm (S. frugiperda) 16; yellow-striped armyworm (Prodenia ornithogalli) 5; black cutworm (Agrotis ipsilon) 5; variegated cutworm (Peridroma saucia) 42; granulate cutworm (Feltia subterranea) 61. Brownsville, 11/26-12/2, 2 blacklight traps; precipitation zero, temperature 37-83°F - Black cutworm 28; salt-marsh caterpillar (Estigmene acrea) 3; granulate cutworm 43; variegated cutworm 32; yellow-striped armyworm 34; armyworm 134; beet armyworm 151; fall armyworm 21; cabbage looper (Trichoplusia ni) 16.

INSECT DETECTION

New State Record

AN ERIOPHYID MITE (Aceria aloinis) - HAWAII - Collected from Aloe sp. at Honolulu, Oahu. Det. by F. Haramoto. (p. 1119).

New County Records

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - MISSOURI - Collected from Butler County. (p. 1113).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Collected from Mono County. (p. 1115).

CORRECTIONS

CEIR 16(42):1001 - Estimated Losses and Production Costs Attributed to Insects and Related Arthropods - 1965. ALFALFA (Hay) - Pest Complex should read as follows: COLORADO - Alw, Pa, Sa, Aw; DELAWARE - Alw, Pa, Tpb, Ph; MARYLAND - Alw, Pa, Ms, Ph; MONTANA - Alw; NEW MEXICO - Saa, Pa, Alw; VIRGINIA - Alw, Pa, Ms, Ph. ILLINOIS and OKLAHOMA pest complex unchanged.

CEIR 16(42):1001 - ALFALFA (Hay) - OKLAHOMA - Under Loss Per Acre, 10.50 should read 0.50.

Weather continued from page 1118.

SNOW: Moist air blowing across the Great Lakes released heavy snow on the eastern shores. Snow accumulated to nearly 5 feet at Adams, New York. Elsewhere in western New York, measurements ranged 12-45 inches. Some typical snowfall amounts in other parts of the country included: Southern Appalachians, 1-4 inches; mountains in West Virginia, 6 inches; western Pennsylvania, 6-12 inches; northwestern Iowa, up to 4 inches; Black Hills of South Dakota, 4 inches. In the central and southern Rockies snow accumulations were mostly limited to higher elevations in Colorado.

TEMPERATURE: Bitter cold plunged far southward bringing freezing temperatures to the gulf coast and to northern Florida. Stations in Georgia registered subfreezing temperatures on 3-5 days. Temperatures dropped to zero or lower in the northern States from the Rocky Mountains to New England; below-zero readings continued in northern Minnesota all day on Thursday when the high at International Falls was -6°. With high pressure centered over the East over the weekend, warmer air flowed northward across the central Great Plains. Some stations in Wyoming and South Dakota registered maximums in the 40's and 50's on Sunday afternoon. In spite of some weekend warming, however, Missouri averaged 25° to 30° colder than the previous week and about 8° below normal. Temperatures west of the Rockies were generally warmer than normal during most of the week but cooled somewhat over the weekend. It was the third warm week in the Rocky Mountains. (Summary supplied by Environmental Data Service, ESSA).

IMPORTANT INSECTS AND SNAILS MOST FREQUENTLY INTERCEPTED AT
UNITED STATES PORTS OF ENTRY IN FISCAL YEAR 1965

This list was abstracted from the records compiled by the Plant Quarantine Division of plant pests intercepted at ports of entry from July 1, 1964, through June 30, 1965. Only those pests intercepted 10 or more times during the year are included here. A total of 32,572 plant pests were submitted from ports of entry during the year. The complete interception list which includes all insects, mites, snails, bacteria, fungi, nematodes and viruses of known or potential plant quarantine significance to the United States may be obtained from Plant Quarantine Division, Federal Center Building, Hyattsville, Maryland 20782.

<u>Pest</u>	<u>Host</u>	<u>Country of Origin</u>	<u>Number of Interceptions</u>
<u>Achatina fulica</u> Bowdich (Achatinidae)	Seed (pod)	Guam, Hawaii, Okinawa	13
<u>Acrolepia assectella</u> (Zell.) (Yponomeutidae)	<u>Allium cepa</u> (onion) <u>A. porrum</u> (leek)	France, Germany, Greece, Italy, Netherlands, Switzerland	11
<u>Anastrepha ludens</u> (Loew) (Tephritidae)	<u>Citrus aurantifolia</u> (lime) <u>C. aurantium</u> (sour orange) <u>C. paradisi</u> (grapefruit) <u>C. sinensis</u> (sweet orange) <u>Citrus</u> sp. <u>Cydonia oblonga</u> (quince) <u>Mangifera indica</u> (mango) <u>Prunus persica</u> (peach) <u>Pyrus communis</u> (pear) <u>Spondias</u> sp. (mombin)	Mexico, unknown	221
<u>Asterobemisia carpini</u> (Koch) (Aleyrodidae)	<u>Rubus</u> sp. (raspberry) leaf	France, unknown	12
<u>Brachycerus algirus</u> (F.) (Curculionidae)	<u>Allium sativum</u> (garlic)	Italy, Spain	11
<u>Bruchus lentis</u> Froel. (Bruchidae)	<u>Lens culinaris</u> (lentil)	Germany, Greece, Israel, Italy, Jordan, Nigeria(?), Spain, unknown	16
<u>Ceratitis capitata</u> (Wied.) (Tephritidae)	<u>Capsicum annuum</u> (pepper) <u>Carica papaya</u> (papaya) <u>Carissa grandiflora</u> (Natalplum carissa) fruit <u>Citrus aurantifolia</u> (lime) <u>C. limon</u> (lemon) <u>C. paradisi</u> (grapefruit) <u>C. reticulata</u> (mandarin orange) <u>C. sinensis</u> (sweet orange) <u>Coffea arabica</u> (Arabian coffee) berry <u>Cydonia oblonga</u> (quince) <u>Diospyros kaki</u> (kaki persimmon) <u>D. virginiana</u> (common persimmon) <u>Eriobotrya japonica</u> (loquat) <u>Eugenia</u> sp. (eugenia) fruit <u>Ficus carica</u> (fig) <u>Litchi chinensis</u> (lychee) nut <u>Malus sylvestris</u> (apple) <u>Mangifera indica</u> (mango)	Algeria, Azores, Brazil, Cyprus, Europe (country?), France, Ghana, Greece, Guinea, Hawaii, Israel, Italy, Jordan, Liberia, Maderia Islands, Morocco, Portugal, Senegal, South Africa, Spain, United Arab Republic, unknown	184

Pest	Host	Country of Origin	Number of Interceptions
<u>Ceratitis capitata</u> (continued)	<u>Ochrosia elliptica</u> (fruit) <u>Opuntia humifusa</u> (common pricklypear) <u>O. occidentalis</u> (western pricklypear) <u>Passiflora</u> sp. (passion-fruit) <u>Persea americana</u> (American avocado) <u>Phoenix dactylifera</u> (date) <u>Prunus armeniaca</u> (apricot) <u>P. cerasifera</u> (myrobalan plum) <u>P. domestica</u> (garden plum) <u>P. persica</u> (peach) <u>Psidium guajava</u> (guava) <u>Punica granatum</u> (pomegranate) <u>Pyrus communis</u> (pear) <u>Terminalia catappa</u> (tropical almond)		
<u>Chilo suppressalis</u> (Wlk.) (Crambidae)	<u>Oryza sativa</u> (rice)	Formosa, Hong Kong, Japan, Korea, Okinawa	35
<u>Cochlicella barbara</u> (L.) (Helicellidae)	<u>Beta vulgaris</u> var. <u>cicla</u> (Swiss chard) <u>Brassica oleracea</u> var. <u>capitata</u> (cabbage) <u>Cedrus libani</u> (cedar-of-Lebanon) tree <u>Chrysanthemum</u> sp. (leaf) <u>Cichorium intybus</u> (chicory) <u>Dianthus caryophyllus</u> (carnation) flower <u>Petroselinum crispum</u> var. <u>latifolium</u> (parsley) <u>Raphanus sativus</u> (radish) seed	Belgium, Crete, Cyprus, England, France, Greece, Ireland, Israel, Italy, Lebanon, Libya, Morocco, Spain, unknown	40
<u>Conotrachelus aguacatae</u> Barber (Curculionidae)	<u>Persea americana</u> (American avocado) seed <u>P. americana</u> var. <u>drymifolia</u> (Mexican avocado)	Mexico	10
<u>Cryptoblabes gnidiella</u> (Mill.) (Phycitidae)	<u>Citrus sinensis</u> (sweet orange) <u>Punica granatum</u> (pomegranate)	Europe, Greece, Italy, Lebanon, Spain, unknown	29
<u>Cryptophlebia ombrodelta</u> (Lower) (Olethreutidae)	<u>Cassia</u> sp. (senna) pod <u>Cocos nucifera</u> (coconut) <u>Litchi chinensis</u> (lychee) nut <u>Macadamia ternifolia</u> macadamia nut <u>Prosopis</u> sp. (mesquite) seed pod	Hawaii	10
<u>Curculio elephas</u> (Gyll.) (Curculionidae)	<u>Castanea sativa</u> (European chestnut) <u>Castanea</u> sp. (chestnut)	Greece, Italy, Portugal, Yugoslavia	31
<u>Dacus dorsalis</u> Hend. (Tephritidae)	<u>Calophyllum inophyllum</u> (Indiapoon beautyleaf) fruit <u>Carica papaya</u> (papaya) <u>Eugenia malaccensis</u> (ohia or Malay-apple) <u>Mangifera indica</u> (mango) <u>Musa nana</u> (dwarf banana) <u>Musa</u> sp. (banana) <u>Persea americana</u> (American avocado)	Hawaii	67

<u>Pest</u>	<u>Host</u>	<u>Country of Origin</u>	<u>Number of Interceptions</u>
<u>Dacus dorsalis</u> (continued)	<u>Psidium guajava</u> (guava) <u>P. littorale</u> (Cattley guava) <u>Terminalia catappa</u> (tropical almond) <u>Zingiber officinale</u> (common ginger)		
<u>Dacus oleae</u> (Gmel.) (Tephritidae)	<u>Olea europaea</u> (olive)	Greece, Italy, Jordan, Lebanon	36
<u>Diatraea considerata</u> Hein. (Crambidae)	<u>Saccarum officinarum</u> (sugarcane)	Mexico	16
<u>Diocalandra taitensis</u> (Guer.) (Curculionidae)	<u>Cocos nucifera</u> (coconut)	Hawaii	10
<u>Dioromyerellus laevimargo</u> Champ. (Curculionidae)	Orchid (plant)	Guatemala, Mexico	11
<u>Epiphas postvittana</u> (Wlk.) (Tortricidae)	<u>Fragaria</u> sp. (strawberry) <u>Malus sylvestris</u> (apple)	Australia, New Zealand	12
<u>Eriophyes parabuxi</u> Keifer (Eriophyidae)	<u>Buxus sempervirens</u> (box-wood) leaf	England, France, Ireland	10
<u>Evergestis forficalis</u> (L.) (Pyraustidae)	<u>Brassica oleracea</u> var. <u>botrytis</u> (cauliflower) <u>B. oleracea</u> var. <u>capitata</u> (cabbage) <u>Lactuca sativa</u> (lettuce)	Belgium, France, Germany, Netherlands, Spain	16
<u>Frankliniella formosae</u> Moulton (Thripidae)	Flowers (<u>Chrysanthemum morifolium</u> , <u>Dianthus caryophyllus</u> , <u>Gladiolus</u> sp., <u>Rosa</u> sp., and mixed flowers)	Japan, unknown	94
<u>Frankliniella intonsa</u> (Trybom) (Thripidae)	Flowers (<u>Agapanthus</u> sp., <u>Aster</u> sp., <u>Bellis</u> sp., <u>Chrysanthemum</u> sp., <u>Dahlia</u> sp., <u>Dianthus</u> sp., <u>Gladiolus</u> sp., <u>Rosa</u> sp., and mixed flowers)	Austria, Belgium, Czechoslovakia, England, Germany, Italy, Netherlands, Poland, Switzerland, Yugoslavia, unknown	33
<u>Helicella caperata</u> (Montagu) (Helicellidae)	<u>Allium porrum</u> (leek) <u>Apium graveolens</u> var. <u>dulce</u> (celery) <u>Brassica oleracea</u> var. <u>botrytis</u> (cauliflower) <u>B. oleracea</u> var. <u>capitata</u> (cabbage) <u>Corylus</u> sp. (hazelnut) <u>Cuminum cyminum</u> (cumin) seed <u>Dianthus</u> sp. (flower) Grain (mixed) <u>Helleborus niger</u> (Christmas-rose) seed <u>Humulus japonicus</u> (Japanese hop) seed <u>Lactuca sativa</u> var. <u>longifolia</u> (Romaine lettuce) <u>Majorana hortensis</u> (sweet marjoram) dried <u>Petroselinum crispum</u> var. <u>latifolium</u> (parsley) Seed--unidentified	Austria, Belgium, Cyprus, Denmark, England (?), France, Greece, India (?), Ireland, Italy, Netherlands, Spain, Sweden, Switzerland	27
<u>Helicella conspurcata</u> (Drap.) (Helicellidae)	<u>Brassica oleracea</u> var. <u>capitata</u> (cabbage) <u>Cucumis</u> sp. (wild cucumber) root <u>Cynara scolymus</u> (artichoke) <u>Euphorbia terracina</u> (seed)	England (?), Europe (country?) France, Greece, Israel, Italy, Portugal, Spain, unknown	25

<u>Pest</u>	<u>Host</u>	<u>Country of Origin</u>	<u>Number of Interceptions</u>
<u>Helicella conspurcata</u> (continued)	<u>Opuntia</u> sp. (pricklypear) <u>Pinus</u> sp. (pine) cone <u>Rosmarinus officinalis</u> (rosemary) <u>Salvia</u> sp. (sage) flower Seed--unidentified		
<u>Helicella cretica</u> (Fer.) (Helicellidae)	<u>Asparagus</u> sp. (cut stems) <u>Cichorium intybus</u> (common chicory) seed <u>Cucumis</u> sp. (wild cucumber) root <u>Cuminum cyminum</u> (cumin) seed <u>Petroselinum crispum</u> var. <u>latifolium</u> (parsley)	Cyprus, Greece, Israel, Lebanon (?), Libya, Turkey	26
<u>Helicella derbentina</u> (Andrz.) (Helicellidae)		Europe (country?), Greece, Libya, Turkey	28
<u>Helicella maritima</u> (Drap.) (Helicellidae)	<u>Carthamus lanatus</u> ("safflower") seed <u>Lathyrus sativus</u> (grass peavine) Mollusks (with <u>Helix aspersa</u> , edible snail)	France, Greece, Italy, Libya, Spain	25
<u>Helicella protea</u> (Ziegler) (Helicellidae)	<u>Cichorium intybus</u> (chicory) <u>Lens culinaris</u> (lentil) seed	Israel, Turkey, United Arab Republic	14
<u>Helicella pyramidata</u> (Drap.) (Helicellidae)		Greece, Italy, Libya, Spain	12
<u>Helicina zephyrina</u> Duclos (Helicinidae)	<u>Bromeliad</u> (plant) <u>Capsicum annuum</u> (pepper) <u>Chamaedorea elegans</u> (palm) leaf <u>C. oblongata</u> (palm) leaf <u>Chamaedorea</u> sp. (palm) leaf Orchid (plant) <u>Tillandsia ionantha</u> (plant)	Guatemala, Mexico	45
<u>Lampides boeticus</u> (L.) (Lycaenidae)	<u>Canavalia cathartica</u> (mauna loa) lei <u>Pisum sativum</u> (pea) <u>Sesbania grandiflora</u> (Agati sesbania) <u>Sutherlandia</u> sp. (balloonpea) leaf	Hawaii, Japan, unknown	11
<u>Laspeyresia splendana</u> (Hbn.) (Olethreutidae)	<u>Castanea sativa</u> (European chestnut) <u>Castanea</u> sp. (chestnut) <u>Quercus</u> sp. (oak) acorn	England, France, Germany, Greece, Hungary, Italy, Monaco, Portugal, Spain, Yugoslavia	104
<u>Lepidosaphes tokionis</u> (Kuw.) (Diaspididae)	<u>Codiaeum variegatum</u> (variegated croton) <u>C. variegatum</u> 'Pictum' (leaf) <u>Codiaeum</u> sp.	Guam, Hawaii, Mariana Islands, Thailand	21
<u>Liogenys macropelma</u> Bates (Scarabaeidae)		Panama, unknown	24
<u>Mamestra brassicae</u> (L.) (Noctuidae)	<u>Apium graveolens</u> var. <u>dulce</u> (celery) <u>Brassica chinensis</u> (pakchoi) <u>B. oleracea</u> var. <u>botrytis</u> (cauliflower)	Belgium, Denmark, England, France, Germany, Italy, Japan, Netherlands, Sweden, unknown	40

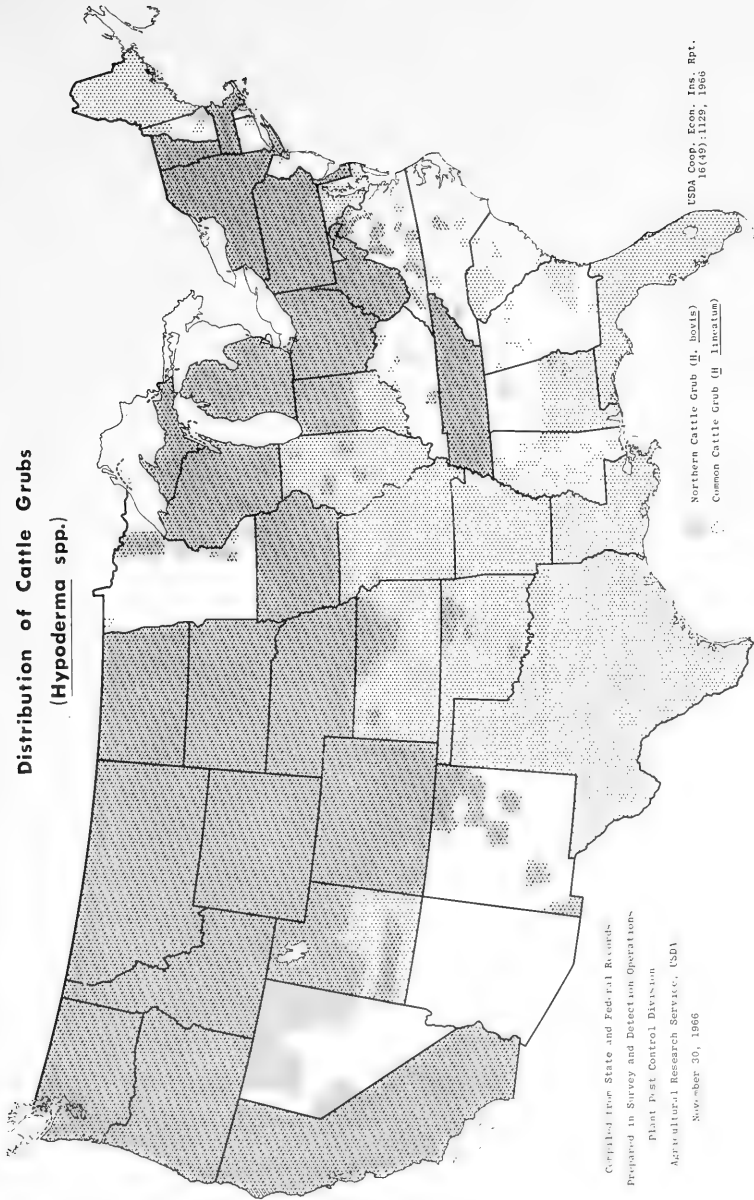
<u>Pest</u>	<u>Host</u>	<u>Country of Origin</u>	<u>Number of Interceptions</u>
<u>Mamestra brassicae</u> (continued)	<u>Brassica oleracea</u> var. <u>capitata</u> (cabbage) <u>B. oleracea</u> var. <u>gongyloides</u> (kohlrabi) <u>B. pekinensis</u> (petsai) <u>Lactuca sativa</u> (lettuce)		
<u>Maruca testulalis</u> (Geyer) (Pyraustidae)	<u>Cajanus cajan</u> (pigeonpea) <u>Canavalia cathartica</u> (mauna loa) lei <u>Phaseolus vulgaris</u> cv. (string bean) <u>Sesbania grandiflora</u> (Agati sesbania) flower <u>Strongylodon lucidus</u> (flower lei)	Formosa, Hawaii, Hong Kong, Philippines, Puerto Rico, unknown	28
<u>Morganella longispina</u> (Morg.) (Diaspididae)	<u>Citrus grandis</u> (pummelo) <u>C. limon</u> (lemon) <u>C. paradisi</u> (grapefruit) <u>C. reticulata</u> (mandarin orange) <u>C. sinensis</u> (sweet orange) Leaf--unidentified <u>Persea americana</u> (American avocado)	Bermuda, Brazil, China, Fiji, Hawaii, Hong Kong, Japan, South Pacific, Spain, Tahiti, unknown	32
<u>Mycetaspis personata</u> (Comst.) (Diaspididae)	<u>Citrus aurantifolia</u> (lime) <u>C. paradisi</u> (grapefruit) <u>C. reticulata</u> (mandarin orange) <u>C. sinensis</u> (sweet orange) <u>Cordyline terminalis</u> (common dracaena or ti) <u>Diospyros</u> sp. (persimmon) <u>Persea americana</u> (American avocado)	Brazil, China, Guatemala, Hawaii, Japan, Mexico, Spain, unknown	30
<u>Palmicultor oceanicus</u> (Tak.) (Pseudococcidae)	<u>Cocos nucifera</u> (coconut)	American Samoa, Hawaii	18
<u>Parlatoria cinerea</u> Hadden (Diaspididae)	<u>Citrus aurantifolia</u> (lime) <u>C. grandis</u> (pummelo) <u>C. limon</u> (lemon) <u>C. paradisi</u> (grapefruit) <u>C. reticulata</u> (mandarin orange) <u>C. sinensis</u> (sweet orange)	Brazil, China, Curacao, El Salvador, Formosa, France, Guatemala, Hong Kong, Israel, Italy, Mexico, New Zealand, Panama, South Africa, South Pacific, Spain, Tahiti, unknown	88
<u>Parlatoria zizyphus</u> (Lucas) (Diaspididae)	<u>Citrus aurantifolia</u> (lime) <u>C. aurantium</u> (sour orange) <u>C. grandis</u> (pummelo) <u>C. ichangensis</u> X <u>C. reticulata</u> (ichandarin) <u>C. limon</u> (lemon) <u>C. mitis</u> (calamondin orange) <u>C. paradisi</u> (grapefruit) <u>C. reticulata</u> (mandarin orange) dried peel and fruit <u>C. reticulata</u> 'Satsuma' <u>C. sinensis</u> (sweet orange) <u>Citrus</u> sp. (dried peel, fruit, and leaf) <u>Poncirus trifoliata</u> (trifoliolate-orange) leaf	Algeria, Argentina, Crete, Europe (country?), Formosa, Greece, Hong Kong, Indonesia, Israel, Italy, Japan, Malaysia, Morocco, Philippines, South Africa, Spain, Thailand, Viet-Nam, unknown	85
<u>Plemeliella abietina</u> Seitner (Cecidomyiidae)	<u>Picea abies</u> (Norway spruce) seed <u>P. glauca</u> (white spruce) seed <u>P. omorika</u> (Serbian spruce) seed	Austria, Denmark, France, Germany, Italy, Poland	24

<u>Pest</u>	<u>Host</u>	<u>Country of Origin</u>	<u>Number of Interceptions</u>
<u>Prodenia litura</u> (F.) (Noctuidae)		Japan, Okinawa, Philippines, Thailand, Viet-Nam (?), West Pacific, unknown	18
<u>Rhagoletis cerasi</u> (L.) (Tephritidae)	<u>Prunus avium</u> (Mazzard cherry) <u>P. cerasus</u> (sour cherry) <u>P. cerasus</u> 'Bing' (Bing cherry) <u>Prunus</u> sp. (cherry)	Austria, Czechoslovakia, Denmark, England, Europe (country?), France, Germany, Hungary, Iceland, Italy, Netherlands (?), Poland, Portugal, Rumania, Spain, Switzerland, Turkey, unknown	104
<u>Spodoptera mauritia</u> (Bdv.) (Noctuidae)		Philippines, Viet-Nam (?), West Pacific, unknown	17
<u>Spodoptera pecten</u> Guen. (Noctuidae)		Hawaii, Japan (?), Johnston Island, Viet-Nam, Wake Island, West Pacific, unknown	35
<u>Stenomoma catenifer</u> Wlsm. (Stenomidae)	<u>Persea americana</u> (American avocado) <u>P. americana</u> var. <u>drymifolia</u> (Mexican avocado) <u>Persea</u> sp. (fruit)	Canal Zone, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Peru, Venezuela	55
<u>Sternochetus mangiferae</u> (F.) (Curculionidae)	<u>Mangifera indica</u> (mango) fruit and seed	Ceylon, Guam, Hawaii, India, South Pacific	113
<u>Taeniothrips atratus</u> (Hal.) (Thripidae)	Flowers (<u>Aster</u> sp., <u>Calluna vulgaris</u> , <u>Chrysanthemum</u> sp., <u>Dahlia</u> sp., <u>Dianthus caryophyllus</u> , <u>Gladiolus</u> sp., <u>Lathyrus odoratus</u> , <u>Lavandula</u> sp., <u>Rosa</u> sp., and various mixed flowers). <u>Majorana hortensis</u> (sweet marjoram) leaf	England, Finland, Germany, Iceland, Ireland, Italy, Netherlands, Norway, Poland, Scotland, unknown	57
<u>Taeniothrips ericae</u> (Hal.) (Thripidae)	<u>Calluna vulgaris</u> (heather) <u>Erica</u> sp. (heath) flower <u>Ornithogalum</u> sp.	Canada, England, Germany, Ireland, Netherlands, Scotland	12
<u>Taeniothrips eucharii</u> (Whetzel) (Thripidae)	<u>Lycoris</u> spp. (<u>L. alba</u> , <u>L. aurea</u> , <u>L. radiata</u> , <u>L. sprengeri</u> , <u>L. squamigera</u> , and <u>Lycoris</u> sp.) bulbs.	Japan	21
<u>Taeniothrips hawaiiensis</u> (Morg.) (Thripidae)	Flowers (Compositae, <u>Dendrobium</u> sp., <u>Gardenia jasminoides</u> , <u>Plumeria</u> sp., <u>Polianthes tuberosa</u> , <u>Sesbania grandiflora</u> , <u>Strongylodon</u> sp., and unidentified flowers). <u>Tamarindus indica</u> (tamarind)	Hawaii, Philippines	135
<u>Theba pisana</u> (Müller) (Helicidae)	<u>Antirrhinum majus</u> (snapdragon) leaf <u>Brassica oleracea</u> var. <u>botrytis</u> (cauliflower) <u>Cedrus libani</u> (cedar-of-Lebanon) tree <u>Chrysanthemum frutescens</u> (flower) <u>Cichorium endivia</u> (endive) <u>Dianthus caryophyllus</u> (carnation) plant <u>Euphorbia terracina</u> (seed) <u>Humulus japonicus</u> (Japanese hop) seed	Azores, Cyprus, Denmark, France, Germany, Greece, Israel, Italy, Lebanon, Libya, Morocco, Netherlands, Portugal, Spain, Turkey, United Arab Republic, unknown	163

<u>Pest</u>	<u>Host</u>	<u>Country of Origin</u>	<u>Number of Interceptions</u>
<u>Theba pisana</u> (continued)	<u>Lilium</u> sp. (lily) flower <u>Mirabilis jalapa</u> (common four-o'clock) seed <u>Rosa</u> sp. (rose) flower and plant <u>Zantedeschia aethiopica</u> (calla lily)		
<u>Thrips major</u> Uzel (Thripidae)	Flowers (<u>Aster</u> sp., <u>Astilbe</u> sp., <u>Dianthus caryophyllus</u> , <u>Lathyrus odoratus</u> , <u>Rosa</u> sp.) <u>Rhododendron</u> sp., (scion)	Cyprus, Denmark, England, France, Germany, Ireland, Netherlands, Poland, Switzerland	13
<u>Trichia striolata</u> (Pfeiffer) (Helicellidae)	<u>Cichorium intybus</u> (chicory) <u>Corylus</u> sp. (hazelnut) <u>Cofinus coggygia</u> (common smoketree) seed <u>Lactuca sativa</u> (lettuce) <u>Majorana hortensis</u> (sweet majoram) dried <u>Petroselinum crispum</u> var. <u>latifolium</u> (parsley) <u>Spinacia oleracea</u> (spinach) <u>Vanda</u> sp. (orchid) plant	France, Israel, Italy, Singapore(?)	10
<u>Trogoderma granarium</u> (Everts) (Dermestidae)	<u>Acacia senegal</u> (gum arabic and gum hashabi) <u>Acacia</u> sp. (gum talha) <u>Anogeissus latifolia</u> (gum ghatti) <u>Apium graveolens</u> var. <u>dulce</u> (celery) seed <u>Arachis hypogaea</u> (peanut) debris <u>Astragalus gummifer</u> (gum tragacanth) <u>Bixa orellana</u> (anatto-tree) seed <u>Cajanus cajan</u> (pigeonpea) <u>Capsicum annuum</u> var. <u>longum</u> (chili pepper) <u>Cicer arietinum</u> (chickpea) <u>Citrullus vulgaris</u> (watermelon) seed <u>Cordia</u> sp. (dried fruit) <u>Coriandrum sativum</u> (coriander) seed <u>Cuminum cyminum</u> (cumin) seed <u>Cyamopsis tetragonoloba</u> (guar gum) <u>Glycine max</u> (soybean) <u>Gossypium</u> sp. (cottonseed) <u>Hordeum vulgare</u> (barley) <u>Lens culinaris</u> (lentil) <u>Oryza sativa</u> (rice) <u>Phaseolus vulgaris</u> (bean) <u>Pisum sativum</u> (pea) split <u>Sesamum indicum</u> (sesame) seed <u>Sterculia urens</u> (gum karaya) <u>Tamarindus indica</u> (tamarind) seed powder <u>Terminalia</u> sp. (myrobalan) <u>Theobroma cacao</u> (cacao) bean <u>Triticum aestivum</u> (wheat) debris	Australia, Belgium, Borneo, Ceylon, England, Ethiopia, Formosa, Germany, Greece(?), Hong Kong, India, Indonesia, Iran, Iraq, Italy, Ivory Coast, Japan, Korea, Lebanon, Malaysia, Morocco, Netherlands, Pakistan, Philippines, Rwanda, Saudi Arabia, Singapore, South Africa, Sudan, Sumatra, Syria, Thailand, United Arab Republic(?), unknown	462
<u>Unaspis yanonensis</u> (Kuw.) (Diaspididae)	<u>Citrus aurantifolia</u> (lime) <u>C. aurantium</u> (sour orange) <u>C. grandis</u> (pummelo) <u>C. ichangensis</u> X <u>C. reticulata</u> (ichandarin) <u>C. limon</u> (lemon)	Australia, Formosa, Japan, New Zealand, Philippines(?), unknown	617

<u>Pest</u>	<u>Host</u>	<u>Country of Origin</u>	<u>Number of Interceptions</u>
<u>Unaspis yanonensis</u> (continued)	<u>Citrus medica</u> (citron)		
	<u>C. paradisi</u> (grapefruit)		
	<u>C. paradisi</u> X <u>C. reticulata</u> (tangelo)		
	<u>C. reticulata</u> (mandarin orange)		
	<u>C. reticulata</u> 'Satsuma'		
	<u>C. reticulata</u> var.		
	<u>C. sinensis</u> (sweet orange)		
	<u>Citrus</u> sp. (fruit)		
	<u>Fortunella</u> sp. (kumquat)		
	<u>Prunus domestica</u> (plum)		
<u>Vinsonia stellifera</u> (Westw.) (Coccidae)	<u>Bletia</u> sp. (orchid) leaf	American Virgin Islands,	62
	<u>Brassia</u> sp. (spiderorchid) leaf	Antigua, British Guiana, British Honduras, Canal Zone,	
	<u>Broughtonia sanguinea</u> (orchid) leaf	Costa Rica, Guatemala, Haiti, Honduras, India, Jamaica,	
	<u>Broughtonia</u> sp. (orchid) leaf	Mauritius Island, Panama, Philippines, Puerto Rico, Surinam, West Indies	
	<u>Doritis taenialis</u> (orchid) leaf	(island ?)	
	<u>Epidendrum ciliare</u> (orchid) leaf		
	<u>Epidendrum</u> sp. (orchid) leaf		
	<u>Garcinia</u> sp. (leaf)		
	Orchid (leaf)		
	<u>Phalaenopsis</u> sp. (mothorchid)		
	Plant--unidentified (leaf)		

Distribution of Cattle Grubs (*Hypoderma* spp.)



Credit to New State and Federal Records
Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
November 30, 1966

TSDA Coop. Econ. Ins. Rpt.
16(49):1129, 1966

Northern Cattle Grub (*H. bovis*)
Common Cattle Grub (*H. lineatum*)



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Hyattsville, Maryland 20782

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

WOOLLY WHITEFLY heavy on citrus in San Diego, California. Delimiting survey includes an area 3 by 4 miles; first detected November 9, 1966. (p. 1135).

SARATOGA SPITTLEBUG caused serious damage in Pine Island State Forest, Minnesota. (p. 1136).

Detection

New State records include a WEEVIL (Cleonus trivittatus) in Montana, (p. 1137), and BRONZE BIRCH BORER (Agrilus anxius) in Utah, (p. 1135).

Prediction

Cooler weather should reduce CABBAGE LOOPER egg laying in Arizona, (p. 1134); APHIDS could become serious on commercial citrus in Santa Cruz County, California, if weather interferes with control, (p. 1135).

Special Report

Arbovirus Encephalitis in the United States - 1966. (p. 1136).

Correction: Key to Eight Termite Genera (CEIR 16(47)). The following corrections should be made: Page 1091 - Change "all other" in second line to read "most other". Page 1095 - Change 12A and 13A in text and on illustrations to read 12 and 13. Page 1096 - Replace with page 1140 of this issue. Page 1097 - Fig. 12 should read - Head of soldier of Cryptotermes cavifrons Banks (dorsal view); Fig. 13 should read - Head of soldier of Coptotermes formosanus Shiraki (dorsal view).

Reports in this issue are for week ending December 9 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	1133
Insects Affecting	
Corn, Sorghum, Sugarcane.....	1133
Small Grains.....	1133
Forage Legumes.....	1133
Cotton.....	1133
Sugarbeets.....	1134
Cole Crops.....	1134
General Vegetables.....	1134
Deciduous Fruits and Nuts.....	1134
Citrus.....	1135
Ornamentals.....	1135
Forest and Shade Trees.....	1136
Man and Animals.....	1136
Beneficial Insects.....	1137
Federal and State Plant Protection Programs.....	1137
Insect Detection.....	1138
Corrections.....	1138
Light Trap Collections.....	1138
Hawaii Insect Report.....	1139
Correction: Key to Eight Termite Genera.....	1140

WEATHER OF THE WEEK ENDING DECEMBER 12, 1966

HIGHLIGHTS: Rain continued along the Pacific coast, and heavy snow fell in the Rockies. The coldest weather of the season spread over the middle States, while the warmest December weather of the century occurred in the Northeast.

PRECIPITATION: The still stationary storm off the Washington coast continued to dump daily precipitation from Washington, Oregon, and portions of California eastward to the Rocky Mountains. Utah and Nevada received the heaviest rains of the year, while heavy snow fell in the Cascades, Sierras, and parts of the northern and central Rockies. Snow amounts ranged generally from 6 inches to a foot or more in parts of Nevada, Utah, Wyoming, Colorado, and New Mexico but reached 4 feet at Wolf Creek Pass, Colorado. A storm centered over the North Central States brought a variety of weather from the Dakotas to Texas, eastward to the Appalachians and northeastward to New England. On Wednesday, thunderstorms dumped 3-4 inches of rain in parts of Illinois and 2 inches in Indiana. Freezing rain glazed the highways from Kansas and Nebraska northeastward to Upper Michigan and eastward to New England. Tornadoes damaged property in Missouri, Illinois, and Indiana - where 1 person was injured. Over the weekend, heavy snow fell over parts of Lower Michigan, northern Indiana, and northern Ohio, with lighter falls northeastward to New England, while 2-3 inches of rain fell over the lower Ohio River Valley. Kentucky reported the heaviest rains in 7 months and a few local areas in Tennessee received more than 5 inches.

Weather continued on page 1137.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - CALIFORNIA - Larvae heavy, damaging lettuce in Livingston area, Merced County. Unusually heavy during fall and has not responded to treatment in many locations. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - MISSISSIPPI - Light on oats in Oktibbeha County. (Dinkins).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ALABAMA - Larvae 1-6 per cornstalk in 5-acre field of young corn in Autauga County. Numerous larvae destroyed by birds. (McQueen, Dec. 2).

CORN SAP BEETLE (Carpophilus dimidiatus) - ALABAMA - Adults 10-50 per stalk inside corn in Autauga County; entered through openings made by European corn borer. (McQueen, Dec. 2).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Adults numerous, resting and hibernating on corn in Autauga County. Active, even at 35-45°. (McQueen, Dec. 2). ARKANSAS - Large numbers of moths observed in several locations in State. (Boyer et al.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MISSOURI - Found in 16 fields of wheat in southwest area. Ranged 3-15 per linear foot in most fields to 30-250 per linear foot in 2 fields. (Munson).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - MISSISSIPPI - Light on oats in Oktibbeha County. (Dinkins).

HESSIAN FLY (Mayetiola destructor) - MISSOURI - Observed in 2 of 16 wheat fields checked in southwest area. Up to 17 percent of plants infested. (Munson).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Averaged 6 adults and 1 larva per 10 sweeps in alfalfa in Montgomery County. (Isakson). MISSISSIPPI - Moderate, 10-12 larvae per square foot, on alfalfa in Lee County. (Dinkins). ARKANSAS - During 1965-1966 season, egg deposition studies were made December 7-April 5. Results indicate egg deposition heaviest in early April; averaged 56 eggs per square foot or 2.5 million per acre. Egg deposition appears heavier now than last year with some square-foot samples running 70 eggs or about 3 million per acre. One square-foot sample contained 312 eggs or 13.5 million per acre. Dead stems contain more eggs than green stems at present time. (Miner, Boyer).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - VIRGINIA - Adults averaged 1 per 30 sweeps on alfalfa in Montgomery County. (Isakson).

LYGUS BUGS (Lygus spp.) - VIRGINIA - Averaged 2 adults per 10 sweeps on alfalfa in Montgomery County. (Isakson).

COTTON

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - CALIFORNIA - Medium in some cotton plantings in Blythe, Riverside County. (Cal. Coop. Rpt.).

SUGARBEETS

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Continues light to moderate on sugarbeets in Maricopa County. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Scattered, light infestations on sugarbeets in Chandler area of Maricopa County. (Ariz. Coop. Sur.).

SOUTHERN GARDEN LEAFHOPPER (Empoasca solana) - ARIZONA - Heavy in sugarbeet fields throughout Maricopa County, appears heaviest in Mesa and Chandler areas. (Ariz. Coop. Sur.).

COLE CROPS

DIAMONDBACK MOTH (Plutella maculipennis) - ALABAMA - Few larvae, pupae and adults continue on turnips, cabbage, collards and other crucifers in central and southern sections. Damage negligible. (McQueen).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Adults laying eggs on cabbage, collards and other crucifers in central and southern sections during last 3 weeks; larvae light, ragging few leaves. Temperatures normal and above normal in some areas. Larvae heavy on collards in Morgan County. (St. Cloud et al.).

CABBAGE APHID (Brevicoryne brassicae) - ALABAMA - Sharp increase noted on cabbage and collards in Lee, Montgomery and Morgan Counties. (Latham et al.).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - This and cabbage aphid heavy on collard plantings in Fresno, Fresno County. (Cal. Coop. Rpt.).

TURNIP APHID (Hyadaphis pseudobrassicae) - ALABAMA - Damage increasing on turnips and gardens in Lee and Morgan Counties past 10-15 days. (St. Cloud et al.).

MISSISSIPPI - Populations continue heavy on garden turnips in Oktibbeha County. (Dinkins).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Larvae moderate, continue damaging lettuce in Maricopa and Yuma Counties. Cooler weather should reduce future egg laying. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light numbers damaging lettuce in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - ALABAMA - Larval emergence light to medium from fallen pecans in Covington County. (Linder, Dec. 2).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - High in 3 home peach orchards in Geneva County, even where good control programs used during season. (Bagby, Reynolds).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Examination of 12 unsprayed 6 to 7-year-old peach trees showed 22 percent of adult females living, but no eggs found; 75 percent of immature females alive, 83.8 percent of immature males alive. Few adult males found at Gainesville, Alachua County. Males abundant on peach trees at Winter Haven, Polk County. (Kuitert, Eisenschenk).

CITRUS

Citrus Insect Situation in Florida - End of November - CITRUS RUST MITE (Phyllocoptiruta oleivora) infested 68 percent of groves (norm 65 percent); 46 percent economic (norm 46 percent). Population near normal and in high range. Although gradual decrease will continue, about 25 percent of groves will harbor important infestations on both leaves and fruit. Highest districts south, west and north. CITRUS RED MITE (Panonychus citri) infested 47 percent of groves (norm 39 percent); 17 percent economic (norm 13 percent). Statewide population increased to above average level. Characterized by marked increase in west and north districts, moderate increase in east district and slight decrease in central and south districts. Scattered heavy infestations will continue to occur, being most numerous in high districts. TEXAS CITRUS MITE (Eutetranychus banksi) infested 22 percent of groves (norm 46 percent); 9 percent economic (norm 19 percent). Populations increased slightly but continued below average and in low range. Increase expected in December if dry weather continues. Few scattered groves will have important infestations. Highest districts north and west. YELLOW SCALE (Aonidiella citrina) infested 67 percent of groves, 13 percent economic. Population above average and in moderate range. Slight increase expected; few infestations will be heavy. Highest districts east, south and central. GLOVER SCALE (Lepidosaphes gloverii) infested 64 percent of groves; 14 percent economic. Population above average and in moderate range. Little change expected. Highest districts east and central. PURPLE SCALE (L. beckii) slightly below normal; in moderate range; little change expected. CHAFF SCALE (Parlatoria pergandii) below normal; in low to moderate range; slight increase expected. BLACK SCALE (Saissetia oleae) below normal; in low range; little change expected. WHITEFLY population below normal; in moderate range; slight increase expected. (W. A. Simanton, (Citrus Exp. Sta., Lake Alfred)).

APHIDS - CALIFORNIA - Myzus persicae and probably Aphis gossypii medium on citrus nursery stock in Santa Cruz, Santa Cruz County. This is early for buildup. Serious consequences could develop if weather interferes with treatment in commercial acreages. (Cal. Coop. Rpt.).

SOFT SCALES - CALIFORNIA - Coccus hesperidum medium on citrus and Protospulvinaria pyriformis medium on lemon trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

ARMORED SCALES - CALIFORNIA - Aonidiella aurantii heavy on lemon plantings in Pauma Valley, San Diego County. This scale normally controlled biologically in coastal area. Lepidosaphes beckii medium on citrus locally in San Diego. (Cal. Coop. Rpt.).

WOOLLY WHITEFLY (Aleurothrix floccosus) - CALIFORNIA - Delimiting survey includes an area 3 by 4 miles in city of San Diego. Infestations light to heavy on citrus in area and as far as Encanto in San Diego County. This is only location in State where this whitefly is known to occur. (Cal. Coop. Rpt.).

ORNAMENTALS

BRONZE BIRCH BORER (Agrilus anxius) - UTAH - Larvae boring and killing weeping birch at River Heights, Cache County, during August. Det. by G. B. Vogt. Many birch trees killed in spring 1966; probably due to this pest. This is first record for State. (Knowlton, Dec. 2).

APHIDS - ALABAMA - Winged and wingless forms of Aphis spiraeicola plentiful on spirea in central area. Most adults laying eggs along stems and against buds. Up to 10-30 eggs attached to each small stem or branch. (McQueen, Dec. 2). WASHINGTON - Apterous and alate forms of Dysaphis tulipae and Rhopalosiphoninus staphyleae moderate on tulip and iris bulbs in warehouse at Sumner, Pierce County. (Coudriet).

ARMORED SCALES - FLORIDA - Hemiberlesia diffinis observed on hickory in nursery at Chiefland, Levy County. This is new host record. (Graham, Nov. 17). All stages of Diaspis boisduvalii infesting leaves of 25 percent of 400 hybrid orchid plants in nursery at Oviedo, Seminole County. (Kipp, Nov. 23). Pseudaulacaspis pentagona infesting stems of 25 percent of all allamanda plants in nurseries at Gainesville, Alachua County, and at Orlovista, Orange County. Moderate on stems of 75 percent of 1,300 Chinese ligustrum plants in nursery at Fellowship, Marion County. (Graham et al.). ALABAMA - Fiorinia theae increasing on holly and camellia plants throughout State. Crawlers present in large numbers. (McQueen). CALIFORNIA - Parlatoria oleae heavy on Heteromeles arbutifolia in Marysville, Yuba County, and on boxwood in Lincoln, Placer County. (Cal. Coop. Rpt.).

MEALYBUGS - CALIFORNIA - Phenacoccus gossypii heavy on hibiscus and Pseudococcus obscurus heavy on New Zealand flax and pomegranate nursery plants in Vista, San Diego County. (Cal. Coop. Rpt.).

GREENHOUSE ORTHEZIA (Orthezia insignis) - CALIFORNIA - Locally heavy on lantana plants in San Diego, San Diego County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - MINNESOTA - Recent survey showed serious economic damage in Pine Island State Forest. Additional surveys planned during winter in other areas of State. (Minn. Ins. Rpt.).

A PITCH MOTH (Vespa mima sp.) - CALIFORNIA - Locally heavy in pine trees in Paradise, Butte County. (Cal. Coop. Rpt.).

APHIDS - ALABAMA - Eulachnus spp. heavy on all pine trees in central area. No damage reported. Light to heavy amounts of honeydew causing black sooty mold on cars and shrubs beneath trees. These aphids caused much concern in November and December 1963 and in January 1964. (Sowell et al.).

MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Anopheles quadrimaculatus, Culex salinarius and Culiseta inornata. C. inornata adults increased in light trap collections; 22 light traps averaged 12.9 mosquitoes throughout parish. (Stokes).

Arbovirus Encephalitis in the United States, 1966 - Total of 495 human cases of arbovirus infections were reported from 20 States through October 29, 1966. Of these, 414 were St. Louis encephalitis, 41 western encephalitis, 38 California encephalitis and 1 eastern encephalitis. St. Louis encephalitis - Large urban epidemics occurred in Dallas (176 cases and 19 deaths) and Corpus Christi (102 cases and 3 deaths). In addition, 3 other urban areas recognized human infections: Fort Worth (17 cases), New Orleans (16 cases) and St. Louis (6 cases). An additional 89 cases were reported from rural areas. The total of 414 St. Louis encephalitis cases reported so far this year represents the third largest total notified in any year since encephalitis surveillance was instituted in 1955; in 1964, 470 cases were reported, and in 1956, 563 cases. Western encephalitis - Only minimal activity was recognized this summer in contrast to last year. Thirteen Western and Midwestern States reported 41 infections in humans. However, virus activity was widespread geographically. The largest number of cases was reported from the Texas High Plains (11 from Hale County), the Central Valley of California (7 cases) and Colorado (7 cases). California encephalitis - Of the 38 reported cases all but 2 were from Ohio. Eastern encephalitis - The single case reported for the United States was a 2-month-old child from Jacksonville, Florida, who apparently was infected while visiting in Darien, McIntosh County, Georgia. (Vector Control Briefs (USPHS) 18:3, 1966).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 36 cases reported in U. S. December 4-10 as follows: TEXAS - Jim Hogg 2, Presidio 2, Uvalde 1, Webb 3, Hidalgo 1. ARIZONA - Pinal 13, (7 cases from same property), Maricopa 7, Yuma 3, Graham 1, Gila 2. CALIFORNIA - Riverside 1. Total of 376 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 70, Sonora 224, Chihuahua 21, Coahuila 8, Nuevo Leon 33, Tamaulipas 20. Total of 17 cases reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 33,654,250, Arizona 10,280,000, California 1,716,000, Mexico 83,100,000. (Anim. Health Div.).

LESSER MEALWORM (*Alphitobius diaperinus*) - MINNESOTA - Infesting several poultry houses throughout State. (Minn. Ins. Rpt.).

BENEFICIAL INSECTS

GOLDEN-EYE LACEWING (*Chrysopa oculata*) - ALABAMA - Larvae active and feeding on aphids on pine trees. (McQueen).

A SYRPHID FLY - ALABAMA - Adults of an undetermined species plentiful on warm days in search of aphids on spirea and other plants in central and southern areas. Light numbers of larvae feeding on aphids. (McQueen, Dec. 2).

CONVERGENT LADY BEETLE (*Hippodamia convergens*) - ALABAMA - Adults active on turnip aphids in Lee County. (McQueen).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Single larva recovered from cotton boll in Lancaster, Los Angeles County, and one at Cantil, Kern County. Most cotton harvested; large acreages shredded and plowed under. Heavy rains during November delayed harvest. Survey negative in the San Joaquin Valley. (Cal. Coop. Rpt.).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Larvae taken from fruit of guava at residence in Miami, Dade County; 13 larvae and pupae collected from kumquat in Sebring, Highlands County. (Hancock, Morris).

Weather continued from page 1132.

TEMPERATURE: Strong southerly winds produced a massive flow of warm, humid air and brought near record high temperatures to much of the eastern half of the Nation. Syracuse, New York, registered 69° on Thursday and 70° on Saturday, the highest temperatures on record for any December at that station. Trenton, New Jersey, set a new high-temperature record on Saturday with a 72° reading. The previous high reading for December (in 101 years) was 70°. Similar new records were set in about 11 States. Frigid Arctic air spilled southward over the Central States early Friday morning, with temperatures ranging from the 60's from Mississippi to Ohio in advance of the cold air, to the 30's from Oklahoma to Michigan behind the leading edge of the cold air, and below zero in northern Montana and North Dakota. The freezing line had plunged southward to the western portion of the gulf coast by Sunday bringing a 27° temperature to Houston, Texas. Farther north, the zero line enclosed western Kansas, much of the Colorado Rockies, and probably extreme north-central New Mexico. Sub-zero temperatures occurred in at least 11 States. For the week, temperatures averaged below normal over the northern Great Plains, from Montana to Minnesota and southward to Nebraska and Kansas, and above normal over the rest of the Nation. (Summary supplied by Environmental Data Service, ESSA).

INSECT DETECTION

New State Records

A WEEVIL (Cleonus trivittatus) - MONTANA - Collected on Oxytropis sericea (locoweed) September 9, 1966, in Carter County. Det. by R. E. Warner. New State record. (PPC).

BRONZE BIRCH BORER (Agrilus anxius) - UTAH - Collected from birch at River Heights, Cache County, during August 1966. Det. by G. B. Vogt. (p. 1135).

CORRECTIONS

CEIR 16(47):1081 - APPLE MAGGOT (Rhagoletis pomonella) - MARYLAND - Should read: Larvae collected from apricot July 10, 1966, ..."

CEIR 16(49):1126 - Line 1: Prodenia litura (F.) should read Spodoptera litura (F.).

LIGHT TRAP COLLECTIONS

GEORGIA - Tifton, 12/1-12/7, 1 blacklight trap; temperature 27-69° - Corn earworm (Heliothis zea) 1. FLORIDA - Gainesville, 12/5, 7, 1 blacklight trap - Granulate cutworm (Feltia subterranea) 3; yellow-striped armyworm (Prodenia ornithogalli) 2; armyworm (Pseudaletia unipuncta) 11. Gainesville, 6 miles southwest, 12/5, 1 blacklight trap - Black cutworm (Agrotis epsilon) 12; granulate cutworm 1; corn earworm 1; yellow-striped armyworm 4; armyworm 18. SOUTH CAROLINA - Charleston, 11/28-12/4, temperature 27-71° - Black cutworm 1, granulate cutworm 1.

HAWAII INSECT REPORT

Insects of Regional Significance - Another female of a GRASSHOPPER (Schistocerca vaga) collected in Eleele, Kauai, making total of 5 females caught on island. (Au). SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) very active on macadamia nuts at Kohala, Hawaii Island. Damage ranged 8-25 percent. (Yoshioka). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) medium to heavy on cucumbers, beans and bittermelons in Waiialua and Pupukea area of Oahu and on eggplant and beans in Waimanalo and Waianae. (Funasaki et al.).

Turf, Pastures - LAWN ARMYWORM (Spodoptera mauritia acronyctoides) damage to Bermuda grass at Lihue Airport, Kauai, increased to 2 acres. Infestation continues, more damage expected. (Au). A BILLBUG (Sphenophorus venatus vestitus) infesting approximately 10,000-15,000 acres of Kikuyu grass pasture on Hawaii Island from Kahua Ranch in Kohala through Waimea to Paauilo. Averaged 0.25 larva per square foot. Evidence of feeding on rhizomes indicated high larval populations in many areas. Total of 4 adults found at 40 digging sites. (Bianchi et al.). Larvae of FULLER ROSE BEETLE (Pantomorus cervinus) observed in Kikuyu grass pasture in Kahua Ranch on November 23. At 40 digging sites, 1 foot square in size, 25 larvae detected. No serious damage evident. (Bianchi et al.).

General Vegetables - BEET ARMYWORM (Spodoptera exigua) larvae heavy in one acre of green onions in Waimanalo, Oahu. (Funasaki). LEAF MINER FLIES (Liriomyza spp.) light to medium on young cucumber plantings in Waianae, Oahu, heavy on older cucumbers in Waiialua. Medium to heavy on cabbage in Waimanalo. (Yamamoto et al.). A TARO LEAFHOPPER (Tarophagus proserpina) generally light throughout Hanapepe and Hanalei, Kauai. A PREDACEOUS CASPID BUG (Cyrtorhinus fulvus) exerting effective egg control. (Au).

Citrus - Larvae of a CHLOROPID FLY (Chlorops sp.) infesting roots of citrus seedlings in Waikapu, Maui. A similar infestation occurred in October, 1957, in Hilo, Hawaii Island. Damage appeared associated with moist growing conditions and presence of fungus. (LaPlante).

Ornamentals - Larvae of a NOCTUID MOTH (Achaea janata) heavy in 10 square yards of poinsettias at Honolulu, Oahu. Consumed all leaves and bracts. (Watson). WESTERN FLOWER THRIPS (Frankliniella occidentalis) on Kauai, extended its range to Kapaa; believed responsible for recent severe damage to carnations. (Au).

Beneficial Insects - Larval feeding damage of an ARCTIID MOTH (Selca brunella) very conspicuous near Kipu, Kauai, the original release site. Present buildup indicates establishment in area. (Au).

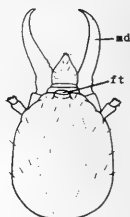
Key to Eight Termite Genera. This revision replaces page 1096 in CEIR 16(47).

5. Fontanelle (ft) large and tubular (Fig. 13)....

.....Coptotermes

Fontanelle (ft) not large and tubular, some-
times very small, circular, and distinct.....

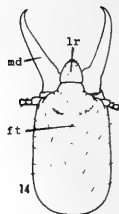
.....6



13

6. Head long and narrow, mandibles (md) without prominent tooth, basal inner margin of left mandible with serrations, fontanelle (ft) small and circular, pronotum flat (Figs. 14, 15)....

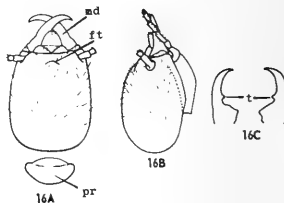
.....7



14

Head shorter in relation to width (Fig. 16A),
mandibles (md) with a prominent tooth (t)
(Fig. 16C); pronotum (pr) saddle-shaped,
with front region raised upward (Fig. 16A);
side view of head (Fig. 16B).....

..... Amitermes



16A

16B

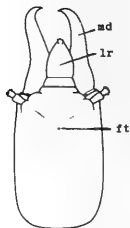
16C

7. Mandibles (md) long, slender, and curved slightly inward at tips (Fig. 14).....

.....Heterotermes

Mandibles (md) short, thick, and hooked at tips
(Fig. 15).....

.....Reticulitermes



15



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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

CHINCH BUG population lowest in many years in Illinois; also low in Missouri. (p. 1143). WINTER GRAIN MITE increasing and causing discoloration to small grains in southeast Kansas. (p. 1143).

CATTLE GRUBS beginning to cut holes in backs of cattle in western Nebraska; moderate to heavy in Oklahoma. (p. 1146).

INDIAN-MEAL MOTH heavy in stored grain at Phoenix, Arizona. (p. 1146).

PINK BOLLWORM situation in western States. (p. 1147).

Additional ORIENTAL FRUIT FLY collected in Orange County, California. (p. 1147).

Detection

New State records include SPOTTED ALFALFA APHID (Therioaphis maculata) in New Jersey (p. 1143), CLOVER HEAD WEEVIL (Hypera meleis) and CLOVER ROOT WEEVIL (Sitona hispidula) in Oklahoma (p. 1144), and a WEEVIL (Apion longirostre) in New Jersey (p. 1145).

Special Reports

Highlights of the Occurrence of Insects and Other Arthropods in Canada, 1965. (p. 1150).

Cereal Leaf Beetle Quarantine (Map). See centerfold.

Reports in this issue are for week ending December 16 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....1143

Insects Affecting

Small Grains.....1143	Citrus.....1144
Turf, Pastures, Rangeland.....1143	Ornamentals.....1145
Forage Legumes.....1144	Forest and Shade Trees.....1145
Cotton.....1144	Man and Animals.....1146
Sugarbeets.....1144	Households and Structures.....1146
Cole Crops.....1144	Stored Products.....1146

Beneficial Insects.....1147

Federal and State Plant Protection Programs.....1147

Insect Detection.....1148

Corrections.....1148

Light Trap Collections.....1148

Hawaii Insect Report.....1149

Highlights of the Occurrence of Insects and Other Arthropods
in Canada, 1965.....1150

Cereal Leaf Beetle Quarantine (Map) - See centerfold

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-DECEMBER TO MID-JANUARY 1967

The Weather Bureau's 30-day outlook for mid-December to mid-January calls for temperatures to average below seasonal normals over the eastern half of the Nation. Above normal temperatures are indicated for most of the northern and central Plains, the southern Plateau, and the Pacific Northwest while near normal averages are called for in unspecified areas. Precipitation is expected to exceed normal over the gulf and south Atlantic coastal regions. Subnormal totals are called for over the northern and central Plateau in the West, the northern and central Plains, and the upper and middle Mississippi Valley. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price \$5.00 a year.

Weather continued on page 1147.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Light on alfalfa in Chaves County. (Mathews, Dec. 9). OKLAHOMA - Heavy on alfalfa in Mayes County. (Okla. Coop. Sur.). MISSISSIPPI - Heavy on alfalfa in Pontotoc County. Both winged and nonwinged forms present. Nymphal forms also present in large numbers. Approximately 60-75 aphids per square foot. (Dinkins). NEW JERSEY - First collection in State from alfalfa near Greenwich, Cumberland County, September 24, 1964. Also found in Gloucester County in 1964. Collected in Cape May and Salem Counties in 1965. Det. by L. M. Russel. Collected in Burlington County during 1966. (Race). These localities did not appear on distribution map, CEIR 16(44): 1038. (PPC).

GREENBUG (Schizaphis graminum) - KANSAS - None found in wheat in western half of State during last 2 weeks. (Redding). Very light, 0-3 per linear foot in Cowley, Chautauqua and Montgomery Counties. (Simpson). OKLAHOMA - Ranged 0-16 per linear foot on wheat checked in Noble, Kay, and Grant Counties. Averaged 3 and 25 per linear foot in 2 fields near Perkins, Payne County. (Okla. Coop. Sur.). ARKANSAS - Survey negative in northwest area. (Boyer). ALABAMA - Light on wheat and oats in several fields in Lee County. Larvae of a syrphid fly feeding on aphids in numerous locations. (McQueen).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Light to moderate on barley in Dona Ana County. (Elson).

SMALL GRAINS

CHINCH BUG (Blissus leucopterus) - ILLINOIS - Annual fall survey completed; populations lowest recorded for many years. State average noneconomic, 49.3 per square foot. (White). MISSOURI - Very light hibernating populations observed in southwest, northwest, and northeast areas. (Munson).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Remains very low; occasional specimen found in northwest area. (Boyer). OKLAHOMA - Light, 1-5 per linear foot on wheat in Noble, Kay and Grant Counties. (Okla. Coop. Sur.).

APHIDS (Rhopalosiphum spp.) - KANSAS - R. rufiabdominalis light, 5-10 per plant in most wheat fields throughout State. (Simpson). OKLAHOMA - R. padi ranged 1-10 per linear foot on wheat in Noble, Kay, Grant and Major Counties. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged 1-10 per linear foot on wheat in Noble, Kay and Major Counties. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - KANSAS - Increasing and causing discoloration of leaves in some southeast area fields. (Brooks).

TURF, PASTURES, RANGELAND

MAIZE BILLBUG (Sphenophorus maidis) - SOUTH CAROLINA - Larvae infesting lawn at Conway, Horry County. Det. by R. C. Fox. (Nettles et al., Dec. 13).

A FLEAHOPPER (Spanogonicus albofasciatus) - CALIFORNIA - Nymphs and adults infesting dichondra lawns at Orange, Orange County. (Cal. Coop. Rpt.).

FRIT FLY (Oscinella frit) - CALIFORNIA - Heavy in Bermuda grass lawns locally at El Centro, Imperial County. More nuisance than damaging to lawns. (Cal. Coop. Rpt.).

SNAILS - CALIFORNIA - Vallonia pulchella medium in yards locally at Visalia, Tulare County. Heavy populations of Oxychilus sp. infesting Korean grass and ajuga locally in San Diego, San Diego County. (Cal. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - INDIANA - Counts from alfalfa in Ohio River floodplain area of Harrison County as follows: Adults per 100 sweeps - November 23, 55; December 7, 88. Eggs per square foot - October 12, 2; October 26, 11; November 9, 25; November 23, 62; December 7, 88. Egg counts per square foot in Seymour area, Jackson County: October 12, 1; October 25, 7; November 23, 44. (Hintz).

CLOVER HEAD WEEVIL (Hypera meles) - OKLAHOMA - Collected during alfalfa weevil survey in Adair County in May and June, 1966. Det. by R. E. Warner. This is new State record. (Okla. Coop. Sur.).

CLOVER ROOT WEEVIL (Sitona hispidula) - OKLAHOMA - Collected during alfalfa weevil survey in Adair County during May and June, 1966. Det. by R. E. Warner. This is new State record. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphum pisum) - MISSISSIPPI - Heavy on alfalfa and vetch in Pontotoc County. Both winged and nonwinged forms present. Nymphal forms also present in large numbers. Approximately 60-75 per square foot. (Dinkins). ARK-ANSAS - Increased slightly, 15-20 per square foot of vetch in northwest area. (Boyer). NEW MEXICO - Light to heavy on alfalfa in Chaves County. Leaves brown where aphids heavy. (Mathews, Dec. 9). Light to heavy on alfalfa in Lea County. (Mathews).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - MISSISSIPPI - Light on alfalfa in Pontotoc County; 1 per square foot. (Dinkins).

COTTON

BOLL WEEVIL COMPLEX (Anthonomus grandis complex) - ARIZONA - Light to moderate in Tonapah and Harquahala areas of western Maricopa County. (Ariz. Coop. Sur.).

SUGARBEETS

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Moderate; continue damaging sugar-beet leaves in Chandler and Mesa areas of Maricopa County. (Ariz. Coop. Sur.).

GARDEN WEBWORM (Loxostege similalis) - ARIZONA - Numerous light infestations beginning to appear on sugarbeets in Mesa area, Maricopa County; still noneconomic. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Populations remain constant; however, continue problem on sugarbeets and vegetables in Maricopa, Pinal and Yuma Counties. (Ariz. Coop. Sur.).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Larvae medium on 5 acres of cabbage in Oceano, San Luis Obispo County. (Cal. Coop. Rpt.).

CITRUS

ARMORED SCALES - FLORIDA - Unaspis citri moderately infesting 30 percent of 330 nursery plants of sweet orange at Sorrento, Lake County. Moderately infesting 30 percent of 7,828 nursery plants of sweet orange at Ferndale, Lake County. Heavy population of live crawlers and adults. (Simpson, Dec. 12). Adults of Lepidosaphes gloverii infesting 25 percent of 2,862 nursery tangelo plants at Polk City, Polk County. Margins of leaves yellow where scales located. (Eisenschenk, Dec. 12).

CITRUS RED MITE (Panonychus citri) - FLORIDA - Adults severe on 2,500 citrus nursery plants at Brooksville, Hernando County. (Williams).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults moderate on 75 percent of 2,600 nursery grapefruit plants at Turkey Creek, Hillsborough County. (Vaughn, Dec. 12).

ORNAMENTALS

A WEEVIL (Apion longirostre) - NEW JERSEY - Collected from hollyhock in May, 1965, at Haddonfield. Det. by R. E. Warner. New State record. (Leonard).

THRIPS (Frankliniella spp.) - ALABAMA - F. fusca and F. tritici adults and nymphs heavy on blossoms of Camellia sasanqua and on leaves of spider lily. (McQueen).

WHITEFLIES - ALABAMA - Nymphs extremely damaging to gardenia throughout State. Very few adults observed; up to 250 nymphs per leaf. Sooty mold present. (McGinty et al.). NEW MEXICO - Heavy on old poinsettias, Christmas peppers and wild lettuce at Farmington, San Juan County. (Heninger, Dec. 9).

APHIDS (Cinara spp.) - NEW MEXICO - Heavy on ornamental plantings throughout Albuquerque with heavy honeydew being deposited on plants. (Heninger). OKLAHOMA - First C. tujafilina of season noted on evergreens in Perry, Noble County. Infestation light, but noticeable honeydew present. (Okla. Coop. Sur.).

ARMORED SCALES - FLORIDA - All stages of Phenacaspis cockerelli severe on leaves of bull bay and European fan palm at Oviedo. (Kipp, Dec. 12). All stages of Chrysomphalus anidum severe on 100 butia palm at a garden in Oviedo. (Kipp, Dec. 12). All stages of Pseudaulacaspis pentagona severely infesting stems of cherry laurel at Oviedo, Seminole County; also severely infesting 5 golden rain trees at same garden. (Kipp, Dec. 8).

COTTONY CUSHION SCALE (Icerya purchasi) - FLORIDA - All stages severe on 15 of 50 chamaedorea palm in nursery at Deerfield Beach, Broward County. (Clinton, Dec. 5).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Heavy on lantana plants in Hamilton Air Force Base, Marin County. (Cal. Coop. Rpt.).

SPIDER MITES - NEW MEXICO - Undertermined species heavy on dwarf ornamental orange trees and caladium at Los Alamos, Los Alamos County. (Heninger, Dec. 9).

CALIFORNIA - Panonychus citri and Tetranychus sp. heavy on Skimmia sp. nursery stock in San Leandro, Alameda County. Citrus red mite is slowly extending its host range in State. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEBRASKA - Heavy in some dead elm trees at Lincoln, Lancaster County. (Rhine).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Observed in young loblolly and short-leaf pine trees in several counties; light numbers of pupae overwintering in tips of pines. High numbers of pupae observed on ornamental pine and isolated plants. (McQueen).

AN APHID (Lachnus salignus) - CALIFORNIA - Medium on willow in Fresno, Fresno County. Willow held its foliage very late this season. (Cal. Coop. Rpt.).

A FALSE SPIDER MITE (Brevipalpus pini) - CALIFORNIA - Heavy populations infesting 1,500 Monterey pine trees on Vandenberg Air Force Base, Santa Barbara County. (Cal. Coop. Rpt.).

MAN AND ANIMALS

LARDER BEETLE (Dermestes lardarius) - UTAH - Infesting nests and present on droppings at mink farm near Tremonton, Box Elder County, September 15, 1966. Det. by J. M. Kingsolver. (Knowlton).

CATTLE GRUBS (Hypoderma spp.) - NEBRASKA - Beginning to cut holes in backs of cattle in western area. (Anderson). OKLAHOMA - H. lineatum ranged 0-17 per head on 175 cows in Major County. Moderate to heavy in Payne and Comanche Counties. (Okla. Coop. Sur.).

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Anopheles quadrimaculatus, Culex salinarius and Culiseta inornata. Mosquitoes average 12.8 per night in collections from 20 light traps throughout parish. Culex salinarius and Culiseta inornata dominant species. (Stokes).

FACE FLY (Musca autumnalis) - NEBRASKA - Numerous reports of overwintering flies in buildings over State. (Rhine).

SCREW-WORM (Cochliomyia hominivorax) - Total of 15 cases reported in U. S. December 11-17 at follows: TEXAS - Zapata 1, Starr 1, Hidalgo 1, Presidio 2, Maverick 1, Val Verde 1. ARIZONA - Gila 1, Graham 1, Maricopa 1. CALIFORNIA - Imperial 4, Riverside 1. Total of 265 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 56, Sonora 136, Chihuahua 26, Coahuila 15, Nuevo Leon 16, Tamaulipas 16. Total of 14 cases reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 35,828,250, Arizona 10,548,000, California 3,032,000, Mexico 89,010,000. (Anim. Health Div.).

HOUSEHOLDS AND STRUCTURES

COCKROACHES - ALABAMA - Numerous reports of Blattella germanica and Periplaneta americana received from several towns in central section indicating increase in population. (McQueen). NEBRASKA - Supella supellectilium heavy in some homes and university buildings at Lincoln, Lancaster County. (Rhine).

MILLIPEDS - Virginia - Nuisance on lawns and in homes in Campbell, Prince Edward, Cumberland and Gloucester Counties. (Isakson).

STORED PRODUCTS

POTATO TUBERWORM (Phthorimaea operculella) - MARYLAND - Heavy in 5 bushels of stored potatoes on farm near Salisbury, Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Larvae infesting majority of stored potatoes at Chester, Chesterfield County. (Isakson, Jones).

INDIAN-MEAL MOTH (Plodia interpunctella) - ARIZONA - Heavy infestations damaging stored grain in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

A SCOLYTID BEETLE (Coccotrypes carpophagus) - FLORIDA - Adults infesting seeds of neanthebella palm (Chamaedorea elegans) at nursery in Bradenton, Manatee County. Seeds collected in Mexico, fumigated and stored before use in Bradenton. (Bickner, Dec. 2).

SPIDER BEETLES (Undetermined spp.) - NEW MEXICO - Medium in feed and feed sacks at Las Vegas, San Miguel County. (Kloepfer).

BENEFICIAL INSECTS

A BRACONID (Aphidius pulcher) - UTAH - Heavily parasitizing pea aphid at Willard, Box Elder County, September 29, 1966. Det. by P. M. Marsh. (Knowlton).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - Lint cleaner inspections revealed heavy infestations in Maricopa, Yuma, and Graham Counties, Arizona. Up to 32,000 larvae noted on lint cleaners in East Phoenix area. Heavily infesting top pods of commercial okra in Phoenix area. Seasonal collections in California as follows: Imperial County - Imperial Valley 1,078 moths, 560 larvae; Bard Valley 677 moths, 1,098 larvae. San Diego County - Borrego Valley 25 moths. Riverside County - Palo Verde Valley 3,097 moths, 10,251 larvae; Coachella Valley 59 moths, 17 larvae. San Bernardino County - Needles 145 moths, 9 larvae; Sandy Valley 1 moth. Kern County - Cantil 2 moths, 1 larvae. Los Angeles County - Lancaster 4 moths. Trapping discontinued after killing frost in Nevada. Some increase indicated in Chaves and Luna Counties, New Mexico. (PPC West. Reg. Rpt., Nov. Sum.). NEW MEXICO - Live larvae observed on immature bolls left in fields in Dona Ana County. (Campbell, Elson, Dec. 9).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MASSACHUSETTS - Two winter webs found at Great Island, Barnstable County. This infestation is on Cape Cod National Seashore lands and 10 miles from nearest known infestation at Truro. (PPC East. Reg. Rpt., Nov. Sum.).

KHAPRA BEETLE (Trogoderma granarium) - ARKANSAS - Inspections in Clark, Hempstead and Nevada Counties negative. (Shotts).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Collected 1 male and 3 females at Cortez, Manatee County. (Blickner, Dec. 12).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Second fly collected November 30 in orange tree at Anaheim, Orange County. Eradication density trapping now in progress. (Cal. Coop. Rpt.).

Weather continued from page 1142.

WEATHER OF THE WEEK ENDING DECEMBER 19, 1966

HIGHLIGHTS: The first major snowstorm of the season dumped 5-12 inches along the Appalachian chain from western North Carolina to southern New England. It was the third week of mild temperatures west of the Rockies.

PRECIPITATION: Early in the week a storm developed off the coast of Georgia and moved northeastward. It produced rain along the coast and the first major snowstorm of the season in the Appalachians. Snowfall ranged up to 6 inches in the southern Appalachians; 12 inches in western Virginia, 5-10 inches in southeastern Pennsylvania, and 5-8 inches in the lower Hudson Valley in southern New England. Light snow fell in northern Minnesota and Upper Michigan over the weekend. No significant precipitation fell in the northern Great Plains or from southern California to Ohio. Light precipitation occurred in the far Northwest on several days. Rain fell along the coast, with snow in the higher elevations.

TEMPERATURE: Temperatures averaged below normal from Texas eastward to the Atlantic Coast. Freezing temperatures occurred in the lower Rio Grande Valley along the gulf coast and over northern and central Florida. A few stations in northern Florida registered temperatures in the mid-20's on 1-2 days. Temperatures averaged above normal over the rest of the Nation with mild weather continuing from the Pacific Ocean to the Rocky Mountains for the 3rd consecutive

Weather continued on page 1149.

INSECT DETECTION

New State Records

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW JERSEY - Collected at Greenwich, Cumberland County, September 24, 1964. Det. by L. M. Russel. (p. 1143).

CLOVER HEAD WEEVIL (Hypera meles) - OKLAHOMA - Collected from Adair County in May and June, 1966. Det. by R. E. Warner. (p. 1144).

CLOVER ROOT WEEVIL (Sitona hispidula) - OKLAHOMA - Collected from Adair County in May and June, 1966. Det. by R. E. Warner. (p. 1144).

A WEEVIL (Apion longirostre) - NEW JERSEY - Collected from hollyhock in May, 1965, at Haddonfield by M. D. Leonard. Det. by R. E. Warner. (p. 1145).

New County Records

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW JERSEY - Collected from Gloucester County in 1964; Cape May and Salem Counties in 1965. Det. by L. M. Russel. Collected from Burlington County in 1966. (p. 1143).

CORRECTIONS

CEIR 16(48):1103 - MAINE - A WEEVIL (Homorus undulatus) delete New State record, as this previously was recorded at Seal Harbor, by W. Proctor (Biol. Surv. Mount Desert Region, Part VI, The Insect Fauna, p. 165, 1938). (Brower).

CEIR 16(48):1104 - ARKANSAS - A STRATIOMYID FLY (Stratiomys laticeps) should be A STRATIOMYID FLY (Hermetia illucens). (Boyer).

LIGHT TRAP COLLECTIONS

GEORGIA - Tifton, 12/8-14, 1 blacklight trap, temperature 36-77° - Corn earworm (Heliothis zea) 3. FLORIDA - Gainesville, 12/12-14, 1 BL, Armyworm (Pseudaletia unipuncta) 1. SOUTH CAROLINA - Charleston, 12/5-11, 1 BL, temperature 35-79°; precipitation 0.43 - Armyworm 17, fall armyworm (Spodoptera frugiperda) 2, black cutworm (Agrotis ipsilon) 11, granulate cutworm (Feltia subterranea) 13, corn earworm 1. TEXAS - Brownsville, 12/3-9, 2 BL, temperature 58-84°, precipitation 0.04, - Black cutworm 203, salt-marsh caterpillar (Estigmene acrea) 32, granulate cutworm 160, tobacco budworm (Heliothis virescens) 2, corn earworm 4, variegated cutworm (Peridroma saucia) 54, yellow-striped armyworm (Prodenia ornithogalli) 100, armyworm 730, beet armyworm (Spodoptera exigua) 196, fall armyworm 34, cabbage looper (Trichoplusia ni) 42.

HAWAII INSECT REPORT

Sorghum - Adults of SORGHUM MIDGE (Contarinia sorghicola) light on 7 acres of sorghum in Waianae, Oahu. Confined to developing spikelets. (Nakao, Jackson).

Turf - LAWN ARMYWORM (Spodoptera mauritia acronyctoides) very heavy on several lawns in Kaneohe, Oahu. Adults and pupae of an armyworm parasite, Apanteles marginiventris, moderate on leaf blades (Funasaki).

Forage Legumes - All stages of COTTONY-CUSHION SCALE (Icerya purchasi) light to medium on clover in Kalaheo, Kauai. Few VEDALIA (Rodolia cardinalis) noted. (Au).

Cole Crops - IMPORTED CABBAGEWORM (Pieris rapae) adults heavy in 0.5 acre of cauliflower at Pulehu, Maui. (Miyahira).

Fruits and Nuts - SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) nymphs and adults increasing on macadamia nuts in Kainaliu, Hawaii Island. Damage ranged 10-20 percent during past several months. (Yamamoto, Erskine). RED-BANDED THRIPS (Selenothrips rubrocinctus) medium and causing heavy foliar damage to mango in Hanapepe, Kauai. Many young leaves withered or showed darkened areas. (Au).

Ornamentals - A SPIDER MITE (Eotetranychus lewisi) heavy and caused yellowing of leaves on poinsettia plants in Waipahu, Oahu. (Nakao, Jackson). Medium infestation of GREEN SCALE (Coccus viridis) observed on 9 of 18 gardenia plants in Kaneohe, Oahu. Larvae of a COCCINELLID BEETLE (Cryptolaemus montrouzieri) light on foliage. (Funasaki).

Forest and Shade Trees - Nymphs and adults of a PLATASPID BUG (Coptosoma xanthogramma) light on potted Benjamin trees (Ficus benjamina) at university campus in Honolulu; this is new host record. (Mitchell).

Man and Animals - Total of 1,905 Aedes vexans nocturnus and 13,581 Culex pipiens quinquefasciatus taken in light traps on Oahu, operated by Mosquito Control Branch, Department of Health. Culex spp. counts highest in Waialua-Haleiwa, Kahana, Laie and Waianae areas. Aedes spp. counts remained low in all areas of island. (Haw. Ins. Rpt.).

Beneficial Insects - A CERAMBYCID BEETLE (Plagiohammus spinipennis) medium to heavy on lantana at Kukui Paddock, Kau, Hawaii Island. Up to 15 larvae per stem. (Yoshioka).

Miscellaneous - GIANT AFRICAN SNAIL (Achatina fulica) activity continues in various areas on Maui. (Miyahira).

Weather continued from page 1147.

week. Late in the week, Chinook winds over the western edge of the Great Plains raised afternoon temperatures to the 50's and 60's on two or three days. Temperatures east of the Continental Divide in Montana and Wyoming and eastward to Lake Michigan averaged 7-16 degrees above normal. Arctic air plunged into the northern tier of the States from Minnesota to New England on Sunday. International Falls, Minnesota registered minus 13 degrees on Sunday morning and subzero temperatures occurred in northern New York and northern New England Monday morning. (Summary supplied by Environmental Data Service, ESSA).

HIGHLIGHTS OF THE OCCURRENCE OF INSECTS AND OTHER ARTHROPODS
IN CANADA, 1966

I. S. Creelman

Generally good growing conditions in most of the country resulted in excellent crops and not too much infestation or damage due to insects occurred.

GRASSHOPPERS were very scarce in western Canada. Little damage occurred in Alberta because of their late hatch, except to fall-seeded crops. A few areas in southern Alberta had large numbers of grasshoppers. Grasshoppers were present throughout Saskatchewan, but were the lowest since 1957. No significant damage occurred in Manitoba, due to late hatching plus excellent growing conditions.

In the interior of British Columbia, CUTWORMS were less destructive than usual. PALE WESTERN CUTWORM (Agrotis orthogonia) was widespread in Alberta, but for the first time in ten years no damage was reported, partly due to cool, wet weather last fall and this spring. Only light infestations are expected in east central and southeastern Alberta in 1967 if the early season is warm and dry. Cutworm activity was reported in Saskatchewan due to a cool, wet spring. Scattered damage to sugarbeets by RED-BACKED CUTWORM (Euxoa ochrogaster) was reported from Manitoba. ARMYWORM (Pseudaletia unipuncta) was not reported in Ontario. On the whole, cutworms were scarce in Ontario, but caused severe losses to field crops and vegetables in the Quebec City district. BRONZED CUTWORM (Nephelodes emmedonius) was notably scarce in the Dartmouth area of Nova Scotia. VARIEGATED CUTWORM (Peridroma saucia) was troublesome in Newfoundland during August and September on vegetables and ornamentals. WIREWORMS were reported widespread in Alberta but caused little damage. WHITE GRUBS (Phyllophaga spp.) were commonly present in Ontario but caused occasional damage only in scattered locations.

WHEAT STEM SAWFLY (Cephus cinctus) increased slightly from last year, but generally remained low to moderate and little damage was caused in Alberta. In Saskatchewan some infestation was reported especially in the west central part of the agricultural area, but again little damage occurred.

In Alberta GRAIN APHIDS occurred in high numbers during August and September damaging late barley and cover crops and transmitting some barley yellow dwarf virus. In the central and southern regions they damaged flax slowing the ripening of that crop. ENGLISH GRAIN APHID (Macrosiphum avenae) was abundant on wheat in Saskatchewan shortly before harvest and on fall rye, but caused little damage. In Manitoba, aphids were reported on barley at Arborg.

In southern Alberta, ALFALFA WEEVIL (Hypera postica) extended its area of economic damage around Lethbridge. A survey of the Niagara Peninsula and area from Lake Ontario east to the Maine border failed to turn up any sign of this weevil, although it is present in New York and Vermont close to the International Border. Some SWEETCLOVER WEEVIL (Sitona cylindricollis) damage was reported early in the season at Calgary and Berwyn in Alberta; some heavy infestations occurred in east central Saskatchewan, but no damage was reported.

Rape and mustard were damaged during the spring by a FLEA BEETLE (Phyllotreta cruciferae) and in late summer by DIAMONDBACK MOTH (Plutella maculipennis) larvae in the Prairie Provinces. Rape was damaged by RED TURNIP BEETLE (Entomoscelis americana) in Saskatchewan, by CLOVER MITE (Bryobia praetiosa) in the Neepawa region of Manitoba and by BERTHA ARMYWORM (Mamestra configurata) near Brooks, Alberta. A survey of southwestern Ontario, the region closest to the infestation in Michigan, Indiana, Ohio and Illinois, United States, failed to locate a single specimen of CEREAL LEAF BEETLE (Oulema melanopus).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) adults were plentiful and damage by the insect is spreading north and east throughout the corn belt of southern Ontario. Damage by second-generation EUROPEAN CORN BORER (Ostrinia nubilalis)

was severe in some fields of late corn and on late-planted sweet peppers in southwestern Ontario. For the first time in six years, damage by EUROPEAN CORN BORER to sweet corn was of economic importance in southwestern Quebec. CORN EARWORM (Heliothis zea) was conspicuously absent in Nova Scotia this year. CORN LEAF APHID (Rhopalosiphum maidis) was scarce in southern Ontario. A SAP BEETLE (Glichrochilus quadrisignatus) was unusually abundant throughout southwestern Ontario on raspberries, sweet corn and tomatoes and on sweet corn in some districts of southwestern Quebec. BUMBLE FLOWER BEETLE (Euphoria inda) damaged corn at Lethbridge, Alberta.

CABBAGE APHID (Brevicoryne brassicae) was more abundant than for several years in the Victoria area, and heavy flights of GREEN PEACH APHID (Myzus persicae) occurred in the potato-growing areas of the Lower Fraser Valley of British Columbia. Damage by ROOT MAGGOTS (Hylemya spp.) was light except to field beans in southwestern Ontario. They were present in normal numbers in southwestern Quebec, but caused severe losses in the Quebec City area, and caused some concern on root crops in Prince Edward Island. CABBAGE MAGGOT (H. brassicae), resistant to specific insecticides, appeared at Woodbridge, Ontario, and strains resistant to cyclodiene insecticides now have spread throughout the Province of Newfoundland. Some difficulty also developed with control by organophosphates. BEET LEAF MINER (Pegomya betae) was more noticeable than usual in home gardens in interior British Columbia, and SPINACH LEAF MINER (P. hyoscyami) was quite abundant in some areas of southern Quebec. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) was very abundant in Essex County, Ontario, and more numerous than for 20 years in Prince Edward Island. POTATO FLEA BEETLE (Epitrix cucumeris) was also numerous in Prince Edward Island. Population of CARROT RUST FLY (Psila rosae) has been increasing for three years in the muck-soil area of southwestern Quebec, but is not yet considered an important pest there. EUROPEAN FRUIT LECANIUM (Lecanium corni) was found on carrots in a field near infested elm trees in Nova Scotia. IMPORTED CABBAGEWORM (Pieris rapae) was more numerous than usual in southwestern Quebec, and a FLEA BEETLE (Systema frontalis) was numerous again in the region on a wide range of cultivated and wild plants. Injury to strawberry foliage by the latter pest was reported in some regions. No infestations of PEPPER MAGGOT (Zonosemata electa) on peppers were reported by growers in Essex County, Ontario, but large numbers were found on horsenettle. Populations of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) were very high on greenhouse cucumbers during May in Essex County.

EUROPEAN RED MITE (Panonychus ulmi) was favored by a hot, dry season in southern Ontario and was very prevalent in apple, pear, plum, sour cherry and peach. It was, as usual, a major pest in Quebec apple orchards, but in Nova Scotia PHYTO-PHAGOUS MITES were not a serious problem. ORIENTAL FRUIT MOTH (Grapholitha molesta) remained at a low level and was well controlled in southern Ontario. PEAR PSYLLA (Psylla pyricola) in the Niagara Peninsula was reduced to a low level by the August drought. An outbreak of TENT CATERPILLARS (Malacosoma spp.) occurred in eastern Ontario and in southern Quebec on apples with even more defoliation expected next year. They also were pests in Nova Scotia orchards. A second generation of CODLING MOTH (Carpocapsa pomonella) appeared on apples in the Georgian Bay Region of Ontario where more than one generation is seldom produced, and a partial third generation of RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) appeared in Norfolk County where two generations are normal. Activity by APPLE APHID (Aphis pomi) was not prolonged. CODLING MOTH was troublesome in poorly sprayed apple and pear orchards in the Niagara Peninsula. In Quebec, it is increasing and in Nova Scotia it showed marked increase to about three times its level of the past three years. APPLE MAGGOT (Rhagoletis pomonella) remained a major pest in Quebec apple orchards, causing damage even in commercial orchards and severe damage to small garden fruit trees. APPLE SEED CHALCID (Torymus varians) was found in some orchards in southwestern Quebec. PLUM CURCULIO (Conotrachelus nenuphar), which has not been a commercial problem since 1959, was present in all apple-growing areas of Quebec and caused serious

damage in some. PLUM CURCULIO and PLANT BUGS attacked peaches late in season in Essex County. APPLE MEALYBUG (Phenacoccus aceris) continued to be present in orchards in the Annapolis Valley of Nova Scotia, but did not cause as much damage as last year.

POPLAR-AND-WILLOW BORER (Sternochetus lapathi) was more prevalent than in past few years in the interior of British Columbia damaging poplar and willow. It also was reported damaging small willows in southwestern Essex County, Ontario. BRONZE BIRCH BORER (Agrilus anxius) severely infested ornamental birches in the Windsor, Ontario, area. LILAC LEAF MINER (Gracillaria syringella) continued very abundant at Kamloops, British Columbia, and PEPPER-AND-SALT MOTH (Biston cognataria) defoliated caragana at Lethbridge, Alberta. SPRING CANKERWORM (Palaecrita vernata) was prevalent on trees in Saskatchewan and Manitoba, as were TENT CATERPILLARS in Eastern Canada. EUROPEAN CRANE FLY (Tipula paludosa) is now found from the seacoast to the east boundary of the municipality of North Surrey, British Columbia. This area includes built-up areas of Vancouver, Burnaby, New Westminister and south to the International Boundary. Most damage so far is to lawns.

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) appears to be as abundant as usual. The tick problem is acute in the Dog Creek area. Wild foxes were paralyzed, as well as animals normally affected. Five young children were reported paralyzed in Alberta and British Columbia; all recovered upon removal of the ticks. CATTLE WARBLE infestations continued to be low compared with those of the 1950's. The current low infestation began in 1959 and has remained consistently low since 1962. CATTLE LICE were quite prevalent in the Peace River District. MOSQUITO populations were generally light in British Columbia, although unusually late reports of floodwater species in Kamloops suburbs were received in September.

Several household and stored product pests of note were: CLOVER MITE (Bryobia praetiosa) in Ontario, British Columbia and the Quebec City area; FLEAS on pets in Ontario and Quebec; and STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) in the Ottawa area and in Prince Edward Island. LARDER BEETLE (Dermestes lardarius) was numerous in Prince Edward Island, but scarce in Ontario. LESSER MEALWORM (Alphitobius diaperinus) was collected from chicken litter at Coaldale, Alberta. A BRUCHID (Bruchidius unicolor) heavily infested seed of sainfoin brought into Alberta from British Columbia.

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Hyattsville, Maryland 20782

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**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

SPOTTED ALFALFA APHID is expected to increase in Arkansas if dry weather continues. Adults of a WEEVIL beginning to appear in Yuma County, Arizona. (p. 1155).

Detection

New State records include a CECIDOMYIID MIDGE in Illinois (p. 1157), six WEEVILS in Wisconsin (p. 1158) and a FALSE SPIDER MITE in Florida (p. 1158).

For new county records, see page 1159.

Special Reports

Distribution of Smaller European Elm Bark Beetle (Map). (p. 1160).

Reports in this issue are for week ending December 23 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....1155

Insects Affecting

Small Grains.....1155	Citrus.....1156
Forage Legumes.....1155	Ornamentals.....1156
Sugarbeets.....1155	Forest and Shade Trees.....1157
Cole Crops.....1156	Man and Animals.....1157
General Vegetables.....1156	Households and Structures.....1158

Light Trap Collections.....1157

Federal and State Plant Protection Programs.....1158

Insect Detection.....1158

Corrections.....1159

Hawaii Insect Report.....1159

Distribution of Smaller European Elm Bark Beetle (Map).....1160

WEATHER OF THE WEEK ENDING DECEMBER 26, 1966

HIGHLIGHTS: This was the coldest week of the season in most areas. Parts of the East received the heaviest pre-Christmas snowfall on record.

PRECIPITATION: Several snowstorms occurred. One fast-moving storm left 4 inches of snow in Muskegon, Michigan, and then moved eastward across northern Ohio, New York, Pennsylvania, Maryland, and Delaware. Up to 9 inches of snow fell in the higher elevations of Maryland. A midweek storm spread snow from Montana eastward across the adjacent Great Plains. The major storm of the week developed over the southern Great Plains shortly after midweek. After dumping 18 inches to 2 feet of snow in the Ozark region, the storm moved eastward to Virginia and North Carolina and then northeastward to New England. Some typical snowfall amounts include: 15-18 inches at Mountain Home and Table Rock Dam, Arkansas; 10 inches at Roanoke, Virginia; 16 inches at Philadelphia, Pennsylvania; 12 inches at Wilmington, Delaware; 9 inches at Baltimore, Maryland, and Washington, D. C.; 19 inches at Albany, New York; 13 inches at Syracuse; and a foot or more in upper New England. On Christmas Day, snow covered most of the northern half of the Nation. In the East the snow cover extended as far south as North Carolina with accumulations of 5 inches in the mountains, and about 1 inch in the northern Piedmont. As the "Christmas" storm moved out of the country, on the 26th a new snowstorm developed in northeastern Arizona. It dumped heavy snow over the southern and central Rocky Mountains and eastward to the Missouri River and was continuing into the new week.

TEMPERATURE: The coldest weather of the season came to most of the United States. Temperatures dropped moderately west of the Rocky Mountains and sharply on the eastern slope and across the Great Plains to the Gulf of Mexico. Temperatures in the 50's and 60's were common from South Dakota to Kansas on Tuesday, but Thursday brought sub-zero readings to this area. The severe temperature drop came at midweek over the Central and Northeast and to Florida at the weekend. Temperatures over the northeast quarter of the Nation remained below freezing throughout the week. South Dakota, Nebraska, and portions of nearby States averaged 10°-20° colder than the previous week. Some parts of the Colorado Rockies registered 10°-30° below zero on 1 or 2 days. (Summary supplied by Environmental Data Service, ESSA).

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Widespread, moderately light on alfalfa in Bernalillo County. (Heninger). OKLAHOMA - Continues heavy on alfalfa in Mayes County. (Okla. Coop. Sur.). ARKANSAS - Present in northwest area. Averaged 10-15 per linear foot on short alfalfa. Expected to increase if dry weather continues. (Boyer).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Light to moderate on barley in Dona Ana County. (Campbell).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - OKLAHOMA - Probably this species, moderate on wheat in Mayes County. (Okla. Coop. Sur.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Light in small grain in northwest area. Ranged 5-10 per linear foot with some winged forms present. (Boyer). FLORIDA - Adults and nymphs averaged 105 per 100 sweeps. (Mead).

A LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Most abundant pest of rye at Gainesville, Alachua County; 23 per 200 sweeps. (Mead).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Survey conducted September 19-28; infestations present in all 20 counties surveyed. Infested stems ranged 0.1-20.7 percent; averaged 6.55 percent over State. Infestations highest in northwest area. (Brandvik).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MICHIGAN - One adult collected November 23 in a 1,000-sweep sample from St. Joseph County. This is new county record. Total of 6 counties now infested. (Dowdy).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Adults light and beginning to appear on alfalfa in Yuma County, particularly on sandy soils. Activity should increase rapidly with continued moderate temperatures. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Populations decreased on alfalfa in Yuma County; currently light to noneconomic. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - ARKANSAS - Ranged 10-20 per square foot on vetch in northwest area. (Boyer). NEW MEXICO - Light to moderate on alfalfa in Bernalillo County. Light to heavy in Chaves County with some spots very heavy. (Heninger, Mathews).

A SOLDIER FLY (Hermetia illucens) - CALIFORNIA - Larvae heavy in roots of comfrey in Madera, Madera County. (Cal. Coop. Rpt., Dec. 16).

SUGARBEETS

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Larval populations decreased in sugarbeet fields of Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues moderate in sugarbeet fields of Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

COLE CROPS

CABBAGE APHID (Brevicoryne brassicae) - FLORIDA - Winged forms decreased from 390 to 131 and wingless forms increased from 202 to 447 per 100 cabbage plants at Sanford, Seminole County, week ending December 16. (Greene).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Larvae and egg laying decreased sharply on lettuce in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

AN APHID (Rhopalosiphum rufiabdominalis) - FLORIDA - Adults and nymphs on roots of celery in commercial planting at Belle Glade, Palm Beach County. (Schneck, Dec. 14).

CITRUS

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults moderate on leaves of 50 of 300 plants inspected at nursery in Tampa, Hillsborough County. (Barber, Dec. 12).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Infesting 8-50 percent of several thousand citrus plants inspected at 3 nurseries in Sanford, Seminole County, and Montverde, Lake County. (Simpson et al., Dec. 14).

ORNAMENTALS

A WEEVIL (Brachyrhinus rugosostriatus) - CALIFORNIA - Larvae heavy on cyclamen nursery plants at Turlock, Stanislaus County. (Cal. Coop. Rpt.).

A WHITEFLY (Tetraleurodes acaciae) - CALIFORNIA - Medium on coral-trees in San Diego County. (Cal. Coop. Rpt.).

APHIDS - NEW MEXICO - Cinara spp. heavy on various junipers with honeydew dripping from plants in Albuquerque, Bernalillo County. (Heninger, Kloepper). OKLAHOMA - C. tujafilina light in evergreen hedges at Stillwater, Payne County. (Okla. Coop. Sur.). CALIFORNIA - Macrosiphoniella sanborni medium on chrysanthemum plants in Long Beach, Los Angeles County. (Cal. Coop. Rpt.).

A LEAFHOPPER (Deltocephalus sonorus) - CALIFORNIA - Medium on privet at Modesto, Stanislaus County. (Cal. Coop. Rpt.).

A PIT SCALE (Asterolecanium arabidis) - CALIFORNIA - Heavy on pittosporum nursery stock at Turlock, Stanislaus County. (Cal. Coop. Rpt.).

SOFT SCALES (Saissetia spp.) - FLORIDA - All stages of S. coffeae severe on 50 percent of 2,500 gardenia plants in nursery at Auburndale, Polk County. (Eisen-schenk, Dec. 7). CALIFORNIA - S. oleae medium on holly in Fresno, Fresno County. Scattered infestations more noticeable this season than in past few years when parasites and predators kept populations low. (Cal. Coop. Rpt.).

ARMORED SCALES - FLORIDA - All stages of Lepidosaphes maskelli found on stems and leaves of Chinese juniper at nursery in Melbourne, Brevard County, December 13. This is new county record. (Levan, Holley). Gymnaspis aechmeae adults infesting 2 bromeliads at nursery in Brooksville, Hernando County. This is new county record. (Williams, Dec. 12). All stages of Pseudaulacaspis pentagona severe on 82 privet nursery plants at Plant City, Hillsborough County. (Vaughan).

A THRIPS (Liothrips illex) - CALIFORNIA - Heavy on holly at Mokelumne Hill, Calaveras County. This thrips normally occurs in coastal area. (Cal. Coop. Rpt.).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults severe on 59 coral-trees and 140 croton plants inspected at Marathon Shores, Monroe County. (Knowles, Dec. 13).

FOREST AND SHADE TREES

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Adults heavy on elm trees at rural cemetery near Stockton, San Joaquin County. This is new county record. (Cal. Coop. Rpt.). See distribution map on page 1160.

A PHYCITID MOTH (Dioryctria abietella) - CALIFORNIA - Larvae medium on Douglas-fir grafts in 2-acre plot at Placerville, El Dorado County. (Teillon, Gaylord, USFS).

A CECIDOMYIID MIDGE (Rhabdophaga swainei) - ILLINOIS - Collected from Black Hills spruce at Prairie View, Lake County, November 21, 1966, by F. Dodd. Det. by W. E. LaBerge. This is new State record. (White).

MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections in Jefferson Parish contained Aedes sollicitans, Anopheles quadrimaculatus, Culex pipiens quinquefasciatus, Culex salinarius, and Culiseta inornata. Light trap collections decreased; averaged 7.6 mosquitoes per night from 22 traps throughout parish. Landing rate counts high in Avondale and Metairie areas. (Stokes).

TICKS - OKLAHOMA - Dermacentor albipictus heavy on horses and cattle in local areas in eastern third of State. Also reported on cattle in Comanche County. Small numbers of Ixodes scapularis observed on cattle in eastern areas. (Okla. Coop. Sur.).

SCREW-WORM (Cochliomyia hominivorax) - Total of 3 cases reported in U. S. December 18-24 as follows: TEXAS - Webb 1. ARIZONA - Yuma 1. CALIFORNIA - Imperial 1. Total of 172 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 52, Sonora 80, Chihuahua 9, Coahuila 3, Nuevo Leon 19, Tamaulipas 9. Total of 11 cases reported from Mexico south of the Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U. S. Sterile screw-worm flies released: Texas 16,186,250, Arizona 8,680,000, California 1,616,000, Mexico 90,968,000. (Anim. Health Div.).

LIGHT TRAP COLLECTIONS

GEORGIA - Tifton, 12/15-21, 1 blacklight trap, temperature 29-66°, precipitation 0.54 - Corn earworm (Heliothis zea) 1. FLORIDA - Gainesville, 12/18-20, 1 BL - Black cutworm (Agrotis ipsilon) 2, granulate cutworm (Feltia subterranea) 1, armyworm (Pseudaletia unipuncta) 10. Sanford, 12/7-9, 1 BL - Granulate cutworm 18, yellow-striped armyworm (Prodenia ornithogalli) 8, cabbage looper (Trichoplusia ni) 2. SOUTH CAROLINA - Charleston 12/12-18, 1 BL, temperature 30-64°, precipitation 1.14 - Armyworm 5, black cutworm 2, granulate cutworm 4. TEXAS - Brownsville, 12/10-16, temperature 30-74°, precipitation 0.53, 2 BL - Black cutworm 52, salt-marsh caterpillar (Estigmene acrea) 28, granulate cutworm 22, corn earworm 3, variegated cutworm (Peridroma saucia) 7, yellow-striped armyworm 41, tobacco hornworm (Manduca sexta) 1, armyworm 91, beet armyworm (Spodoptera exigua) 30, fall armyworm (S. frugiperda) 11, cabbage looper 6.

HOUSEHOLDS AND STRUCTURES

A POWDER-POST BEETLE (Lyctus brunneus) - CALIFORNIA - Heavy in bamboo baskets received from Mexico. Observed in retail store at Berkeley, Alameda County. (Cal. Coop. Rpt.).

ARGENTINE ANT (Iridomyrmex humilis) - CALIFORNIA - Heavy in stacked lumber in building at Travis Air Force Base, Fairfield, Solano County. Species not the problem it once was in State. (Cal. Coop. Rpt.).

FEDERAL & STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Boll checks in Chaves and Eddy Counties reveal light to heavy infestations in cotton fields; approximately 15 percent of larvae dead from cold weather. (Mathews). Checks in southern Dona Ana County cotton show pupae on stalks, and larvae present in bolls left in fields. (Elsom et al.).

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae severe in kumquat at Sebring, Highlands County; 3 larvae collected from common guava at naval base in Key West, Monroe County, and 2 adults collected in McPhail trap at Lake Wales, Polk County. (Keen et al., Dec. 14).

INSECT DETECTION

New State records

A CECIDOMYIID MIDGE (Rhabdophaga swainei) - ILLINOIS - Collected from Black Hills spruce at Prairie View, Lake County, November 21, 1966. Det. by W. E. LaBerge. (p. 1157).

A WEEVIL (Amalus haemorrhous) - WISCONSIN - Collected from alfalfa in Rock County July 29, 1966. Det. by R. E. Warner. (Wis. Ins. Sur.).

A WEEVIL (Baris umbilicata) - WISCONSIN - Collected from alfalfa in Rock and Green Counties during July 1966. Det. by R. E. Warner. (Wis. Ins. Sur.).

A WEEVIL (Centrinopus helvinus) - WISCONSIN - Collected in blacklight trap in Dane County during August and September 1966. Det. by R. E. Warner. (Wis. Ins. Sur.).

A WEEVIL (Ceutorhynchus erysimi) - WISCONSIN - Collected from alfalfa in Kenosha and Walworth Counties during June and July 1966. Det. by R. E. Warner. (Wis. Ins. Sur.).

A WEEVIL (Conotrachelus naso) - WISCONSIN - Collected in blacklight trap in Dane County October 1, 1964. Det. by R. E. Warner. (Wis. Ins. Sur.).

A FALSE SPIDER MITE (Tenuipalpus meekeri) - FLORIDA - Adults collected on sawfern at Archbold Biological Station, Lake Placid, Highlands County, November 20, 1966. (Palmer).

New County Records

ALFALFA WEEVIL (Hypera postica) - MICHIGAN - Collected November 23 in St. Joseph County. (p. 1155).

AN ARMORED SCALE (Lepidosaphes maskelli) - FLORIDA - Collected in Brevard County. (p. 1156).

AN ARMORED SCALE (Gymnaspis aechmeae) - FLORIDA - Collected in Hernando County. (p. 1156).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Collected in San Joaquin County. (p. 1157).

A WEEVIL (Cosmobaris americana) - WISCONSIN - Collected from alfalfa in Kenosha and Rock Counties during July and August 1966. Det. by R. E. Warner. (Wis. Ins. Sur.).

CORRECTIONS

CEIR 16(51):1141, 1142 - Highlights of the Occurrence of Insects and Other Arthropods in Canada, 1965, should read 1966.

HAWAII INSECT REPORT

Turf - LAWN ARMYWORM (Spodoptera mauritia acronyctoides) larvae medium to heavy in golf greens in Kalapaki, Kauai; ranged 8-15 per square foot. Trace in nearby Bermuda grass lawns. (Au).

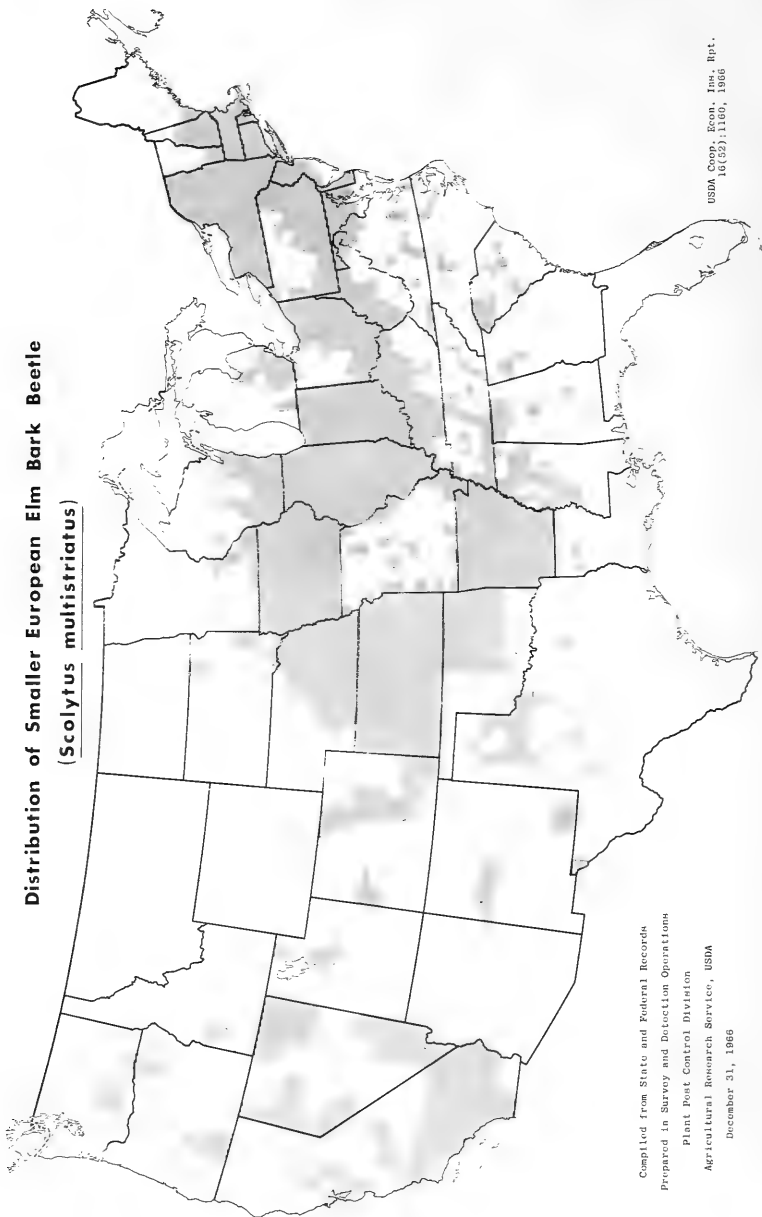
General Vegetables - CARMINE SPIDER MITE (Tetranychus telarius) very heavy, up to 200 per square inch of leaf surface, in 0.25 acre of eggplant in Kahului, Maui. (Miyahira). Larvae and adults of LEAF MINER FLIES (Liriomyza spp.) generally light in cucumber and tomato-growing areas on Kauai; light to medium on cucumbers, beans, and tomatoes in Huula, Waianae and Waimanalo on Oahu; light on bell peppers and tomatoes in Kahului and Omapio on Maui. (Funasaki et al.). GREEN PEACH APHID (Myzus persicae) medium in 0.5 acre of bell peppers in Kahului, Maui. Blossom and fruit drop very light. (Miyahira).

Fruits - CHINESE ROSE BEETLE (Adoretus sinicus) exceptionally high on persimmon, avocado, Java-plum and other fruit trees in Hana, Makawao and Wailuku, Maui. Damage heaviest in Kipahulu area of Hana. (Takishita).

Ornamentals - BARNACLE SCALE (Ceroplastes cirripediformis) nymphs and adults medium on a plumeria tree in Kaneohe and adults light on acerola and Wedelia trilobata in Lanikai. These are new host records. (Funasaki, Davis). A PLATASPID BUG (Coptosoma xanthogramma) nymphs and adults medium on coral-trees (Erythrina sp.) in airport area of Honolulu, Oahu. Adults medium on cape-honeysuckle (Tecomaria capensis) and kukui (Aleurites moluccana) growing near coral trees. All stages heavy on pigeon peas in Kaimuki and Kalihi areas of Honolulu and on maunaloa on windward side of island. (Wong, Funasaki).

Beneficial Insects - Larvae and adults of a NOCTUID MOTH (Hypena strigata) heavy on lantana in Ulupalakua and Auwahi areas of Maui; defoliation 75-90 percent on approximately 5,000 acres of lantana. Many larvae on stems of completely defoliated plants. (Miyahira). A PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) infesting nohu (Tribulus cistoides) for first time on Hawaii Island. Numerous seedlings at Kawaihae dying from weevil attack. Larval activity noted at base of plants with damage extending down into primary roots. (Yoshioka). A LEAF MINING HISPID (Uroplata girardi) - Mines of full-grown larvae observed for first time in Anahola, Kauai; evidently established in this area. First released in September, 1966. (Au).

Distribution of Smaller European Elm Bark Beetle
(*Scolytus multistriatus*)



Compiled from State and Federal Records
Prepared in Survey and Detection Operations

Plant Pest Control Division
Agricultural Research Service, USDA

December 31, 1966

USDA, Comp. Econ. Inv. Rpt.
16(52):1160, 1966

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

VOL. 16 INDEX

1966

SB
823
C77

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

Volume 16

Index

1966

INTRODUCTION

The 1966 index is a consolidated index, with common and scientific names appearing in alphabetical order. Page numbers appear only under the scientific names, except for general common names such as aphids, bees, leafhoppers, mites, etc.

The explanations that follow will aid in the use of the 1966 index.

1. Page numbers underlined represent references to "Summary of Insect Conditions in the United States - 1965."
2. For convenience of use, all references concerning light trap collections for a particular species are listed at the end of pagination for that species under this heading.
3. Complete cross indexing of page references of insects with common names is not used. The scientific names should be used to locate all page references, except for those insects or groups of insects where scientific names were not reported. In such instances, page references will be found under common names.
4. A combination of both common and scientific names of an insect or pest may not appear on the page referred, but one or the other will be present.

SPECIAL REPORTS

- Aedes aegypti - summary of the 1965 progress report on the eradication program in the United States 38-39
- Abhis cracciae - an aphid newly discovered in the United States 1021-1023
- Arbovirus encephalitis in the United States, 1966 1136
- Beet armoryworm - a new distribution record 5
- Beet leafhopper - survey in desert areas of southern Utah and Nevada, southeastern California and central Arizona, 1966 143; second survey in desert areas of southeastern California, central Arizona, southern Utah and southern Nevada, 1966 357; survey in Texas and New Mexico, 1966 237
- Black grass bug observations in Utah 596
- Boll weevil - hibernation surveys in North and South Carolina, Tennessee, Alabama, Mississippi, Louisiana, and Texas, fall 1965 9-12; survival as determined by surface trash examinations during the spring, 1966 363-366; names for complex 199
- Canada - highlights of the occurrence of insects and other arthropods in 1965 56-58; 1966 1150-1152
- Caribbean fruit fly - status in Florida 72
- Changes in scientific names 5, 38, 150, 193, 232
- European corn borer - abundance and distribution, 1965 21-27; estimates of damage to grain corn in the U.S. in 1965 891-892
- European crane fly - background information 949
- Forage crop insects - survey in Massachusetts, 1966 796
- Formosan subterranean termite 562-564; guidelines for survey 1087-1090
- Grasshopper adult survey, fall 1965, following page 64
- Hawaii insect report 37, 86, 103, 125, 419, 530, 559, 595, 620, 656, 689, 714, 740, 763, 792, 980, 995, 1036, 1052, 1069, 1085, 1107, 1119, 1139, 1149, 1159
- Important insects and snails most frequently intercepted at U.S. ports of entry in FY 1964 263-270; in FY 1965 1121-1128
- Insect detection - some of the more important introduced insects reported in the U.S. since 1912 893-896; insect detection in the U.S., 1965 43-48. Detection reminders - apple pests 423; black parlatoria scale 84; chafer 659; fig wax scale 149; small grain pests 346; stone fruit pests 766
- Interceptions of special interest at U.S. ports of entry 59, 69, 204
- Light trap collections - 6, 19, 35, 54, 71, 83, 84, 101, 124, 150, 175, 205, 226, 249, 285, 314, 347, 378, 399, 421, 445, 472, 501, 539, 560, 593, 598, 621, 626, 657, 698, 687, 688, 715, 716, 742, 763, 764, 765, 793, 794, 821, 822, 850, 851, 872, 889, 890, 912, 930, 947, 968, 982, 996, 1019, 1037, 1053, 1070, 1086, 1108, 1120, 1138, 1148, 1157
- Losses - estimated losses and production costs attributed to insects and related arthropods, 1965 997-1007; losses to grain corn by European corn borer in the U.S. in 1965 891-892; selected references, 1960-1966 1055-1059; sugarcane borer infestation and crop loss in Louisiana in 1965 506
- Maps (distribution) - alfalfa weevil 130, 241; cattle grubs 1129; elm leaf beetle 1054; face fly 290; Mexican bean beetle 1109; mimosa webworm 1075; northern corn rootworm 950; smaller European elm bark beetle 1160; southern corn rootworm 984; southwestern corn borer 1020; spotted alfalfa aphid 1038; western corn rootworm 931
- Maps (quarantine) - black stem rust 1104; cereal leaf beetle 1146; imported fire ant 904; pink bollworm 233; white-fringed beetles 730
- Pear sawfly - status in the U.S. 819; guidelines for survey 227
- Periodical cicadas - unexpected appearances of broods VI and XXVI 313
- Pictorial keys - European apple sawfly and pear sawfly, recognition of 228-230; khapra beetle, a supplemental character for separating adults from other Trogoderma spp. 147; termites, key to eight genera 1091-1098, 1131, 1140
- Potato psyllid - survey, spring breeding areas of Arizona and California, 1966 239; Texas and southeastern New Mexico, spring 1966 358
- Preparation of notes for the Cooperative Economic Insect Report 126, 852
- Southwestern corn borer population surveys in Mississippi 8
- Stenodiplosis bromicola - a seed midge new to North America 283
- Stored-grain insect survey in Kansas, 1965 40-42
- Summary of insect conditions in the United States, 1965. Alaska 191-192, Hawaii 73-76, New Hampshire 352-353, Vermont 351-352. Introduction 87. Grasshoppers 87-91. Small grain insects 91-96. Corn, sorghum and sugarcane insects 104-114. Lawn, pasture and rangeland insects 114-115. Alfalfa, clover, sweetclover and vetch insects 127-138. Soybean and peanut insects 138-140. Safflower and flax insects 140. Fruit insects 152-166. Truck crop insects 177-190. Tobacco insects 207-209. Cotton insects 209-214. Forest insects 231-254. Shade tree insects 255-257. Ornamental insects 257-262. Insects affecting man and animals 287-296. Stored-product insects 319-321. Beneficial insects 321-324. Miscellaneous insects 324-329. Household and structural insects 329-329. Weather of the year 1965 348-350. List of contributors 350-351
- Survey and Detection Operations - scientific records 102
- Survey methods - alfalfa weevil 401-402; black light trap standards for general insect surveys 297-298; boll slicing, a scouting method for boll weevil (as used in Arkansas) 795; Formosan subterranean termite 1037-1090; Heliothis moths in Arkansas 951-952; insects in heads of combine-type grain sorghum 531-532; pear sawfly 227; spruce budworm in northern region 1071-1072; spruce budworm defoliation 1073-1074; sticky board traps, use in insect surveys 446; wheatgrass bugs 623-624

- Abegrotis alternata (a noctuid moth)
436
- Abesaba subvittella (a pluteiid moth)
341
- Aberrallapsis cyanophyllis* (an armored scale)
81, 174, 906, 907, 1031
- Acalymya trivittata (western striped cucumber beetle)
990
- Acalymya vittatum (striped cucumber beetle)
187, 412, 487, 515, 547, 578, 600, 609, 642, 674, 703, 810
- Acanalonia bivittata (a rugulifer plant-hopper)
219
- Acantholyda erythrocephala (pine false webworm)
894
- Acanthomyops sp.
329
- Acanthomyops claviger (smaller yellow ant)
202
- Acanthomyops interlectus (larger yellow ant)
202, 329, 342
- Acanthoscelides obtectus (bean weevil)
380, 943
- Acanthoscelides peuperculus
391
- Acarus siro (grain mite)
320
- Aceces fuscipunctella (a brown-dotted clothes moth)
327
- Aceratagalla sanguinolenta (clover leaf-hopper)
144, 304, 973
- Aceria spp. (eriphyid mites)
419, 957
- Aceria abalis
973
- Aceria alonidis
1120
- Aceria carvæ (pecan leafroll mite)
43, 549, 975
- Aceria fraxinivorus
577
- Aceria litochi
685
- Aceria mackiei
279
- Aceria neocomydinus (Bernadagrass mite)
3, 43, 115, 143, 261, 429, 632, 940, 957, 966, 995, 1119
- Aceria peucedani
516
- Aceria sheldoni (citrus bud mite)
105
- Aceria trichophilus
392
- Aceria tulipæ (wheat curl mite)
43, 96, 694, 830, 957, 1113
- Aceria vaccinii (blueberry bud mite)
164, 469
- Achsen, lanata (a noctuid moth)
206, 315, 1107, 1139
- Achatina fulica (giant African snail)
37, 59, 73, 76, 176, 377, 473, 502, 792, 836, 911, 1018, 1052, 1069, 1085, 1119, 1121, 1149
- Achatodes zeæ (elder shoot borer)
490
- Achemon aphinx
(Phloxis achemon)
- Acinia picturata (a threphitid fly)
862
- Acleris minuta (yellow-headed fireworm)
163
- Acleris varians (black-headed budworm)
251
- Acreasis carvæ (pecan nut casebearer)
161, 338, 365, 369, 413, 461, 489, 518, 549, 582, 610, 644, 676, 705, 731, 757, 784, 839, 865
- Acreasis juglandis (pecan leaf casebearer)
162, 277, 436, 462, 676, 883
- Acreasis tricolorella
157
- Acrobia vaccinii (cranberry fruitworm)
163, 519, 582, 611, 645, 677, 705, 732, 758, 785, 813, 840, 865, 884, 907
- Acrolepis assectella (leek moth)
59, 74, 204, 205, 263, 398, 763, 967, 1035, 1036, 1068, 1121
- Acronicta americana (American dagger moth)
867, 885
- Acrosternum hilare (green stink bug)
139, 140, 511, 698, 804, 832, 860, 902, 918, 937, 958, 972, 973, 989, 1013
- Actebia feminea (black army outworm)
191, 280
- Aculus cornutus (peach silver mite)
153, 339, 757, 811, 864, 940, 960
- Aculus laevigatus
34
- Aculus ligustri
145
- Aculus lycopersici (tomato russet mite)
17, 180, 305, 577, 809
- Aculus pelekassi
894
- Aculus schlechtendali (apple rust mite)
757
- Aculus teucriti
707, 739
- Acyrthosiphon pisum (pea aphid)
15, 15, 31, 57, 67, 73, 79, 99, 119, 134, 135, 144, 170, 184, 198, 205, 218, 240, 275, 281, 304, 321, 322, 323, 335, 361, 373, 383, 384, 386, 409, 431, 434, 454, 457, 469, 482, 486, 510, 514, 541, 546, 572, 577, 604, 634, 641, 668, 673, 697, 723, 741, 750, 761, 775, 796, 804, 831, 859, 877, 901, 917, 936, 957, 972, 988, 1012, 1029, 1044, 1064, 1080, 1102, 1114, 1144, 1155
- Acyrthosiphon solani (foxglove aphid)
170, 672, 702, 729, 781, 837, 863
- Adalia bipunctata (two-spotted lady beetle)
321, 328
- Adelges spp.
193, 340, 371, 465, 684, 758, 942
- Adelges abietis (eastern spruce gall aphid)
152, 371, 465, 493, 554, 684, 842, 866, 942
- Adelges cooleyi (Cooley spruce gall aphid)
145, 260, 340, 371, 415, 465, 614, 758, 813, 907, 942
- Adelges nicaea (balsam woolly aphid)
145, 252, 253, 371, 440
- Adelphocera spp.
542
- Adelphocoris lineolatus (alfalfa plant bug)
137, 409, 431, 455, 511, 542, 573, 604, 635, 668, 697, 723, 750, 755, 781, 803, 831, 837, 859, 877, 934, 901, 958
- Adelphocoris rapidus (rapid plant bug)
137, 213, 384, 410, 431, 483, 511, 542, 573, 604, 635, 638, 670, 723, 753, 779, 806, 835, 861
- Adelphocoris superbus (superb plant bug)
410, 877
- Adoretus sinicus (Chinese rose beetle)
37, 59, 68, 73, 74, 85, 103, 125, 204, 266, 337, 444, 559, 620, 792, 810, 911, 1036, 1159
- Adesops spp. (mosquitoes)
287, 288, 289, 309, 310, 341, 372, 393, 416, 441, 495, 523, 586, 680, 886, 1149
- Ades aberratus
310, 341, 372, 393, 416, 467, 554, 614, 650
- Ades agypti (yellow-fever mosquito)
38, 287, 289, 867, 942
- Ades atlanticus
175, 287, 585, 650, 843
- Ades campestris
310, 341
- Ades canadensis
173, 240, 341, 393, 416, 467
- Aedes cantator (brown salt-marsh mosquito)
173
- Aedes cinereus
393, 416, 467, 650
- Aedes spp.
393
- Aedes dorsalis
172, 288, 289, 310, 341, 416, 467, 494, 523, 554, 614, 708, 788, 867, 885
- Aedes excrucians
610, 288, 310, 341, 372, 393, 416, 467, 614, 650
- Aedes fitchii
288, 341, 372, 393, 416, 467, 495, 650
- Aedes flavescens
393, 416, 467
- Aedes implicatus
416, 467
- Aedes increpitus
310, 554
- Aedes infirmatus
173, 246, 287
- Aedes intrudens
416
- Aedes melanlimon
867
- Aedes mitchellæ
246
- Aedes nigromaculis
288, 289, 416, 614, 788
- Aedes niphodopsis
310
- Aedes punctator
393, 416, 467
- Aedes riparius
310, 341, 372, 416, 467
- Aedes schizophax
554
- Aedes sierrensis (western tree-hole mosquito)
172, 310
- Aedes sollicitans (salt-marsh mosquito)
4, 17, 38, 53, 82, 100, 146, 222, 287, 288, 341, 372, 416, 441, 467, 523, 554, 586, 708, 760, 787, 843, 867, 885, 942, 963, 977, 992, 1032, 1048, 1066, 1157
- Aedes triseriatus (Aahaensis)
289, 416, 467
- Aedes tritoticus (floodwater mosquito)
246, 288, 372, 393, 416, 467, 554, 615, 787
- Aedes stimulans
288, 310, 341, 372, 393, 416, 467, 554, 650
- Aedes taeniorhynchus
82, 280, 341, 585, 708, 760, 942, 963, 1048
- Aedes trichurus
372, 393, 416
- Aedes triseriatus
441, 554, 650, 815, 942, 977
- Aedes trivittatus
289, 586, 735
- Aedes vexans
4, 17, 34, 53, 82, 100, 172, 173, 201, 222, 246, 287, 288, 289, 341, 372, 393, 416, 467, 494, 495, 522, 523, 554, 586, 614, 615, 650, 708, 735, 760, 787, 815, 843, 867, 886, 909, 925, 929, 942, 963, 977, 1032
- Aedes vexans noturnus
75, 154, 175, 444, 559, 714, 788, 836, 995, 1107, 1149
- Aeoloides turnbulli (a grasshopper)
509, 761
- Aeoloides fasciatus (a thrips)
832
- Aegasis sp. (a braconid)
75
- Aegonotettix deorum (a grasshopper)
91, 395, 418, 442, 469, 493, 525, 557, 589, 653, 682, 711, 737, 761, 845, 870, 927
- Aelionema commutatum (an armored scale)
438

* Also carried as Hemiberlesia cyanophylli in Vol. 16.

- Agonoderus lecontei* (seed-corn beetle)
94, 112, 186, 336, 359
- Agonocnema arganisi* (a tortricid moth)
144
- Agrius anxius* (bronze birch borer)
1066, 1103, 1135, 1138, 1152
- Agrius ruficollis* (red-necked cane borer)
190, 732, 865
- Agrotis* sp.
938
- Agrotis mancus* (wheat wireworm)
569, 602
- Agrocineta bivittata* (a tortoise beetle)
183, 674
- Agrotis parvicornis* (corn blotch leaf miner)
114, 537, 569, 601, 694
- Agrotis* spp.
938
- Agrotis gladiaria* (clay-backed cutworm)
23, 108, 177, 183, 208, 362
- Agrotis insidiosa* (black cutworm)
107, 108, 114, 140, 177, 186, 208, 278, 286, 301, 386, 484, 501, 512, 514, 536, 547, 569, 583, 601, 629, 636, 781, 802, 809, 863, 905, 988, 1030, 1060, 1120, 1157, 1167
- Legat traps: 6, 19, 35, 54, 71, 84, 101, 124, 150, 175, 205, 242, 285, 314, 347, 378, 399, 421, 445, 474, 529, 560, 593, 621, 657, 686, 715, 742, 764, 793, 794, 821, 850, 872, 889, 912, 930, 947, 968, 982, 996, 1019, 1037, 1053, 1070, 1086, 1108, 1138, 1148
- Agrotis orthogona* (pale western cutworm)
56, 93, 239, 302, 334, 332, 406, 429, 478, 537, 908, 1150
- Ahavevus advena* (foreign grain beetle)
1049
- Ailanthus webworm*
(*Attea aurea*)
- Alabama argillacea* (cotton leafworm)
212, 699, 779, 806, 959, 1029, 1102
- Alia sprucei* bas.
(*Dendroctonus obsesus*)
- Alouercanthus woziumi* (citrus blackfly)
60, 148, 204, 228, 263, 343, 497, 617, 652, 738, 870, 945, 946, 1034, 1118
- Alouercybotus occidius* (a whitefly)
977
- Alouerplatus berbericolus* (a whitefly)
741
- Alouerplatus gelatinosus*
1031
- Alouerthrinx floccosus* (woolly whitefly)
1081, 1085, 1102, 1135
- Aloueruberplatus similis* (a whitefly)
43, 261, 520
- Alouerfa caterpillar
(*Colias eurytheme*)
- Alouerfa looper
(*Autographa californica*)
- Alouerfa plant bug
(*Adelphocoris lineolatus*)
- Alouerfa seed chalcid
(*Archipycnus roandi*)
- Alouerfa webworm
(*Loxostege coccinellalis*)
- Alouerfa weevil
(*Hypera postica*)
- Alouerfa bee
(*Nealis melanderi*)
- Alouerplania aurora* (a stonefly)
43
- Alouerplania recta* (a stonefly)
43
- Almond moth
(*Cadra cautella*)
- Alphitobius diaperinus* (lesser mealworm)
223, 886, 978, 1104, 1137, 1152
- Alphitobius laevigatus* (a dermating beetle)
43
- Alouerphila pomataria* (fall cankerworm)
222, 263, 284, 340, 392, 395, 466, 521, 552, 580, 613, 786, 1048, 1066, 1082
- Altermetoponia rubriceps* (Australian cod fly)
972, 1114
- Altica bismarginata*
593
- Altica chalybea* (grape flea beetle)
153, 277, 390, 583
- Alydus eurinus* (an alydid bug)
919
- Amalus haemorrhous* (a weevil)
1158
- Amathes badinoides**
436
- Amathes o-nigrum* (spotted cutworm)
275, 402, 593, 781
- Amblyomma americanum* (lone star tick)
34, 122, 173, 201, 223, 239, 310, 342, 373, 416, 441, 468, 496, 524, 587, 651, 681, 709, 735, 760, 788, 816, 844, 868, 943
- American cockroach
(*Periplaneta americana*)
- American dagger moth
(*Acrontia americana*)
- American dog tick
(*Dermacentor variabilis*)
- American grasshopper
(*Schistocerca americana*)
- Aantermes* spp. (desert termites)
25, 112
- Anomala essigella* (a leaf roller moth)
225
- Anopelolypter ater* (a grape cane girdler)
550
- Amphiceros cornutus* (a twig borer)
144, 162
- Amphimallon solstitialis* (European chafer)
43, 325, 498, 556, 590, 617, 683, 710, 737, 846, 849, 894, 1016
- Amphimallon solstitialis* (grasshopper)
659
- Amphitormus coloradus* (a grasshopper)
419, 442, 469, 498, 589
- Amphitormus* spp. (aphids)
413, 437
- Amporphora nervata*
280
- Amporphora vaccinii*
74
- Anabus simplex* (Mormon cricket)
91, 395, 471
- Anacetrinus deplanatus* (a weevil)
112, 601
- Anagasta kuehniella* (Mediterranean flour moth)
192
- Anarete johnsoni* (a cecidomyiid midge)
25
- Anathopus sydneyensis* (an encyrtid wasp)
174
- Anastasia lineatella* (peach twig borer)
156, 157, 162, 388, 436, 460, 517, 548, 783, 864, 922, 940
- Anasa tristis* (squash bug)
187, 497, 515, 578, 608, 674, 782, 810, 838, 864, 882, 905, 921, 939, 974
- Anastrepha ludens* (Mexican fruit fly)
3, 61, 145, 283, 343, 500, 525, 739, 818, 894, 1007, 1118, 1121
- Anastrepha mambroscopana* (West Indian fruit fly)
263
- Anastrepha suspensa* (Caribbean fruit fly)
32, 72, 83, 123, 148, 174, 225, 247, 281, 343, 374, 442, 469, 498, 556, 589, 617, 652, 683, 712, 738, 762, 791, 818, 820, 849, 848, 888, 910, 927, 968, 945, 965, 980, 994, 1034, 1035, 1050, 1051, 1067, 1084, 1105, 1118, 1137, 1147, 1158
- Anastrepha citripennis* (a wireworm)
149
- Anovila compta fragariae* (strawberry leaf roller)
182, 389, 414, 437, 463, 706, 732, 785
- * Carried in Vol. 16 as *Agrotis badinoides*
- Andricus californicus* (a gall wasp)
885
- Andricus* grain moth
(*Sitotroga cerealella*)
- Angular-winged katydid
(*Microrctonus retinerve*)
- Andriandrus dispar* (a shot hole borer)
924
- Andriandrus pyri*
57
- Anilacta rubifunda* (green-striped maple-worm)
734, 963
- Anilacta seaveria* (orange-striped oakworm)
677, 908, 963
- Anomia ausonia* (a scarab)
43
- Anomia tumbata*
655
- Anomia reticulata* (oriental beetle)
111, 894, 967
- Anomia undulata*
444
- Anonita flavata* (a noctuid moth)
74, 284
- Anomala latilavata* (a leaf beetle)
707
- Anopheles* spp. (mosquitoes)
172
- Anopheles albimanus*
83
- Anopheles bradleyi*
53
- Anopheles crucians*
34, 53, 121, 146, 222, 310, 341, 372, 393, 467, 522, 585, 760, 787, 867, 885, 977, 1032, 1048, 1056
- Anopheles freeborni*
289, 594
- Anopheles punctipennis*
34, 121, 288
- Anopheles quadrimaculatus* (common malaria mosquito)
82, 100, 201, 222, 246, 341, 372, 393, 467, 586, 650, 760, 815, 963, 977, 1015, 1032, 1048, 1066, 1083, 1116, 1136, 1145, 1157
- Anopheles walkeri*
594, 614, 650, 735, 760, 886, 965, 977
- Anormenis septentrionalis* (a flatid planthopper)
492, 580, 615
- Antheraea polyphemus* (polyphemus moth)
52
- Anthorcidid bugs (*Ortus* spp.)
496
- Anthonomus* spp.
83, 174
- Anthonomus eugenii* (pepper weevil)
122, 398, 680, 896
- Anthonomus grandis* (boll weevil)
9, 16, 60, 199, 209, 210, 211, 214, 219, 247, 336, 363, 384, 385, 386, 385, 410, 432, 459, 483, 512, 525, 574, 605, 617, 636, 652, 669, 683, 698, 699, 711, 725, 726, 737, 752, 762, 777, 790, 795, 805, 833, 846, 860, 870, 879, 887, 888, 903, 919, 927, 938, 944, 959, 965, 973, 989, 1013, 1016, 1029, 1045, 1065, 1086, 1084
- Anthonomus grandis* complex (boll weevil complex)
16, 139, 209, 210, 224, 543, 737, 980, 1016, 1067, 1084, 1144
- Anthonomus eugenii* (pepper weevil)
199
- Anthonomus scutellaris* (plum gouger)
917, 876, 1035
- Anthonomus signatus* (strawberry weevil)
188, 189, 583, 677
- Anthophilus pariana* (apple-and-thorn skeletonizer)
122, 124, 694, 940
- Anthrenus* spp. (dermestid beetles)
93, 311, 319
- Anthrenus verbasci* (varied carpet beetle)
58, 262, 271, 1117
- Anticarsia gemmatilis* (velvetbean caterpillar)
132, 804, 832, 859, 979, 982, 918, 937, 957, 959, 973, 989

- Antonina graminis (Rhodes-grass scale)
115
Amuraphis bakeri (clover aphid)
102
Amuraphis helichrysi
277, 306, 460, 488, 883, 894
Amuraphis maidiradicis (corn root aphid)
104, 112, 113, 569
Aonidiella aurantii (California red scale)
17, 16, 32, 52, 59, 162, 277, 706, 732,
841, 991, 1135
Aonidiella citrina (yellow scale)
16, 32, 52, 80, 144, 164, 200, 243, 307,
369, 370, 436, 462, 518, 582, 611, 645,
677, 732, 784, 849, 940, 975, 991, 1046,
1047, 1081, 1103, 1135
Aonidiella taxus
414, 785
Apanteles spp. (braconids)
322, 944
Apanteles crambi (braconids)
418
Apanteles glomeratus
315
Apanteles militaris
444, 530, 656
Aphanius mali (a eulophid wasp)
617
Aphidius spp. (braconids)
281, 395, 710
Aphidius pulcher
322, 395, 993, 1147
Aphidius smithi
322, 395, 993
Aphids
31, 32, 35, 52, 57, 91, 92, 154, 171,
177, 180, 182, 191, 192, 200, 213, 243,
255, 257, 259, 307, 367, 387, 389, 411,
429, 429, 432, 437, 438, 440, 444,
484, 488, 492, 512, 519, 520, 544, 575,
609, 636, 639, 645, 676, 700, 704,
753, 779, 807, 838, 864, 880, 904, 1135
Aphis cracciae
1017, 1021, 1023
Aphis craccivora (coccys aphid)
119, 135, 221, 250, 362, 409, 411, 432,
458, 512, 669, 859, 1029, 1030, 1081,
1085, 1107
Aphis fabae (bean aphid)
184, 259, 431, 487, 577, 701, 729, 741,
755, 780, 809
Aphis gossypii (cotton aphid, melon aphid)
32, 86, 145, 187, 213, 220, 250, 305,
308, 311, 321, 362, 386, 411, 432, 438,
458, 544, 559, 575, 606, 607, 638, 673,
689, 700, 727, 753, 755, 779, 862, 864,
920, 921, 1065, 1080, 1081, 1102, 1103,
1135
Aphis heracleella
43
Aphis illinoisensis (grapevine aphid)
30
Aphis nasturtii (huckthorn aphid)
179, 277, 640, 641, 672, 702, 729, 781,
808, 837, 863
Aphis nerii (oleander aphid)
43, 74
Aphis onoserthae
286
Aphis pomi (apple aphid)
58, 142, 160, 243, 277, 338, 387, 412,
435, 492, 581, 609, 643, 676, 704, 741,
757, 1151
Aphis ramona
906
Aphis sambucifoliae
221
Aphis spiraeicola (spirea aphid)
17, 32, 43, 74, 171, 200, 222, 308,
381, 423, 1135
Aphrophora parallela (pine spittlebug)
465, 649
Aphrophora permata
436, 679
Aphrophora saratogensis (Saratoga
spittlebug) 440, 649, 963, 1136
Aphon antiquum
75, 530, 763, 948
Aphon longicauda (hollyhock weevil)
71, 259, 491, 520, 583, 612, 646, 678,
785, 1145, 1148
Aphon ulicis (a gorse weevil)
315, 862
Apis spp.
294
Apis mellifera (honey bee)
75, 223, 311, 312, 324, 395, 442, 469,
497
Apple-and-thorn skeletonizer
(Anthonibia varians)
Apple aphid
(Aphis pomi)
Apple grain aphid
(Rhopalosiphum fitchii)
Apple leafhopper
(Empoasca maligna)
Apple maggot
(Rhagoletis pomonella)
Apple mealybug
(Phenacoccus aceris)
Apple rust mite
(Aculus schachtendali)
Apple seed chalcid
(Corymus varians)
Apple sucker
(Pevyia mali)
Apterona cremilella (a psychid moth)
479, 482, 516, 519, 539, 580, 630, 632,
1046
Autofoma spp. (tortracid moths)
75, 810, 929
Araceae fasciculatus (coffee bean
weevil) 484
Aracocorynus cuningi (an anthribid
beetle) 151, 685, 862
Arborvitae leaf miner
(Argyresthia thuella)
Archips sp.
649
Archips arcyosipilus (fruit-tree leaf
roller) 58, 160, 306, 338, 388, 438,
435, 460, 462, 516, 548, 580, 675, 707
Archips cerasivoranus (ugly-nest
catepillar) 352, 679
Archiscelestus rufestus (a cerambycid
beetle) 69, 315
Argas persicus (fowl tick)
904
Argentine ant
(Iridomyrmex humilis)
Argus tortoise beetle
(Chelymophra cassidea)
Argyreasthia eugeniella
413
Argyreasthia thuella (arborvitae leaf
miner) 319, 323
Argyrotaenia sp. (a leaf roller moth)
221
Argyrotaenia citrana (orange tortrix)
157, 165, 185, 258, 758
Argyrotaenia cockerelliana
919
Argyrotaenia velutinana (red-banded leaf
roller) 58, 153, 160, 277, 368, 435,
460, 516, 548, 580, 610, 643, 675, 730
756, 811, 1151
Arhopalus productus (a new-house borer)
326
Arhusus crassus (a cress bug)
1117
Arhusus acutus
247, 228
Arisaema (a slug)
43, 945, 1034, 1035
Arizona pine beetle
(Dendroctonus frontalis)
Army cutworm
(Chorisacrotis auxiliaris)
Armyworm
(Pseudaletia unipuncta)
Armyworms
429, 449, 479, 702, 877, 902
Arora websteri (sagebrush defoliator)
539, 657, 695
Arphia sp. (a grasshopper)
469
Arphia conspersa
374, 498
Artichoke plume moth
(Platyptilia carduidactyla)
Ash borer
(Fotosesia syringae fraxini)
Ash-gray blister beetle
(Epicauta fabricii)
Ash plant bug
(Neoborus anemae)
Asiatic garden beetle
(Meladera castanea)
Asiatic oak weevil
(Cyrtostomus castaneus)
Asiatic rice borer
(Chilo suppressalis)
Asparagus beetle
(Crioceris asparagi)
Aspidomyia sp. (a cecidomyid midge)
583
Aspidiotus ancyclus (Putnam scale)
645
Aspidiotus camelliae
4
Aspidiotus destructor (cocomut scale)
894, 976
Aspidiotus hederae (oleander scale)
5, 99, 120, 123, 220, 244, 676
Aspidiotus juglansregiae (walnut scale)
392, 440, 1031
Aspidiotus liquidambaris
827
Aspidiotus pernicosus (San Jose scale)
80, 120, 144, 154, 158, 160, 170, 200,
221, 243, 260, 277, 338, 339, 370, 414,
491, 839, 961, 962, 1134
Aspidiotus yuccae
260
Asterobemisia carpinii (a whitefly)
1121
Asterolecanium arabidis (a pit scale)
100, 1156
Asterolecanium bambusae
646
Asterolecanium milaris robustum
43
Asterolecanium minus
279, 341
Asterolecanium pustulans
414
Asterolecanium puteanum
1082
Asterolecanium varicosum (golden oak
scale) 225, 648
Attractomorpha ambigua (a grasshopper)
37, 67, 103, 206
Attractotomus mali (a plant bug)
435
Atta texana (Texas leaf-cutting ant)
165, 451
Attageus piceus (black carpet beetle)
319, 328, 1117
Atteva aurea (ailanthus wevform)
734, 813
Aulocara spp. (grasshoppers)
924
Aulocara elioti
83, 80, 91, 418, 442, 469, 498, 526,
556, 557, 589, 616, 653, 789, 979
Autographa californica (alfalfa looper)
15, 31, 51, 108, 132, 181, 184, 186,
190, 454, 458, 541, 576, 635, 640
Automeris sp. (a lo moth)
258, 976
Autoplius egena (bean leaf skeletonizer)
184, 990

- Avocado brown mite
(*Oligonychus punicea*)
- Azalea bark scale
(*Eriococcus azaleae*)
- Azalea caterpillar
(*Datana major*)
- Azalea lace bug
(*Strophanthus pyrioides*)
- Azalea leaf miner
(*Gracilaria azaleella*)
- Azalea whitefly
(*Psylla azaleae*)
- B**
- Bagworm
(*Thyridopteryx ephemeraeformis*)
- Baleoethripsis arizonensis (a thrips)
121, 124
- Balclutha spp. (leafhoppers)
143, 149
- Balclutha hebe
51
- Bald-faced hornet
(*Vespa maculifrons*)
- Balsam gall midge
(*Dacnusa balsamicola*)
- Balsam woolly aphid
(*Adelges piceae*)
- Bamboo powder-post beetle
(*Dinoderus minutus*)
- Banded cucumber beetle
(*Diatrocha balteata*)
- Banded greenhouse thrips
(*Hercinothrips femoralis*)
- Banded sunflower moth
(*Phaenicia hospes*)
- Banks grass mite
(*Oligonychus pratensis*)
- Baris umbilicata (a weevil)
1158
- Bark beetles
251, 313
- Barley thrips
(*Limothrips denticornis*)
- Barnacle scale
(*Ceroplastes cirripediformis*)
- Barvathes pellicuda (a weevil)
281
- Bathylectes curculionis (an ichneumon wasp)
44, 123, 213, 247, 275, 322, 343, 383, 418, 429, 497, 525, 571, 603, 652, 731
- Batida angustiorana (a leaf roller moth)
371
- Bean aphid
(*Aphis fabae*)
- Bean butterfly
(*Lamachus boticis*)
- Bean leaf beetle
(*Cerotoma trifurcata*)
- Bean leaf roller
(*Urbanus proteus*)
- Bean leaf skeletonizer
(*Autoplusia egea*)
- Bean pod borer
(*Maruca testulalis*)
- Bean thrips
(*Galiotrips fasciatus*)
- Bed bug
(*Cimex lectularius*)
- Bedellia orchilella (sweetpotato leaf miner)
286
- Beech blight aphid
(*Prociphilus imbricator*)
- Beech scale
(*Cryptococcus fagi*)
- Bee flies
202
- Beet armyworm
(*Spodoptera exigua*)
- Beet leafhopper
(*Circulifer tenellus*)
- Beet leaf miner
(*Pegomya betae*)
- Bee webworm
(*Loxostege sticticalis*)
- Bembecia marginata (raspberry crown borer)
139, 865
- Bermudagrass mite
(*Aceria neocydonia*)
- Bertha armyworm
(*Marasmia configurata*)
- Bibio spp. (March flies)
495
- Bibio albipennis
495
- Bibio femeratus
495
- Bibio xanthopus
495
- Big-headed ant
(*Pheidole megacephala*)
- Billbug
112, 428, 479
- Biolysia tristis (an ichneumon wasp)
44, 303, 322, 335
- Birch leaf miner
(*Fenusa pusilla*)
- Biston cognataria (pepper-and-salt moth)
1152
- Biting flies
222, 741
- Biting midges (Chlicoides spp.)
554
- Black army cutworm
(*Actea fennica*)
- Black blister beetle
(*Epicauta pennsylvanica*)
- Black carpenter ant
(*Camponotus pennsylvanicus*)
- Black carpet beetle
(*Astegernus bicolor*)
- Black cherry aphid
(*Myzus cerasi*)
- Black cherry fruit fly
(*Rhagoletis fausta*)
- Black citrus aphid
(*Xylocopa surantii*)
- Black cutworm
(*Agrotis ipsilon*)
- Black elm bark weevil
(*Megadalis barbata*)
- Black flies
58, 132, 246, 289, 393, 467, 495, 523, 555, 587, 651, 681, 868
- Black-headed budworm
(*Acleris varians*)
- Black-headed fireworm
(*Rhynchota saevana*)
- Black hills beetle
(*Dendroctonus ponderosae*)
- Black horse fly
(*Tabanus atratus*)
- Black-legged tick
(*Ixodes scapularis*)
- Black-margined aphid
(*Monella costalis*)
- Black parlitoria scale
(*Parlatoria caryophylli*)
- Black pecan aphid
(*Bycollis caryaefoliae*)
- Black pine beetle
(*Dendroctonus terebrans*)
- Black pine-leaf scale
(*Mucalaspis californica*)
- Black scale
(*Saissetia oleae*)
- Black swallowtail
(*Parilo polyzenes asterius*)
- Black thread scale
(*Ischnaspis longirostris*)
- Black turpentine beetle
(*Dendroctonus terebrans*)
- Black vine weevil
(*Brachyrhynchus sulcatus*)
- Black widow spider
(*Latrodectus mactans*)
- Blackwinged sparrow (darkling beetles)
119, 130, 220, 437, 487
- Blatta orientalis (oriental cockroach)
327
- Blattella germanica (German cockroach)
115, 146, 192, 223, 327, 371
- Blapharid zhisca (a leaf beetle)
371
- Bliessus spp.
917
- Bliessus hirtus (hairy chinch bug)
115
- Bliessus ingularis
115, 406, 858, 877, 917, 957, 1028
- Bliessus leucopterus (chinch bug)
35, 71, 22, 104, 112, 113, 115, 302, 382, 406, 495, 479, 507, 508, 537, 538, 569, 570, 601, 602, 630, 631, 666, 667, 694, 695, 722, 750, 774, 801, 802, 830, 858, 877, 917, 971, 988, 1012, 1043, 1063, 1114, 1143
- Blister beetles
754
- Bloodsucking conenose
(*Tritoma sanguisuga*)
- Blueberry bud mite
(*Aceria vaccinii*)
- Blueberry maggot
(*Rhagoletis mendax*)
- Blueberry thrips
(*Frankliniella vaccinii*)
- Bluegrass billbug
(*Shenomyza ferrugalis*)
- Buccochoris adipalis (a pyraustid moth)
250
- Bull weevil
(*Anthonomus grandis*)
- Bull weevil complex
(*Anthonomus grandis* complex)
- Bullworm
(*Heliothis zea*)
- Bombus spp. (bumble bees)
234
- Book lice
289
- Broomed nibulum (a grasshopper)
21, 493, 525, 557, 589, 682, 737, 790, 979
- Brotocracalia pupillata (a lady beetle)
444
- Bourletiella hortensis (garden springtail)
189, 207, 208, 385, 605
- Bovicola bovis (cattle biting louse)
122, 146, 173, 246, 280, 294, 295, 1104
- Boxelder aphid
(*Periphyllus negundinis*)
- Boxelder bug
(*Leptocoris trivittatus*)
- Boxelder leaf roller
(*Gracilaria negundella*)
- Boxwood leaf miner
(*Monarthropalus buxi*)
- Boxwood psyllid
(*Psylla buxi*)
- Brachymeria aigris (a weevil)
1121
- Brachymeria tritici (western wheat aphid)
95
- Brachymeria conspurcator (a chalcid)
225
- Brachymeria ovata
222
- Brachymeria spp. (weevils)
644, 805, 823, 906
- Brachymeria craticollis
(73, 74, 171, 259, 583, 644, 740, 841, 884, 894, 941, 962, 976, 1015)
- Brachymeria meridionalis
741, 894, 962, 966

- Brachyrhinus ovatus (strawberry root weevil) 185, 189, 190, 307, 328, 414, 437, 812, 817, 844, 868, 923, 1152
- Brachyrhinus rufocostriatus 225, 227, 304, 328, 309, 923, 1156
- Brachyrhinus sulcatus (black vine weevil) 33, 190, 259, 328, 611, 612, 646, 741, 844, 923
- Brachystola rugosa (lubber grasshopper) 964
- Brachyn sp. (a braconid) 75
- Brachyn calicula 35, 222
- Brachyn hebetor 247
- Brachyn mercenariae 302, 313
- Braconids 35
- Bradynotes obesa optima (a grasshopper) 589
- Brevicoryne brassicae (cabbage aphid) 51, 57, 67, 182, 337, 398, 458, 642, 656, 755, 781, 882, 921, 974, 1030, 1134, 1151, 1156
- Brevipalpus californicus (a false spider mite) 1059
- Brevipalpus lewisi (citrus flat mite) 165, 489, 550, 582, 645, 812, 941
- Brevipalpus obovatus (privet mite) 34, 261, 308, 391, 962
- Brevipalpus rhencis 206, 279, 763, 941, 1018
- Brevipalpus vini 1146
- Broad-horned flour beetle (Gnathocerus cornutus)
- Broad mite (Hemiteles nemus latus)
- Broad-necked root borer (Priemus laticollis)
- Bronze birch borer (Agrius anxius)
- Bronzed cutworm (Megalodes emedonius)
- Brown-banded cockroach (Supella supellectilium)
- Brown chafer (Serica brunnea)
- Brown dog tick (Rhipicephalus sanguineus)
- Brown garden snail (Helix aspersa)
- Brown-headed ash sawfly (Tomostethus multicinctus)
- Brown house moth (Homonanoptia pseudopretella)
- Brown lacewings 202
- Brown salt-marsh mosquito (Aedes cantator)
- Brown soft scale (Coccus hesperidum)
- Brown spider beetle (Ptinus clavipes)
- Brown stink bug (Buschietus servus)
- Brown-tail moth (Agrotis rhoecrohaea)
- Brown wheat mite (Petrobia latens)
- Bruchidius unicolor (a bruchid) 1152
- Bruchophagus roddi (alfalfa seed chalcid) 129, 973
- Bruchus stratonotus (a bruchid) 1085
- Bruchus brachialis (vetch bruchid) 131, 409, 482, 500, 509, 894, 979
- Bruchus grvi 59, 283
- Bruchus lentis 263, 1121
- Bruchus pisorum (pea weevil) 608
- Bruchus rufimanus (broadbean weevil) 902
- Bruchus signatocollis 59
- Bruchus tristisculus 59, 263
- Bruchus tristis 264
- Bryania bipunctata (an asteid fly) 176
- Brybia sp. 277, 390, 579
- Bryobia praetiosa (clover mite) 18, 53, 83, 99, 138, 146, 198, 280, 302, 309, 311, 322, 322, 323, 429, 539, 1067, 1150, 1152
- Bryobia rubricollis (a fruit-tree mite) 162, 220, 305, 306, 352, 368, 461
- Bucculatrix ainsliei (oak skeletonizer) 252, 908
- Bucculatrix thurberella (cotton leaf perforator) 213, 638, 753, 779, 806, 835, 880, 904, 920, 938, 1133
- Buck moth (Hemileuca maia)
- Buckthorn aphid (Aphis nasturtii)
- Budworms 209, 456, 747
- Buffalo treehopper (Stictoccephala bubalus)
- Bulb mite (Halozylus echinopus)
- Bumble flower beetle (Buphonia inda)
- Byturus bakeri (western raspberry fruitworm) 191
- Byturus rubi (eastern raspberry fruitworm) 190, 489
- Cabbage aphid (Brevicoryne brassicae)
- Cabbage curculio (Ceutorhynchus repae)
- Cabbage looper (Trichoplusia ni)
- Cabbage maggot (Hylyna brassicae)
- Cabbage moth (Plutella brassicae)
- Cabbage seedpod weevil (Ceutorhynchus assimilis)
- Cabbage webworm (Hellula rogatalis)
- Cadelle (Tenebroides mauritanicus)
- Cadra cautella (almond moth) 18, 320, 417
- Cadra figulella (raisin moth) 976
- Caenurgina erecta (forage looper) 132, 901
- Calacarus adornatus (an eriophid mite) 121
- Caladonus coquilletti (a leafhopper) 759
- Calaphis betulaecolens (an aphid) 101, 122
- Calico scale (Aspidiotus perasorum)
- California five-spined ips (Ips confusus)
- California oakworm (Phryganidia californica)
- California pear-slug (Tristiphora abbreviata)
- California priomus (Priomus californicus)
- California red scale (Acanthella suraniti)
- Calobrytus fasciatus (bean thrips) 185, 807
- Caliroa cerasi (pear-slug) 173, 151, 849, 675, 706, 730, 757, 783, 812, 939, 865, 922
- Caliroa lineata (a sawfly) 843, 925, 992
- Calliarctia phyllira (an arctiid moth) 514
- Calliopistria floridensis (Florida fern caterpillar) 33
- Callosobruchus ansii (a seed beetle) 59
- Callosobruchus chinensis 685
- Callosobruchus maculatus (cowpea weevil) 220, 919, 1033
- Calomycterus setarius (a Japanese weevil) 44, 132, 189, 328, 636, 894, 1031, 1035
- Calosoma sp. (a ground beetle) 468
- Calopotes ethlius (larger canna leaf roller) 924
- Camellia scale (Lepidocapes camellia)
- Caneraria caraeifoliella 930
- Caneraria cincinnatiella (gregarious oak leaf miner) 252
- Caneraria hamadryadella (solitary oak leaf miner) 255, 648
- Camilla pellicida (clear-winged grasshopper) 89, 20, 458, 556, 567, 589, 653, 817, 869
- Camphor scale (Pseudococcus duplex)
- Campoplex perditinctus (an ichneumon wasp) 223, 222
- Camponotus vicinus 58, 122, 342, 394, 817
- Camponotus pennsylvanicus (black carpenter ant) 174, 352
- Camponotus quercicola 226
- Camponotus vicinus 202
- Campocleris marginella modesta (a scoliid wasp) 967
- Cankerworms 340, 552, 647
- Campoplex elaeagni (an aphid) 278
- Campodis tenebrionis (peach buprestid) 766
- Cardiophiles explorator (a braconid) 434, 442
- Cardiophiles nigricipes 208
- Cardiophorus sp. (a wireworm) 188
- Cardiophorus tumidicollis 489
- Caribbean fruit fly (Anastrepha suspensa)
- Carmine spider mite (Tetranychus telarius)
- Carolina grasshopper (Dissosteira carolina)
- Carpenter ants 326
- Carpenter bee (Xylocopa virginica)
- Carpet moth (Trichophaga tapetella)
- Carphonotus testaceus (a weevil) 1032, 1035
- Carpocapsa pomonella (codling moth) 90, 122, 153, 155, 156, 360, 387, 412, 435, 460, 487, 516, 548, 580, 609, 643, 679, 704, 730, 756, 766, 783, 811, 838,

864, 906, 922, 940, 911, 1151. Light traps: 529, 715, 742, 765, 794, 850, 890, 930

Carpophilus spp.
749, 889

Carpophilus dimidiatus (corn sap beetle)
280, 773, 789, 1133
Carpophilus freemanii
417

Carpophilus hemipterus (dried-fruit beetle)
417, 704, 730, 991, 1043
Carpophilus humeralis
117

Carpophilus lugubris (dusky sap beetle)
417, 666, 722
Carpophilus marginellus
417

Carpophilus oculatus
44, 76
Carpophilus niponensis (peach fruit moth)
204, 263

Carrot rust fly
(Pegila rosae)
44, 76

Carrot weevil
(Listronotus oregonensis)
Carvedon gonagra (a seed beetle)
264

Catabena emula (a noctuid moth)
102
Catapa sphinx
(Ceratomia catalpae)

Catfacing insects
549
Cat flea
(Ctenocephalides felis)

Cattle biting louse
(Bovicola bovis)
Cattle grubs
(Hypoderma spp.)

Cattle lice
18, 34, 68, 82, 122, 146, 173, 201, 205, 222, 246, 294, 295, 310, 393, 523, 1152
Cattle tail louse
(Haematopinus quadripertusus)

Cattle warbles
1152
Caulocampus acericaulis (maple petiole borer)
533

Cecidomyia ocellaris (a cecidomyiid midge)
815
Cecidomyia pinifloripes* (a pine resin midge)
440

Cecidomyia resinicola**
222
Cecidostiba dendroctoni (a pteromalid wasp)
44

Celama scopchiella (sorghum weevilworm)
108, 451, 665, 693, 721, 722, 829, 876
Celery lineata (white-lined sphinx)
355, 357, 608, 632, 865, 936

Celeris leaf tier
(Idea rubigalis)
Ceratobius helvinus (a weevil)
1158

Cerhus cinctus (wheat stem sawfly)
55, 26, 602, 631, 722, 871, 1150, 1155
Ceramica picta (zebra caterpillar)
186, 635

Cerataphis spp. (aphids)
763
Cerataphis latanae
559, 1058
Cerataphis orchidearum
520, 1052

Ceratopsis capitata (Mediterranean fruit fly)
59, 60, 264, 264, 444, 588, 618, 624, 656, 693, 820, 849, 894, 945, 1017, 1034, 1069, 1118, 1121, 1122

* Carried in Vol. 16 as Retinodiplosis (Uropis)
** Carried in Vol. 15 as Retinodiplosis (resinicola)

Ceratomegilla maculata (a lady beetle)
281, 652, 747
Ceratomia catalpae (catalpa sphinx)
706, 924, 942

Ceratophyllus gallinae (European chicken flea)
295
Cereal leaf beetle
(Blattella melanopus)

Cereal leaf miner
(Syringomyia temperatella)
Cerrococcus dekeli (a pit scale)
991, 1115

Cerrococcus kalmiae
991, 1017
Cerrocynthia dorsalis (grass sheath miner)
302, 313, 537

Ceroplastes ceriferus
100, 245, 941
Ceroplastes cirripediformis (barncake scale)
74, 121, 164, 231, 250, 315, 599, 911, 967, 980, 1025, 1089, 1159

Ceroplastes floridensis (Florida wax scale)
4, 81, 99, 144, 414, 520
Ceroplastes rubens (red wax scale)
221, 231, 359, 620, 907, 1052

Ceroplastes ruscii (fig wax scale)
149
Cerotoma trifurcata (bean leaf beetle)
139, 184, 220, 409, 457, 486, 511, 542, 573, 578, 636, 698, 724, 741, 776, 809, 860, 902, 918, 998, 973, 1013

Ceutorhynchus assimilis (cabbage seedpod weevil)
386, 412, 894
Ceutorhynchus erysimi
894, 1158

Ceutorhynchus rapae (cabbage curculio)
703
Chaetoneura spp.
359, 478, 537, 721, 749, 864, 876

Chaetoneura confinis (sweetpotato flea beetle)
189, 516, 578, 642, 703, 1030
Chaetoneura deserti (desert corn flea beetle)
242, 275, 359, 479, 507, 721, 749, 773, 802, 876, 1065

Chaetoneura gracula (a flea beetle)
33
Chaetoneura pulicaria (corn flea beetle)
111, 112, 217, 334, 359, 450, 507, 537, 630, 665, 721, 741, 749, 773, 801, 829, 876

Chaetopsis debilis (an otitid fly)
302, 313
Chaetostethon spp.
226, 413, 437

Chaetostethon fragaeifolia (strawberry aphid)
169, 413
Chaff scale
(Parlatoria pergandii)

Chaitophorus populiflue (an aphid)
257, 1031
Chalcidomermis aeneus (cowpea curculio)
104, 673, 755, 809

Chalcidomermis astictopus (Clear Lake gnat)
393
Chauliognathus sp. (a soldier beetle)
1084

Chelymophora assidea (argus tortoise beetle)
101
Chermes spp.
See Adelges spp.

Cherry fruit fly
(Rhagoletis cingulata)
Cherry fruitworm
(Gnathophya packardii)

Cherry leaf beetle
(Fyrthhalta cavicollis)
Cherry maggot
(Rhagoletis cingulata)

Cherry root borer
(Chalcidomermis aeneus)
Chicken body louse
(Menacanthus stramineus)

Chicken mite
(Deplumavirus gallinae)

Chigger mites
495
Chilocorus stigma (twice-stabbed lady beetle)
394, 418, 496

Chilo suppressalis (Asiatic rice borer)
59, 1122
Chinch bug
(Blissus leucopertus)

Chinese mantid
(Tenodera aridifolia sinensis)
Chinese rose beetle
(Aedonetus sinicus)

Chironomus spp. (midges)
587
Chirotrips spp. (thrips)
501, 503, 877

Chrysobothris associatus (ragweed plant bug)
159, 204, 671
Chloroceros spp.
601, 606, 830, 835, 858, 900, 904, 920

Chlorocnema ligata (conchuela)
370, 780, 858, 904, 916
Chloroceros sayi (Say stink bug)
80, 170, 180, 387, 451, 452, 479, 507, 511, 533, 545, 570, 601, 602, 631, 635, 639, 640, 641, 666, 672, 699, 722, 750, 753, 780, 808, 832, 858, 881, 904

Chlorodiplosis
115
Chlorops sp. (a chloropid fly)
1139

Choristoneura conflictans (large aspen tortrix)
894
Choristoneura fumiferana (spruce budworm)
252, 251, 649, 1071

Choristoneura houstoniana
44, 223, 323, 519, 614
Choristoneura pinus (jack-pine budworm)
253, 254, 271, 649, 678, 707, 733, 785

Choristoneura roseana (oblique-banded leaf roller)
162, 369, 389, 675
Choristoneura zapulata
253, 491

Chorisochus stellaris (army cutworm)
56, 91, 93, 132, 302, 337, 362, 382, 395, 406, 410, 432, 451, 472, 509, 535, 771, 855. Light traps: 421, 445, 529, 560, 593, 657, 686, 715, 764, 822, 831, 947, 968, 982, 996, 1037, 1053

Chorizococcus brevicornis (a mealybug)
44
Chorthippus curtipennis (a grasshopper)
660, 790, 869

Chorthippus longicornis
442, 660
Chortophaga viridifasciata (green-striped grasshopper)
374

Chrysanthemum aphid
(Macrosiphonia sabornii)
Chrysanthemum leaf miner
(Phytomyza atricornis)

Chrysanthemum juglandicola (walnut aphid)
162
Chrysanthemum lace bug
(Corythucha maculata)

Chrysothrips sp.
942
Chrysothrips mali (Pacific flatheaded borer)
160

Chrysocnema colatimus (a leaf beetle)
666
Chrysodeixis chalcites (a noctuid moth)
103, 205, 231

Chrysolinea quadrigenina (a Klamath-weed beetle)
75, 151
Chrysomela interrupta
415

Chrysomela scripta complex (cottonwood leaf beetle)
255, 439, 734
Chrysomelinae aonidium (Florida red scale)
47, 52, 276, 911, 923, 992, 1018, 1119, 1145

<u>Chrysopa</u> spp. (green lacewings)	223, 323, 373, 394, 418, 588, 615, 652, 681, 736, 789, 944, 869	Cloudy-winged whitefly (<u>Dialeurodes citrifolii</u>)	841
<u>Chrysopa oculata</u> (golden-eye lacewing)	311, 323, 343, 394, 417, 556, 844, 1015, 1137	Clover aphid (<u>Nectaraphis bakeri</u>)	31, 67, 122, 170, 198, 242, 275, 304, 335, 385, 410, 432, 454, 482, 510, 541, 571, 604, 641, 667, 696, 724, 803, 831, 856, 878, 901, 917, 936, 957, 972, 989, 1012, 1029, 1114, 1135
<u>Chrysopa</u> spp. (deer flies)	293, 294, 441, 495, 523, 587, 616, 735, 843, 909	Clover hayworm (<u>Hyperaspis costalis</u>)	571, 604, 641, 667, 696, 724, 803, 831, 856, 878, 901, 917, 936, 957, 972, 989, 1012, 1029, 1114, 1135
<u>Chrysops callidus</u>	555	Clover head caterpillar (<u>Grapholita interstinctana</u>)	418, 496, 710, 761, 789, 817, 844, 944
<u>Chrysops discalis</u>	739	Clover head weevil (<u>Hypera meles</u>)	261
<u>Chrysops fluvaster</u>	467	Clover leafhopper (<u>Atractagallia sanguinolenta</u>)	736, 761, 789
Cicada killer (<u>Sphecius speciosus</u>)	277	Clover leaf weevil (<u>Hypera punctata</u>)	418, 496, 710, 761, 789, 817, 844, 944
Cicadas	277	Clover mite (<u>Bryobia praetiosa</u>)	261
Cigar casebearer (<u>Coleophora serratella</u>)	467	Clover root borer (<u>Hylastinus obscurus</u>)	261
Cigarette beetle (<u>Lasioderma serricorne</u>)	271, 787	Clover root curculio (<u>Sitona hispidula</u>)	736, 761, 789
<u>Citrus americana</u> (elm sawfly)	271, 787	Clover seed chalcid (<u>Bruchophila platyptera</u>)	261
<u>Cimex lectularius</u> (bed bug)	204, 651, 816, 909, 954	Clover seed weevil (<u>Microgaster picrostris</u>)	261
<u>Cinara</u> spp. (conifer aphids)	17, 33, 221, 260, 278, 390, 415, 502, 781, 1145, 1155	Cluster fly (<u>Pollenia rudis</u>)	261
<u>Cinara carolina</u>	103	<u>Cnephia pecurum</u> (southern buffalo gnat)	209
<u>Cinara coloradensis</u>	172, 520	<u>Cnephia longana</u> (omnivorous leaf tier)	212, 359, 894
<u>Cinara curvipes</u>	308, 438	<u>Coccinella novemnotata</u> (a lady beetle)	117
<u>Cinara laricis</u> (larch aphid)	465	<u>Coccotrypes carpophagus</u> (a scolytid beetle)	1146
<u>Cinara sibirica</u>	492, 500	<u>Coccus acutissimus</u>	740
<u>Cinara strobii</u> (white-pine aphid)	4, 17, 81, 120, 221, 260, 278, 415, 438, 492, 551, 941, 1047, 1065, 1145, 1156	<u>Coccus hesperidum</u> (brown soft scale)	32, 81, 164, 221, 339, 438, 462, 883, 923, 961, 1047, 1135
<u>Circulifer tenellus</u> (beet leafhopper)	83, 143, 223, 237, 238, 301, 333, 357, 405, 449, 477, 505, 535, 567, 617, 627, 691, 747, 771, 799, 855, 875, 916, 955, 1043	<u>Coccus pseudomagnolarum</u> (citricola scale)	164, 359, 495
Citricola scale (<u>Coccus pseudomagnolarum</u>)		<u>Coccus viridis</u> (green scale)	206, 264, 595, 894, 1036, 1149
<u>Citrospilus mealybug</u> (<u>Pseudococcus fragilis</u>)		<u>Cochlicella barbara</u> (a snail)	264, 1122
Citrus blackfly (<u>Aleurocautus woglumi</u>)		<u>Cochlicella ventrosa</u>	265
Citrus bud mite (<u>Aceria sheldoni</u>)		<u>Cochliomyia hominivorax</u> (screw-worm)	7, 20, 36, 55, 70, 85, 100, 122, 203, 224, 248, 282, 293, 312, 344, 375, 397, 420, 443, 470, 499, 527, 591, 619, 683, 712, 739, 762, 791, 820, 848, 871, 888, 910, 926, 943, 963, 978, 993, 1015, 1032, 1049, 1066, 1083, 1104, 1116, 1137, 1146, 1157
Citrus flat mite (<u>Brevipalpus lewisii</u>)		<u>Cochliomyia macellaria</u> (secondary screw-worm)	293
Citrus mealybug (<u>Panacoccus citri</u>)		Cocoonut leaf roller (<u>Hyelmyia blackburni</u>)	260
Citrus red mite (<u>Ranonychia citri</u>)		Cocoon scale (<u>Aspidiotus destructor</u>)	103
Citrus rust mite (<u>Phyllocoptruta oleivora</u>)		Codling moth (<u>Carpocapsa pomonella</u>)	260
Citrus thrips (<u>Scirtothrips citri</u>)		<u>Coleophora inaequalis</u> (a lady beetle)	260
Citrus whitefly (<u>Dialeurodes citri</u>)		<u>Coleophora pupillata</u> (a lady beetle)	103
<u>Clastoptera achatina</u> (pecan spittlebug)	705, 731	<u>Coenosoma prima</u> (a muscid fly)	44
<u>Clastoptera arizonana</u>	261	Coffee bean weevil (<u>Araecerus fasciculatus</u>)	260
<u>Clastoptera Juniperi</u>	261	<u>Colaspis</u> sp. (a leaf beetle)	677
Clay-backed cutworm (<u>Agrotis gladiaria</u>)		<u>Coleomegilla maculata</u> (a lady beetle)	261, 359, 373, 510, 588, 771, 909, 1117
Clear-winged grasshopper (<u>Camula pellucida</u>)		<u>Coleomegilla maculata fuscilabris</u>	202, 247, 321, 394, 417, 496, 556, 588, 1015, 1033
<u>Clemens trivittatus</u> (a weevil)	1133	<u>Coleophora</u> sp.	416
Climbing cutworm	436, 437	<u>Coleophora laricella</u> (larch casebearer)	261
		<u>Coleophora serratella</u> (cigar casebearer)	516
		<u>Coleotechnites</u> spp. (gelechiid moths)	841
		<u>Colias eurytheme</u> (alfalfa caterpillar)	31, 67, 122, 170, 198, 242, 275, 304, 335, 385, 410, 432, 454, 482, 510, 541, 571, 604, 641, 667, 696, 724, 803, 831, 856, 878, 901, 917, 936, 957, 972, 989, 1012, 1029, 1114, 1135
		<u>Collops</u> spp. (melyrid beetles)	418, 496, 710, 761, 789, 817, 844, 944
		<u>Collops hirtella</u>	261
		<u>Collops quadrimaculatus</u>	736, 761, 789
		<u>Coloradia pandora</u> (pandora moth)	707, 841, 907
		Colorado potato beetle (<u>Leptinotarsa decemlineata</u>)	261
		Common cattle grub (<u>Hypoderma lineatum</u>)	261
		Common cockchafer (<u>Melolontha melolontha</u>)	261
		Common malaria mosquito (<u>Anopheles quadrimaculatus</u>)	261
		<u>Comptosia auricephalus</u> (a weevil)	162, 637, 904
		Comstock mealybug (<u>Pseudococcus comstocki</u>)	261
		Confused flour beetle (<u>Tribolium confusum</u>)	261
		<u>Conionthia</u> sp. (a darkling beetle)	226
		<u>Conocephalus saltator</u> (a grasshopper)	125, 1052
		<u>Conotrachelus</u> spp.	456, 465
		<u>Conoderus falli</u> (southern potato wireworm)	188, 207, 456, 755, 960
		<u>Conoderus vesperinus</u> (tobacco wireworm)	207, 411, 456
		<u>Conothorax ponderosae</u> (ponderosa-pine cone beetle)	665
		<u>Conotelus mexicanus</u> (a sap beetle)	559
		<u>Conotelus punctatus</u>	145
		<u>Conotrachelus aguacatae</u> (a weevil)	1122
		<u>Conotrachelus naso</u>	1158
		<u>Conotrachelus nemphar</u> (plum curculio)	58, 122, 125, 127, 160, 223, 277, 368, 388, 413, 436, 460, 483, 489, 517, 549, 580, 618, 644, 676, 730, 757, 783, 812, 839, 1151, 1152
		<u>Conotrachelus recessus</u>	1103, 1106
		<u>Contarinia maculipennis</u> (a Cecidomyiid midge)	503, 792
		<u>Contarinia sorghicola</u> (sorghum midge)	73, 104, 114, 631, 666, 694, 728, 750, 774, 900, 906, 956, 988, 1149
		Convergent lady beetle (<u>Hippodamia convergens</u>)	261
		Coolley spruce gall aphid (<u>Adelegus coolleyi</u>)	261
		<u>Copris incertus</u> (a scarab)	231, 792
		<u>Coptosoma xanthogramma</u> (a plataspid bug)	37, 68, 78, 176, 231, 315, 337, 377, 419, 502, 559, 620, 740, 948, 980, 1018, 1069, 1107, 1149, 1159
		<u>Coptotermes formosanus</u> (Formosan subterranean termite)	44, 75, 286, 530, 555, 592, 653, 894, 929, 967, 1087, 1091
		<u>Coptotermes vasator</u>	119, 44, 73, 119
		<u>Cordilicaris occipitalis</u> (a grasshopper)	418, 469, 737
		<u>Cormilaena pulicaris</u> (negro bug)	357
		Corn blotch leaf miner (<u>Agropyza parvicornis</u>)	261

Corn earworm (<i>Heliothis zea</i>)	Crecent-marked lily aphid (<i>Neomyzus circumflexus</i>)	444, 467, 494, 522, 554, 559, 586, 650, 680, 708, 714, 760, 787, 815, 836, 843, 867, 885, 925, 929, 942, 963, 977, 995, 1015, 1032, 1048, 1066, 1083, 1107, 1111, 1119, 1149, 1157
Corn flea beetle (<i>Chaetocnema pulicaria</i>)	Crementogaster lineolata (an ant) 202	
Corn leaf aphid (<i>Rhopalosiphum maidis</i>)	Crementogaster minutissima missouriensis 44	<u>Olex restuans</u> 4, 34, 53, 82, 100, 222, 246, 280, 288, 441, 467, 523, 650, 925, 942, 977, 1015, 1032, 1048
Corn planthopper (<i>Peregrinus maidis</i>)	Cremona marked lily aphid (<i>Neomyzus circumflexus</i>)	<u>Olex salinarum</u> 4, 17, 18, 34, 53, 82, 100, 121, 146, 201, 222, 246, 280, 287, 310, 341, 372, 393, 416, 441, 467, 523, 554, 586, 650, 600, 708, 760, 787, 815, 843, 867, 885, 942, 963, 977, 992, 1015, 1032, 1048, 1066, 1083, 1116, 1136, 1146, 1157
Corn root aphid (<i>Anuraphis maidiradicis</i>)	Criciaria spp. 137, 138, 328, 329, 728, 780	<u>Olex territanus</u> 34, 246, 341, 393, 586, 650, 760, 942, 977, 1048
Corn root webworm (<i>Ceanothus caliginosellus</i>)	Cricocera asperagi (asparagus beetle) 183, 244, 390, 414, 437, 609	<u>Olexideus spp.</u> (biting midges) 289, 341, 554
Corythucha punctatissima (a bark beetle) 842	Cricocera anolisannulata (spotted asparagus beetle) 183, 244, 390, 609	<u>Olexideus barbosi</u> 341
Coryphista medii (a geometrid moth) 1031, 1115	Crocidea semipurpurea (an oak leaf roller) 223, 592, 644, 789, 1116	<u>Olexideus aureus</u> 341
Corythucha spp. 815, 925	Crocus latiflorus (dusky birch sawfly) 843	<u>Olexideus niger</u> 280
Corythucha ciliata (sycamore lace bug) 815, 842, 867, 908, 925	Crocus bohemani (a lygaeid bug) 758	<u>Olexideus</u> 372, 416
Corythucha incurvata 303, 866	Cross-striped cabbageworm (<i>Exurgestia rimosalis</i>)	<u>Olexideus</u> 341
Corythucha morrilli 1052	Crymodes devastator (glassy cutworm) 56, 108, 114, 569, 635	<u>Olexideus</u> 280
Cosmobaris americana (a weevil) 728, 974, 981, 1159	Cryptoblabes aliens (a phytoid moth) 73	<u>Olexideus</u> 372, 416
Cosmia magnifica (pecan carpenterworm) 3	Cryptoblabes gnidiella 1122	<u>Olexideus</u> 4, 17, 18, 34, 53, 82, 100, 121, 146, 172, 201, 222, 280, 288, 289, 310, 341, 416, 467, 495, 523, 554, 586, 614, 650, 942, 963, 977, 1032, 1048, 1066, 1083, 1104, 1116, 1136, 1146, 1157
Cosmibia serrulata (a geometrid moth) 76, 337, 345	Cryptochaetia icervae (a cryptochaetid fly) 810, 860	<u>Olexideus minnesotae</u> 287
Cotinis spp. 730	Cryptococcus fagi (beech scale) 846, 352, 694	<u>Olexideus moritans</u> 416, 495
Cotinis nitida (green June beetle) 730, 763, 830, 839, 840, 936, 989, 1012, 1028	Cryptoleaemus montcrozieri (a lady beetle) 250, 419, 559, 656, 740, 862, 929, 1149	<u>Onosmodium saui</u> (an aphid) 73, 74
Cotinis texana 730, 900	Cryptolestes sp. 394	<u>Orulicium carvae</u> (pecan weevil) 162, 784, 812, 839, 865, 883, 922, 940, 961, 975, 990, 1014, 1030, 1081, 1102, 1115, 1134
Cotton aphid (<i>Aphis gossypii</i>)	Cryptolestes ferrugineus (rusty grain beetle) 40, 41, 42, 319	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cotton fleahopper (<i>Psylla seriatus</i>)	Cryptolestes pusillus (flat grain beetle) 319, 964	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cotton leafworm (<i>Alabama argillacea</i>)	Cryptolestes ribis (currant aphid) 611	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cotton leaf perforator (<i>Phyllotatrix thurberella</i>)	Cryptophlebia spp. (olethreutid moths) 502, 911	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cotton square borer (<i>Strymon melinus</i>)	Cryptophlebia ombrodelta 73, 74, 444, 1122	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cotton stem moth (<i>Polypoda viella</i>)	Cryptotermes brevis (a powder post termite) 75	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cottonwood leaf beetles (<i>Chrysomela scripta</i> complex)	Ctenicera pruinata (great basin wireworm) 94, 218, 337, 395, 386, 960	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cottony-cushion scale (<i>Icerya purchasi</i>)	Ctenicera signatocollis (a wireworm) 131	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cottony maple scale (<i>Pulvinaria innumerabilis</i>)	Ctenocephalides spp. 94, 295	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cowpea aphid (<i>Aphis craccivora</i>)	Ctenocephalides canis (dog flea) 295	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cowpea curculion (<i>Chalcidodermus senescens</i>)	Ctenocephalides felis (cat flea) 225, 592	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Crab louse (<i>Phthirus pubis</i>)	Cucumis-laurel thrips (<i>Gynaikothrips ficorum</i>)	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry spp. (rod webworms) 59, 109, 114, 418, 507, 537, 539, 569, 601, 630, 695, 775, 802, 830, 858, 877, 900	Cuerna costalis (a leafhopper) 51, 79, 144	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry bonifatellus 483	Culex spp. (mosquitoes) 287, 288, 495, 523, 586, 680, 867, 886, 949, 1119	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry caliginosus (corn root aphid) 109, 507, 513, 537, 569	Culex erraticus 554, 963, 977	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry luteolentus 1064	Culex erythrorhoxus 341, 586	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry topiaris (cranberry girdler) 163, 611, 645	Culex pipiens 287, 288, 735, 942, 977	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry trisetus 723	Culex pipiens pipiens (northern house mosquito) 760	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry fruitworm (<i>Acrobasis vaccinii</i>)	Culex pipiens quinquefasciatus (southern house mosquito) 4, 34, 53, 72, 103, 176, 287, 288, 310, 341, 393, 416, 441,	<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Cranberry girdler (<i>Cranberry topiaris</i>)		<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Crane flies 58, 202		<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162
Crapemyrtle aphid (<i>Myzocalis kahawaluakalani</i>)		<u>Oryctolagus caryacus</u> (a leaf beetle) 125, 162

1035, 1048, 1051
Cyrtopeltis modesta (a plant bug)
 967
Cyrtopeltis notatus (suckfly)
 182, 974
Cyrtorhinus flivus (a predaceous capsid bug)
 72, 377, 502, 1139
Cyrtosoma manuilae
 595, 620, 656

D

Dactyloctenium bicolor pictum (a grasshopper)
 616
Dactynotus ambrosiae (an aphid)
 53
Dacus cucurbitae (melon fly)
 59, 74, 151, 204, 444, 530, 620, 792, 836, 862, 911, 948, 1036, 1069, 1085
Dacus dorsalis (oriental fruit fly)
 59, 73, 250, 265, 419, 444, 473, 502, 636, 656, 712, 714, 763, 836, 848, 1069, 1085, 1105, 1122, 1123, 1147
Dacus oleae (olive fruit fly)
 265, 1123
 Damsel bugs
 373, 418, 468, 524, 652, 710, 817, 887
Daxosidid cutworm (Ruxca messoria)
 629
Dasineura balsamicola (balsam gall midge)
 493
Dasineura vyri (pear leaf midge)
 461
Dasychira sp.
 252
Dasychira plagiata (pine tussock moth)
 254, 313, 492, 530
Dasychira salicellum (a leaf roller moth)
 57
Datana spp. (notodontid moths)
 647, 908
Datana contracta
 903
Datana integrirama (walnut caterpillar)
 122, 610, 647, 676, 734, 757, 759, 814, 835, 889, 908, 924, 940, 961, 975, 990, 1014, 1046
Datana major (azalea caterpillar)
 258, 923, 962
Datana ministra (yellow-necked caterpillar)
 124
Dalmanella guttata (mottled tortoise beetle)
 138
Deltoccephalus spp. (leafhoppers)
 143
Deltoccephalus sonorae
 115
Dendroctonus spp. (conifer bark beetles)
 4, 171, 679, 733, 907, 963
Dendroctonus brevicornis (northwestern pine beetle, western pine beetle)
 121, 171, 254, 551, 679, 710, 813, 907, 963, 1048
Dendroctonus frontalis (Arizona pine beetle, smaller Mexican pine beetle, southern pine beetle)
 4, 81, 121, 145, 148, 252, 254, 309, 391, 439, 464, 612, 733, 841, 925, 992, 1014, 1051, 1066, 1115
Dendroctonus obscurus (Alaska spruce beetle, eastern spruce beetle, Engelmann spruce beetle, red-winged pine beetle, Sitka spruce beetle)
 245, 252
Dendroctonus ponderosae (black hills beetle, Jeffrey pine beetle, mountain pine beetle)
 171, 245, 251, 252, 254, 479, 813, 841, 907, 1047
Dendroctonus pseudotsugae (Douglas-fir beetle)
 171, 584, 907, 963, 1047
Dendroctonus terebrans (black pine beetle)
 81, 252, 254, 256, 492, 520, 551

Dendroctonus valens (red turpentine beetle)
 171
Dendrothrips ornatus (privet thrips)
 262, 894
 Deodar weevil
 (Pissodes nemorensis)
Dermacenter albipictus (winter tick)
 34, 173, 201, 223, 225, 373, 1067, 1157
Dermacenter andersoni (Rocky Mountain wood tick)
 58, 342, 1152
Dermacenter occidentalis (Pacific Coast tick)
 34, 82, 252, 508, 651
Dermacenter variabilis (American dog tick)
 225, 210, 342, 373, 393, 416, 441, 468, 524, 555, 709, 736
Dermanyssus gallinae (chicken mite)
 296
 Dermestes spp.
 269
Dermestes lardarius (larder beetle)
 58, 319, 326, 328, 1146, 1152
Dermestes maculatus (hide beetle)
 55
Derrhachis brevicollis (a cerambycid beetle)
 407, 456, 508, 512, 635
Deroceras reticulatum (gray garden slug)
 181
 Desert corn flea beetle
 (Chaetocnema ectypus)
Desmia funealis (grape leaf folder)
 163, 463, 813
Deuteromnithus repanda (a springtail)
 1029
 Devastating grasshopper
 (Melanoplus devastator)
Diatroctia spp. (corn, cucumber beetles)
 104, 334, 450, 507, 537, 569, 601, 630, 665, 694, 721, 749, 774, 801, 857, 877, 900, 916, 935, 971, 987, 1012, 1053, 1113
Diatroctia latata (banded cucumber beetle)
 918
Diatroctia longicornis (northern corn rootworm)
 44, 57, 109, 110, 150, 217, 406, 569, 630, 694, 721, 749, 774, 801, 829, 849, 857, 877, 900, 916, 935, 950, 956, 971, 987, 1012, 1113, 1150
Diatroctia undecimpunctata howardi (southern corn rootworm, spotted cucumber beetle)
 44, 79, 109, 111, 131, 139, 170, 187, 197, 275, 304, 334, 359, 384, 388, 405, 408, 428, 483, 507, 537, 541, 569, 604, 608, 630, 694, 721, 729, 741, 749, 857, 918, 984, 1012, 1080, 1133
Diatroctia undecimpunctata tenella (a spotted cucumber beetle)
 359, 361, 453, 972, 1101
Diatroctia undecimpunctata undecimpunctata (western spotted cucumber beetle)
 187, 673, 782, 829, 905
Diatroctia virgifera (western corn rootworm)
 109, 150, 217, 450, 569, 601, 630, 693, 721, 749, 774, 791, 801, 820, 829, 831, 849, 857, 900, 916, 931, 935, 971, 987, 1012, 1053, 1068, 1113
Diachorus ferrugatus (a tabanid fly)
 204
Diachus auratus (a chrysomelid beetle)
 656, 739
Diadema ructorica (an ichneumon wasp)
 105, 197
Dialeurodes chittendeni (rhododendron whitefly)
 895
Dialeurodes citri (citrus whitefly)
 60, 73, 101, 146, 152, 225, 261, 369, 370, 395, 982, 766, 923, 1017, 1090, 1051, 1068, 1105, 1115
Dialeurodes citrifolii (cloudy-winged whitefly)
 286
Dialeurodes kirkalnyi
 102, 103, 250, 265, 895

Diamondback moth
 (Plutella maculipennis)
Diabotia hyalinata (melonworm)
 257
Diaphania indica (pumpkin caterpillar)
 895
Diaphania nitidalis (pickleworm)
 182, 739, 748, 800, 856, 739, 955
Diabrotica femorata (walkingstick)
 643, 842
Diathromyia chrysanthem
 (chrysanthemum gall midge)
 895, 1049
Diaspis botswanaensis (an armored scale)
 17, 120, 279, 434, 519, 595, 1136
Diaspis carulei (Juniper scale)
 464
Diaspis coccis
 120, 244, 308
Diaspis echinocacti (cactus scale)
 17, 171
Diaspis minima
 414
Diatraea considerata (a crambid moth)
 204, 1123
Diatraea cramboides (southern corn-stalk borer)
 102, 741, 896
Diatraea saccharalis (sugarcane borer)
 108, 109, 506, 823, 956, 967
Dichocrocis punctiferalis (yellow peach moth)
 766
Dichomeris ligulella (palmerworm)
 154
Dichomeris marginella (Juniper webworm)
 258, 300, 371, 551
 Differential grasshopper
 (Melanoplus differentialis)
Dicrostema carneola (a leafhopper)
 302, 406, 452, 739
Diplosis ornatus (a March fly)
 632, 775
 Dingy cutworm
 (Peltis subguthica)
Dinoderus minutus (bamboo powder-post beetle)
 227
Dicollandra taitensis (a weevil)
 1123
Diorctia sp. (a phycitid moth)
 145
Diorctia abietella
 953, 1157
Diorctia renculella (spruce coneworm)
 649
Diorctia zimmermani (Zimmerman pine moth)
 252, 734, 785
Doryzeleus laevigatus (a weevil)
 1123
Dioxyna sororcula (a tephritid fly)
 502
Diplolepis rosae (mossy-rose-gall wasp)
 132
Diplolepis punctata (Pacific beetle cockroach)
 685, 1036
Diprion hercyniae (European spruce sawfly)
 262
Diprion similis (introduced pine sawfly)
 521, 758, 895, 925, 963
Discostrota carolina (Carolina grasshopper)
 442, 469, 616, 654, 789, 869
Discostrota pictipennis
 682
Ditropinotus aureoviridis (a Torymid)
 1049, 1051
 Dog flea
 (Ctenocephalides canis)
 Dogwood borer
 (Thaumopoea scitula)
 Dogwood club-gall midge
 (Microgasteria alternata)
Dolerus spp. (grass sawflies)
 479
Dolerus unicolor
 479
Dolichonotus irritator (an ichneumon wasp)
 312, 313

Doryctes parvus (a braconid)
1068, 1069

Douglas-fir beetle
(Dendroctonus pseudotsugae)

Douglas-fir engraver
(Scaphisoma ussiniense)

Douglas-fir tussock moth
(Homocidus pseudotsugata)

Dragonflies
323

Drepanaphis acerifoliae (painted maple
aphid) 257, 942, 952, 1082

Drepanoptera femoratum (a grasshopper)
761, 979

Dried-fruit beetle
(Carpophilus hemipterus)

Drone fly
(Eristalis tenax)

Drosophila spp. (vinegar flies)
180

Drosophila melanogaster (a vinegar fly)
180, 923

Drugstore beetle
(Stegobium paniceum)

Dysaspidotus britannicus (an armored
scale) 436

Dysaphis plantaginea (rosy apple
aphid) 162, 324, 387, 412, 435, 460, 488,
517, 548, 581, 609, 643

Dysaphis tulipae (tulip bulb aphid)
260, 1135

Dysmicoccus brevipes (pineapple mealybug)
976

E

Ear tick
(Otobius megnini)

Eastern lubber grasshopper
(Romalea microptera)

Eastern raspberry fruitworm
(Doryctes rubi)

Eastern spruce beetle
(Dendroctonus obsesus)

Eastern spruce gall aphid
(Aedeis abietis)

Eastern subterranean termite
(Reticulitermes flavipes)

Eastern tent caterpillar
(Malacosoma americanum)

Extenuis spiniferus (a sphecid wasp)
82

Edwardsiana roseae (rose leafhopper)
430, 612, 813

Eggplant flea beetle
(Epidrix fuscula)

Egyptian alfalfa weevil
(Hypera brunneipennis)

Egyptian cottonworm
(Spodoptera litura)

Elaphidionides villosus (twig pruner)
45, 162, 313, 760

Elasmodipus lignosellus (lesser cornstalk
borer) 102, 132, 184, 450, 601, 608,
631, 713, 714, 717, 784, 823, 832, 833,
863, 876, 879, 905, 941, 1044

Elastostethus interstinctus (a stink bug)
191

Elatobium abietinum (spruce aphid)
202, 310, 895

Elmer snout borer
(Achatodes zeae)

Elm bark beetles
650, 708

Elm leaf aphid
(Myricallis ulmifolii)

Elm leaf beetle
(Pyrrhalta luteola)

Elm leaf miner
(Femusa ulmi)

Elm sawfly
(Cimbex americana)

Elongate flea beetle
(Systena elongata)

Empoasca spp.
424, 573, 635, 639, 668, 697, 723, 751,
775, 822, 833, 1045

Empoasca abrupta (western potato leaf-
hopper) 45, 808

Empoasca fabae (potato leafhopper)
132, 139, 145, 180, 182, 221, 405, 427,
449, 477, 505, 535, 567, 599, 628, 664,
691, 700, 719, 727, 741, 748, 772, 800,
828, 856, 875, 916, 955, 971, 987, 1011,

Empoasca maligna (apple leafhopper)
839

Empoasca nexara
605, 635

Empoasca solana (southern garden leaf-
hopper) 67, 86, 393, 1134

Enarmonia sp. (a tortricid moth)
74

Encarsia formosa (a eulophid wasp)
231

Enchenopa binotata (two-marked treehopper)
646

Enocholopus sordidus costalis (a grass-
hopper) 927

Endelomyia aethiops (rose-slug)
646, 678

Engelmannia scirittella (white-shouldered
house moth) 202

Englemann spruce beetle
(Dendroctonus obsesus)

English grain aphid
(Macropisium avenae)

Engraver beetles (Agas spp.)
464, 492, 649, 679

Enoclerus sp. (a clerid beetle)
710

Entomobrya kanaba (a springtail)
320

Entomocallis americana (red turnip
beetle) 1150

Entetranychus carpinii borealis (yellow
spider mite) 153, 459

Entetranychus ciliatus
390

Entetranychus lewisii
1119, 1149

Entetranychus sexmaculatus (six-spotted
mite) 32, 51, 80, 165, 200, 243, 307,
369, 391, 436, 462, 518

Entetranychus willamettei
163

Entetranychus yuensis (Yuma spider mite)
32, 162, 502, 732

Ephesia elutella (tobacco moth)
220

Epicauta spp.
131, 179, 605, 651, 674, 724, 781, 804,
824, 825, 826

Epicauta fabricii (ash-gray blister
beetle) 88, 131, 321, 541, 571, 588,
617, 724

Epicauta maculata (spotted blister beetle)
82, 321, 724

Epicauta pennsylvanica (black blister
beetle) 57, 82, 83, 131, 221, 724, 831,
845, 902, 957

Epicauta pexifera (margined blister
beetle) 131

Epicauta unicolor
520

Epidiaspis picicola (Italian pear scale)
389, 704, 783

Epidilachna borealis (squash beetle)
187, 795

Epidilachna varivestis (Mexican bean beetle)
132, 183, 184, 220, 367, 386, 434, 456,
456, 511, 515, 542, 546, 573, 577, 605,
608, 641, 668, 673, 702, 724, 751, 755,
776, 781, 804, 809, 818, 820, 832, 859,

863, 879, 902, 905, 918, 921, 938, 958,
973, 989

Epinotia meritana (white-fir needle miner)
251, 252

Epinotia nanana
391

Epinotia subviridis
221, 340

Epiphyas postvittana (light-brown apple
moth) 1068, 1069, 1123

Epimysis tyrius (an clethruid moth)
814

Epirimerus pyri (pear rust mite)
153

Epidrix spp.
207, 412, 457, 672, 780

Epidrix cucumeris (potato flea beetle)
179, 187, 457, 478, 486, 491, 546,
577, 578, 608, 640, 672, 702, 780,
808, 1151

Epidrix fuscula (eggplant flea beetle)
485, 609

Epidrix hirtipennis (tobacco flea beetle)
178, 207, 385, 411, 485, 513, 576, 639,
701, 728, 754, 792, 808, 836, 904, 948,
974

Epidrix subviridis (western potato flea
beetle) 178, 959

Epidrix tuberosi (tuber flea beetle)
178, 672, 780, 849, 837

Eriococcus araucariae
977

Eriococcus azaleae (azalea bark scale)
820, 551, 584

Eriococcus coccineus (an eriococcid scale)
52, 81

Eriococcus quercus
52

Eriophyes spp. (eriohyd mites)
391

Eriophyes buceras
279, 391

Eriophyes emarginatae
45, 469

Eriophyes gardenella
45, 261

Eriophyes insidiosus
261, 281, 308, 391

Eriophyes varebuxi
1123

Eriophyes pyri (pear leaf blister mite)
153, 339, 413, 461, 960

Eriophyes tiliae
522

Eriophyes vitis (grape erineum mite)
153, 976

Eriosema americanum (woolly elm aphid)
257

Eriosema lanigerum (woolly apple aphid)
152, 262, 171, 200, 277, 370, 387, 488,
548, 581, 609, 643, 704, 783, 961, 975,
1082

Eristalis tenax (drone fly)
678

Ertetrix spp. (grasshoppers)
182

Eriobius abietis (an anobiid beetle)
204

Erythronera spp.
163, 840, 976

Erythronera elegantula
339

Erythronera riezac (Virginia-creeper
leafhopper) 834, 927, 976

Esisigella californica (an aphid)
279, 440

Estigmene acrea (salt-marsh caterpillar)
57, 109, 162, 184, 212, 468, 485, 491,
501, 519, 642, 727, 835, 904, 920, 938,
941, 1014, 1046, 1065, 1120, 1157.

Light traps: 6, 19, 35, 54, 84, 101,
150, 226, 249, 314, 347, 376, 392, 421,
444, 472, 523, 960, 993, 621, 657, 686,
715, 742, 764, 793, 794, 821, 850, 872,

889, 912, 930, 947, 968, 982, 996, 1019, 1037, 1070, 1086, 1108, 1148
Ethmia colomella (a kou moth)
 65, 1052
Etiella zinckenella (lima-bean pod borer)
 695
Eucalyptinus tessellatus (a soft scale)
 390
Eucema sp. (an clethreutid moth)
 145
Eucema gloriola
 439, 434, 464, 492, 707, 866
Euthetia ruficeps (sugarcane beetle)
 428, 479
Eulachnus spp. (aphids)
 33, 1136
Eulachnus agilis
 965
Eulype hastata (a spear-marked black moth)
 191
Eumastaxerops laingi (a ground pearl)
 895
Eumysia mysiella (a phytid moth)
 45, 115
Eumynms scale
 (Usaspis euonymi)
Eupasia fida (bumble flower beetle)
 987, 1151
Euphoria epichloralis (a scarab)
 340
Euphyllura arbuti (a psyllid)
 313
Eupetrus plathyrenae (a eulophid wasp)
 909
Euprestina verticillata (a fig wasp)
 714
Euprella sp. (a fruitworm)
 277
 European apple sawfly
 (Hoplocampa testudinea)
 European chafer
 (Amphimallon majalis)
 European cherry fruit fly
 (Eucetia cerasi)
 European chicken flea
 (Ceratomyxus gallinae)
 European corn borer
 (Ostrinia nubilalis)
 European crane fly
 (Tipula paludosa)
 European earwig
 (Forficula auricularia)
 European elm scale
 (Gossyparia spuria)
 European fruit lecanium
 (Lecanium corni)
 European mantid
 (Mantis religiosa)
 European peach scale
 (Lecanium persicae)
 European pine sawfly
 (Neodiplosis sertifer)
 European pine shoot moth
 (Rhyacionia buoliana)
 European red mite
 (Panonychus ulmi)
 European spruce sawfly
 (Biston hercyniae)
Eurygaster integriceps (senn pest)
 346
Euryptera americana (a leaf beetle)
 1047
Eurytoma latroducti (a eurytomid wasp)
 151
Euscepes postfaciatus (West Indian sweetpotato weevil)
 911
Euschistus spp.
 601, 632
Eustaxia conspersus
 700
Euschistus impictiventris (western brown stink bug)
 542, 545, 549

Euschistus servus (brown stink bug)
 209, 274, 751, 919, 937, 958, 973
Eutetranychus banksi (Texas citrus mite)
 16, 31, 51, 79, 144, 165, 200, 243,
 325, 307, 369, 436, 462, 473, 518, 562,
 677, 731, 784, 839, 875, 976, 1046,
 1047, 1081, 1135, 1145, 1156, 1157
Euthochtha galeator (a coreid bug)
 866
Eutrombicula spp. (chigger mites)
 225, 398, 644, 926
Eutrombicula alfreudugesi
 295
Euxoa spp.
 23, 226, 429, 491
Euxoa mesorica (dark-sided cutworm)
 95, 397, 478, 536, 629, 642
Euxoa ochrogaster (red-backed cutworm)
 56, 191, 192, 454, 456, 463, 514, 1150
Euxoa tessellata (striped cutworm)
 918
Evergestis forficalis (a pyraustid moth)
 1123
Evergestis pallidata (purple-backed cabbageworm)
 895
Evergestis rimosalis (cross-striped cabbageworm)
 974
Exilisma spp. (leafhoppers)
 113
Exoteleia sp.
 649
Exoteleia pinifoliella (pine needle miner)
 1123
 Eye gnats
 294
 Eye-spotted bud moth
 (Spilonota ocellana)

F

Face fly
 (Meca autumnalis)
 Fall armyworm
 (Spodoptera frugiperda)
 Fall cankerworm
 (Aisophila pomataria)
 Fall webworm
 (Urbanebra cunea)
 False celery leaf tier
 (Udea profundalis)
 False chinch bug
 (Myndus ericae)
 False wireworms
 336
Faena canicularis (little house fly)
 47, 246, 281, 583
Favonita diffusa (wheat head armyworm)
 93, 428, 501. Light traps: 421, 445,
 472, 529, 560, 621, 658, 715, 742, 764,
 794, 821, 850, 872, 889, 912, 930, 947,
 1053
Feltia ducens
 1080
Feltia subothica (dingy cutworm)
 108, 641
Feltia subterranea (granulate cutworm)
 180, 139, 239, 274, 275, 278, 386, 457,
 463, 501, 777, 805, 833, 879, 903, 1120,
 1157. Light traps: 6, 19, 35, 54, 71,
 84, 101, 124, 150, 175, 205, 226, 249,
 285, 314, 347, 378, 399, 421, 445, 472,
 532, 565, 593, 621, 657, 686, 715, 742,
 764, 793, 821, 850, 872, 889, 912, 930,
 947, 968, 982, 996, 1019, 1037, 1053,
 1070, 1086, 1108, 1138, 1148
Feltovina pisonifolia (a gall midge)
 45, 262
Femura pusilla (birch leaf miner)
 45, 191, 267, 268, 353, 372, 440, 464,
 466, 494, 522, 553, 586, 648, 680, 708,
 741, 760, 843

Femura ulmi (elm leaf miner)
 553
 Fern scale
 (Pinnaspis aspidistrae)
Ferrisia virgata (striped mealybug)
 695
 Fig scale
 (Lepidosaphes ficus)
 Fig wax scale
 (Ceratoplastes rusci)
 Filbert aphid
 (Myzocallis coryli)
 Filbert bud mite
 (Phytoptus avellanae)
 Filbertworm
 (Meliosoma latiferrreans)
Florida externa (an armored scale)
 464
Florida these (tea scale)
 17, 33, 54, 100, 221, 244, 245, 260,
 308, 339, 390, 464, 733, 923, 1136
 Fire ant
 (Solenopsis geminata)
 Fir engraver
 (Scolytus ventralis)
 Flea beetles
 57, 177, 182, 184, 186, 209, 336, 367,
 385, 413, 433, 437, 456, 484, 485, 491,
 526, 535, 537, 546, 547, 577, 606, 607,
 608, 640, 642, 674, 696, 724, 729, 735,
 754, 773, 811, 866, 882
 Fleahoppers
 411, 433, 671, 753
 Fleas
 382, 741
 Fletcher scale
 (Lecanium fletcheri)
 Floodwater mosquito
 (Aedes sticticus)
 Florida fern caterpillar
 (Dallopsia floridensis)
 Florida red scale
 (Chrysomphalus acidum)
 Florida wax scale
 (Ceratoplastes floridensis)
 Flower flies
 323, 418
 Flower thrips
 (Frankliniella tritici)
Folicia finetaria (a springtail)
 1039
 Forage looper
 (Caenurgina erecta)
 Foreign grain beetle
 (Ahasverus advena)
Forficulus sp. (an ant)
 842
 Forest tent caterpillar
 (Malacosoma disstria)
Forficula auricularia (European earwig)
 53, 138, 192, 262, 283, 289, 352, 353,
 520, 642, 706, 736, 758, 778, 817, 841,
 844
 Fork-tailed bush katydid
 (Soudderia furcata)
Formica integroides (an ant)
 667
Formica perpilosa
 1044
 Formosan subterranean termite
 (Coptotermes formosanus)
 Four-lined plant bug
 (Poecilognathus lineatus)
 Four-spotted spider mite
 (Tetranychus canadensis)
 Foxglove aphid
 (Acyrthosiphon solani)
 Frankliniella spp. (thrips)
 143, 209, 213, 362, 385,
 575, 607, 609, 636, 639, 1102, 1145
Frankliniella bipinnosa
 386, 391, 406
Frankliniella formosae
 1123

- Haematopinus quadripartus (cattle tail louse) 231, 895
- Haematopinus suis (hog louse)
18, 34, 222, 252
- Haery chinch bug (*Rissus hirtus*)
- Halictophagus sp. (a twisted-wing insect)
- 223
- Halictus sp. (a halictid bee)
- 3
- Halictidota sp.
- 649
- Halictidota argentata (silver-spotted tiger moth) 171, 371, 439
- Halictidota harrisii (sycamore tussock moth)
- 1043
- Halictidota ingens
- 171
- Hall scale (*Nirotaspis halli*)
- Halictotoma valida (yucca plant bug)
- 1082
- Haplax sp. (an arctiid moth)
- 218, 219
- Haplaxipops clarisetis (a thrips)
- 895
- Harlequin bug (*Margarita histrionica*)
- Harrisina americana (grape leaf skeletonizer) 884, 941
- Harrisina brillians (western grape leaf skeletonizer) 163, 414, 490, 519, 550, 583, 646, 678, 847, 849, 866, 888, 944, 951, 1068
- Harrisina metallica
- 45
- Hawaiian beet webworm (*Hymenia recurvata*)
- Healyella blackburni (cocomat leaf roller)
- 68, 206
- Helicella asperata (a snail)
- 266, 1123
- Helicella conspurcata
- 1123, 1124
- Helicella cretica
- 266, 1124
- Helicella derbentina
- 266, 1124
- Helicella maritima
- 266, 1124
- Helicella protea
- 1124
- Helicella pyramidata
- 1124
- Helicella variabilis
- 266
- Helicena zephyrina (a snail)
- 1124
- Heliothis spp.
138, 208, 209, 211, 322, 373, 405, 427, 456, 458, 485, 513, 543, 544, 574, 600, 604, 627, 637, 663, 670, 691, 699, 719, 726, 741, 747, 752, 755, 778, 805, 834, 861, 879, 880, 905, 919, 938, 951, 958, 959, 973, 1013
- Heliothis phloxiphaga
- 861
- Heliothis virescens (tobacco budworm)
207, 208, 211, 405, 427, 457, 512, 513, 543, 574, 576, 606, 637, 638, 670, 699, 726, 752, 772, 778, 806, 813, 828, 861, 880, 899, 903, 919, 938, 951, 959, 1013, 1027. Light traps: 6, 19, 35, 54, 71, 83, 84, 101, 150, 175, 205, 226, 249, 265, 314, 347, 378, 399, 421, 445, 463, 472, 505, 514, 560, 567, 593, 620, 621, 657, 663, 686, 715, 726, 742, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 982, 996, 1019, 1037, 1053, 1070, 1086, 1108, 1138, 1148
- Heliothis zea (bollworm, corn earworm, tomato fruitworm) 32, 108, 106, 107, 120, 131, 138, 177, 180, 208, 210, 211, 250, 258, 222, 321, 405, 427, 449, 463, 477, 483, 484, 485, 501, 512, 529, 535, 543, 546, 574, 576, 577, 599, 606, 627, 637, 638, 670, 673, 699, 702, 719, 741, 747, 752, 753, 774, 778, 799, 806, 810, 827, 834, 835, 855, 861, 863, 875, 880, 899, 903, 915, 919, 935, 938, 951, 955, 959, 971, 973, 983, 987, 1011, 1027, 1029, 1043, 1063, 1101, 1133, 1151, 1157. Light traps: 6, 19, 35, 54, 71, 83, 84, 101, 150, 175, 205, 226, 249, 265, 314, 347, 378, 399, 421, 445, 463, 472, 505, 514, 560, 567, 593, 620, 621, 657, 663, 686, 715, 726, 742, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 982, 996, 1019, 1037, 1053, 1070, 1086, 1108, 1138, 1148
- Heliothrips haemorrhoidalis (greenhouse thrips) 162, 229
- Helix aperta
- 266
- Helix aspersa (brown garden snail)
37, 125, 176, 266, 907
- Hellula rogatalis (cabbage weevorm)
- 53
- Hemerobius spp. (brown lacewings)
- 710
- Hemerocampa leucostigma (white-marked tussock moth) 414, 553, 678
- Hemerocampa pseudoteugata (Douglas-fir tussock moth) 251, 252
- Hemerocampa vetusta (western tussock moth)
112, 539, 550
- Hemitelesia affinis
- 1135
- Hemitelesia palmae
- 339
- Hemitelesia rapax (greedy scale)
- 17, 304
- Hemileuca maia (buck moth)
- 524, 585
- Hemileuca oliviae (range caterpillar)
- 115, 632, 711, 818, 847, 944
- Hemispherical scale (*Saissetia coffeae*)
- Hemitarsonemus latus (broad mite)
- 286
- Hemlock sawfly (*Neodiprion tsugae*)
- Hemp nettle *cyst* nematode (*Heterodera galeopsidis*)
- Hercinotrips nemoralis (banded greenhouse thrips) 391
- Herculia phaezalis (a pyralid moth)
- 221
- Hermetia illucena (a soldier fly)
- 783, 1143, 1153
- Hesperocimex coloradensis (a bird bug)
- 294
- Hesperotettix spp. (grasshoppers)
395, 498, 526, 682, 870
- Hesperotettix cesticornis
- 21, 498, 526, 589, 927
- Hesperotettix viridis
- 526, 556
- Hessian fly (*Melittia destructor*)
- Heterocampa mantes (variable oak leaf caterpillar) 991
- Heterodera avenae (cat cyst nematode)
- 69
- Heterodera galeopsidis (hemp nettle cyst nematode) 69
- Heterodera glycines (soybean cyst nematode)
- 31
- Heterodera punctata (grass cyst nematode)
- 69, 205
- Heterodera rostochiensis (golden nematode)
- 57, 205
- Heteronarus nitidus (a springtail)
- 1089, 1035
- Heterostylum robustum (a bee fly)
- 324
- Hickory bark beetle (*Scolytus quadripinosus*)
- Hickory plant bug (*Halyris carvayae*)
- Hickory shuckworm (*Laspeyresia caryana*)
- Hippelates musio (an eye gnat)
- 760
- Hippodamia spp.
- Hippodamia convergens (convergent lady beetle) 35, 202, 213, 247, 281, 311, 321, 359, 394, 417, 418, 486, 510, 555, 585, 652, 761, 771, 789, 909, 1015, 1033, 1049, 1113, 1137
- Hippodamia parenthesis
- 652
- Hister nomas (a histerid beetle)
- 45, 231
- Hitiotoma sp. (an anetid mite)
- 245
- Hofmannophila pseudospretella (brown house moth) 327
- Hog louse (*Haematopinus suis*)
- Holcogera iceryaeella (a blastobasid moth)
- 81, 278
- Hollyhook weevil (*Apion longirostre*)
- Holly leaf miner (*Phytomyza ilicis*)
- Homalidia albizziae (mimosae webworm)
- 252, 277, 278, 352, 647, 679, 708, 734, 747, 759, 785, 791, 867, 884, 888, 906, 908, 1048, 1075, 1082
- Homaledra sabalella (palm leaf skeletonizer) 245, 885
- Homococuma electellum (sunflower moth)
- 514, 672, 783, 823, 882
- Homorus undulatus (a weevil)
- 1103, 1106, 1148
- Honey bee (*Apis mellifera*)
- Hop aphid (*Phorodon humuli*)
- Hoplia oregona (a scarab)
- 491
- Hoplocampa spp. (sawflies)
- 592, 610
- Hoplocampa brevis (pear sawfly)
- 57, 62, 63, 64, 227, 228, 229, 230, 387, 412, 549, 610, 644, 738, 819, 895
- Hoplocampa halcyon
- 229
- Hoplocampa testudinea (European apple sawfly) 45, 125, 227, 228, 229, 230, 353, 489, 517, 610, 644, 895, 1102, 1106
- Hornets
- See vespid wasps
- Horn fly (*Haematobia irritans*)
- Horoglyphus punctatorius (an ichneumon wasp)
- 322
- Horse bot fly (*Gasterophilus intestinalis*)
- Horse flies
- See tabanid flies
- Horse sucking louse (*Haematopinus asini*)
- House fly (*Musca domestica*)
- Humococcus atrinilis (a mealybug)
- 81, 84
- Hyadaphis pseudobrassicae (turnip aphid)
- 182, 960, 1080, 1102, 1134
- Hyalinterus pruni (mealy plum aphid)
- 222, 438, 763
- Hyalinotus larischthaima (a horse fly)
- 293, 321
- Hylomitra sonomensis sonomensis
- 681
- Hydrellia griscola (a rice leaf miner)
- 28
- Hydractis micacea (potato stem borer)
- 57

Elysius obscurus (clover root borer)

541
Elysius spp. (root maggots)
 57, 181, 515, 1151
Elysius antiquus (onion maggot)
 57, 120, 183, 414, 436, 457, 463, 491,
 515, 578, 609, 673, 674, 729, 756,
 1014
Elysius brassicae (cabbage maggot)
 57, 182, 351, 458, 487, 515, 547, 642,
 673, 781, 882, 939, 1151
Elysius floralis (turnip maggot)
 101

Elysius platura (seed-corn maggot)
 183, 185, 351, 359, 451, 457, 479, 515,
 545, 546, 601, 608, 636, 672, 810
Elysius seneciella
 616

Elysius (pales weevil)
 55, 225, 232, 392, 551, 613
Elysius radialis (pine root collar weevil)
 551

Elysius balulus (old-house borer)
 326, 817
Elysius rufipes (native elm bark
 beetle) 255, 462, 494, 500, 585
Elysius recurvatus (Hawaiian beet webworm)
 67, 286

Hymenopterous parasites
 40, 42

Elysius strigata (a noctuid moth)
 69, 121, 103, 1159
Elysius spp.

Elysius brunneipennis (Egyptian alfalfa
 weevil) 3, 15, 31, 79, 99, 131, 170,
 193, 218, 240, 275, 303, 383, 481, 540,
 604, 895, 1155

Elysius meles (clover head weevil)
 132, 275, 303, 335, 361, 408, 453, 509,
 571, 1144, 1148

Elysius nigricornis (lesser clover leaf
 weevil) 131, 218, 275, 284, 303, 361,
 408, 453, 540

Elysius pastica (alfalfa weevil)
 15, 44, 56, 79, 119, 127, 128, 129,
 169, 196, 205, 218, 240, 241, 257, 274,
 275, 284, 302, 303, 322, 323, 334, 335,
 341, 352, 360, 382, 383, 407, 408, 429,
 434, 452, 480, 500, 508, 539, 570, 603,
 632, 633, 667, 673, 682, 696, 723, 741,
 751, 776, 796, 803, 830, 859, 878, 918,
 957, 972, 989, 1012, 1028, 1045, 1064,
 1068, 1079, 1085, 1101, 1114, 1133,
 1144, 1150, 1155, 1159

Elysius punctata (clover leaf weevil)
 15, 131, 144, 218, 240, 274, 303, 322,
 335, 360, 361, 383, 384, 408, 430, 453,
 481, 509, 540, 604, 696, 813, 1012,
 1080, 1114

Elysius spp. (lady beetles)
 652, 1049

Elysius limbatus
 810, 820

Elysius humilis (a weevil)
 877

Elysius cuneus (fall webworm)
 162, 163, 223, 255, 436, 460, 489, 552,
 610, 644, 646, 676, 678, 679, 704, 708,
 730, 734, 759, 783, 785, 814, 839, 841,
 842, 865, 866, 884, 885, 906, 908, 924,
 940, 963, 975, 977, 990, 1014

Elysius alba (a grasshopper)
 526

Elysius spp.
 83, 85, 222, 310, 342, 372, 377, 393,
 555, 615, 651, 709, 1116, 1129, 1146

Elysius bovis (northern cattle grub)
 75, 201, 293, 372, 523, 651

Elysius lineatus (common cattle grub)
 18, 34, 53, 87, 88, 100, 123, 146,
 201, 205, 280, 293, 310, 342, 372,
 393, 441, 886, 1049, 1104, 1116, 1146

Hypoderma tarandi (a reindeer warble)

122
Hypoderma armata (a springtail)
 810, 1030

Hypoderma pubescens (a bark beetle)
 45, 73
Hypoderma vulgaris
 1051, 1052

Hypoderma costalis (clover hayworm)
 803

Hypoderma setariae (rusty plum aphid)
 158, 260, 488

Icerya purchasi (cottony-cushion scale)

103, 151, 184, 206, 220, 250, 315, 339,
 359, 370, 394, 413, 518, 689, 735, 792,
 883, 992, 995, 1031, 1145, 1149

Icerya inclusa (poplar leaf miner)
 814

Imported cabbage worm
Icerya rapae
 Imported fire ant

(Solenopsis saevissima richteri)
 Imported willow leaf beetle
Platidroma versicolora

Inciditermes spp.
Inciditermes minor (western drywood
 termite) 101, 226, 496, 500

Inciditermesnyderi
 709

Indian-meal moth
Plodia interpunctella

Introduced pine sawfly
Diprion similis

Io moth
Automeris io

Ips spp. (engraver beetles)
 252, 305, 464, 496, 551, 584, 679,
 733, 813, 841, 924, 963, 1014, 1047,
 1048, 1066, 1115

Ips avulsus
 492, 733, 925

Ips calligraphus
 492, 649, 977, 1051

Ips confusus (California five-spined
 ipa) 679

Ips grandicollis
 492, 649

Ips mexicanus
 52, 245

Irbisia spp. (grass bugs)
 570, 596, 602, 623, 632

Irbisia brachycera
 570, 593, 602, 623

Irbisia pacifica
 631

Irbisia shullii
 603

Irbisia solani
 570

Iridomyzox humilis (Argentine ant)
 35, 75, 162, 329, 502, 524, 1158

Ischnaspis longirostris (black thrench
 scale) 37, 125, 149, 337, 390, 414,
 1031, 1069

Isotoma eunotabilis (a springtail)
 1030

Italian pear scale
Epiliaspis piricola
Itonelectis conquisitor (an ichneumon
 wasp) 222

Ithome concolorrella (a Kiawe moth)
 75

Ixodes scapularis (black-legged tick)
 34, 173, 201, 222, 310, 342, 1083,
 1197

Jack-pine budworm

(Choristoneura pinus)
Jack-pine sawfly
 (Neodiprion pratti banksianae)

Jadera haematoloma (a coreid bug)
 736

Japanese beetle
 (Popillia japonica)

Jeffrey pine beetle
 (Dendroctonus ponderosae)

Juniper webworm
 (Dichomeris marginella)

Kaloterms approximatus (a drywood
 termite) 45, 246

Keiferia lycopersicella (tomato pinworm)
 4, 171, 172, 367, 959

Keonella confluens (a leafhopper)
 466

Kermes vivescens (an oak kermes scale)
 787

Knapweed beetle
 (Procyderna granarium)

Kleidocerys resedae (a Lygaeid bug)
 735

Kurconathrips morrilli (a thrips)
 974

Kwarina quercus (a margaroid scale)
 1032

Labidura riparia (an earwig)
 329, 524

Labops spp. (grass bugs)
 452, 596, 623, 632, 667

Labops hesperius
 539, 596, 623, 803

Labops hirtus
 596, 623

Labops uhlandii
 596, 603

Lacewings
 131, 323, 342, 496, 525, 710

Lacmus galinus (an aphid)
 17, 45, 74, 120, 227, 259, 440, 962,

Lady beetles
 44, 101, 202, 311, 342, 373, 417, 418,
 468, 496, 524, 555, 588, 616, 681, 710,
 736, 761, 789, 817, 844, 869, 909, 926,
 979

Laelia coccivora (a pyralid moth)
 492

Lagocheirus absoleutus (a cerambycid
 beetle) 1052

Lambdina ficiellaria (hemlock looper)
 253

Lambdina ficiellaria scutellaris (western
 oak looper) 867

Lampides boeticus (bean butterfly)
 176, 204, 250, 390, 473, 1085, 1124

Lantidaphnia davidi (an aphid)
 62

Lanipus mozeri (clover stem borer)
 131

Lanipus trifasciata (a langurid beetle)
 45, 293

Lantana lace bug
 (Teleonemia scrupulosa)

Larch aphid
 (Cinara lartici)
 Larch casebearer
 (Coleophora laricella)

- Larch sawfly
(*Pristiphora erichsonii*)
- Larder beetle
(*Dermaptes lardarius*)
- Large milkweed bug
(*Cucujulus fasciatus*)
- Larger canna leaf roller
(*Calpodex ethiusa*)
- Larger elm leaf beetle
(*Monocostea coryli*)
- Larger yellow ant
(*Acanthomyrmex interlectus*)
- Larva cinctus scaleform (a pyrrhocorid bug) 590
- Lasioderma serricorne (cigarette beetle) 69, 83, 174, 200, 217, 468, 966, 943, 1084
- Lasius neoniger (an ant) 226
- Laspeyresia sp. (an olethreutid moth) 145
- Laspeyresia caryana (hickory shuckworm) 52, 161, 162, 220, 243, 306, 369, 413, 784, 812, 883, 922, 975, 990, 1030, 1061, 1115
- Laspeyresia piperana 907
- Laspeyresia splendana 266, 1124
- Laspeyresia strobiliella (a spruce cone moth) 59
- Latheticus oryzae (a darkling beetle) 40, 41
- Latroctes nactans (black widow spider) 223, 229, 315, 964, 978
- Lawn armyworm
(*Spodoptera mauritia acronyctoidea*)
(*Scobicia declivis*)
- Leaf-footed bug
(*Leptoglossus phyllorus*)
- Leafhoppers 155, 169, 180, 185, 186, 191, 213, 242, 260, 282, 484, 542, 573, 605, 641, 668, 671, 672, 723, 727, 775, 802
- Leaf roller moths 590, 592, 647
- Lecanodiopsis proscopida (a pit scale) 991
- Lecanium spp. (soft scales) 58, 647, 678
- Lecanium ceratocum (calico scale) 225, 397, 492, 708, 895
- Lecanium corni (European fruit lecanium) 225, 279, 322, 585, 647, 678, 1151
- Lecanium coryli 659
- Lecanium excrescens 895
- Lecanium fletcheri (fletcher scale) 438, 647, 678, 707, 733, 813
- Lecanium knuensis (a soft scale) 445
- Lecanium persicae (European peach scale) 81
- Lechriops floridanus (a weevil) 1032
- Leek moth
(*Acrolepis assectella*)
- Lema simlanae (a leaf beetle) 924
- Lema trilineata (three-lined potato beetle) 178, 286, 315, 321, 409, 607, 656, 740, 763
- Lepidosaphes beckii (purple scale) 16, 180, 184, 200, 243, 307, 369, 436, 462, 518, 582, 677, 706, 731, 784, 840, 975, 1046, 1081, 1135
- Lepidosaphes camelliae (camellia scale) 17
- Lepidosaphes ficus (fig scale) 306
- Lepidosaphes gloverii (glover scale) 16, 32, 80, 164, 200, 243, 307, 369, 436, 462, 518, 582, 677, 731, 784, 840, 975, 1046, 1081, 1135, 1144
- Lepidosaphes maskellii 1156, 1159
- Lepidosaphes pini 695
- Lepidosaphes tuberculata 159
- Lepidosaphes ulmi (yateshull scale) 58, 144, 172, 244, 256, 260, 368, 390, 488, 491, 492, 519, 528, 536, 614, 759, 803, 885, 908
- Lepisma saccharina (silverfish) 221
- Leptinotarsa decemlineata (Colorado potato beetle) 177, 178, 219, 367, 412, 433, 457, 486, 514, 546, 577, 607, 640, 672, 702, 754, 780, 808, 822, 905, 1151
- Leptocera sp. (a sphaeropterid fly) 441, 495
- Leptocoria trivittatus (boxelder bug) 35, 146, 174, 261, 287, 328, 353, 648, 941
- Leptoglossus sp. (a leaf-footed bug) 865
- Leptoglossus phyllorus (leaf-footed bug) 180, 388, 809, 923
- Leptopteris ferrugata (a plant bug) 632
- Leptothorax curvispinosus (an ant) 313
- Lerodea eufala (a skipper) 721, 722
- Lesegia archippivora (a tachina fly) 979
- Lesser clover leaf weevil
(*Hypera nigrostris*)
- Lesser cornstalk borer
(*Etiampalpus lignosellus*)
- Lesser grain borer
(*Prostephanus dominica*)
- Lesser mealworm
(*Alphitobius diaperinus*)
- Lesser peach tree borer
(*Synanthedon pictipes*)
- Leucospis laponica (an armored scale) 439
- Leucospis affinis (a leucospid wasp) 616
- Leuctra sp. (a stonefly) 45
- Light-brown apple moth
(*Epiphyas postvittana*)
- Lilac leaf miner
(*Gracillaria syringella*)
- Lima bean pod borer
(*Metopostima stinkensella*)
- Lima-bean vine borer
(*Homocidus pergratialis*)
- Limax flavus (tarny garden slug) 967
- Limax maximus (spotted garden slug) 68, 125, 151
- Limnobia stragmatella (a cosmopterigid moth) 45
- Limnoria sp. 112, 179, 186, 960
- Limnoria agonus 569
- Limnoria californicus (sugar-beet wireworm) 21, 172, 186, 451, 456, 808
- Limnoria canis (Pacific Coast wireworm) 179, 186
- Limothrips cerealis (grain thrips)
- Limothrips denticornis (barley thrips) 570, 602, 631, 666, 695, 750, 775, 802
- Limothrips viti (long-nosed cattle louse) 45, 58, 75, 122, 146, 173, 246, 280, 292
- Limothrips illex (a thrips) 1156
- Limoneta sp. (a louse fly) 201
- Limonysia spp. (leaf miner flies) 52, 86, 176, 206, 231, 377, 419, 502, 559, 595, 620, 656, 703, 714, 740, 794, 836, 911, 967, 995, 1036, 1052, 1085, 1107, 1139, 1159
- Limonysia bryoniae (pea leaf miner) 81, 990
- Limonysia munda 930
- Lissochoreus oryophilus (rice water weevil) 94, 429
- Litrodiera costrostris obliquus (vegetable weevil) 4, 208, 276, 278, 308, 367, 370, 389, 391, 433, 457, 895
- Litronomus oregonensis (carrot weevil) 188, 755
- Lithopane sp. 277
- Lithopane antennata (green fruitworm) 122, 127, 129, 516, 786
- Litoprosopus coacheila (a noctuid moth) 188, 755
- Little house fly
(*Fannia canicularis*)
- Locust borer
(*Aegypius robiniae*)
- Locust leaf miner
(*Xenochalepus dorsalis*)
- Loewivina n. sp. (an atelid fly) 125
- Lonechea sp. (a louchaeid fly)
- Lone star tick
(*Amblyomma americanum*)
- Longistigma caryae (giant bark aphid) 372, 1116
- Longistigma waterhousei (a mint flea beetle) 122, 672, 728, 739, 895
- Long-nosed cattle louse
(*Linognathus vituli*)
- Long-tailed mealybug
(*Pseudococcus adonidum*)
- Loopers 639, 779, 806, 832, 837, 859, 904
- Losex sp. (a stink bug) 991
- Loxogrotis albicosta (western bean cutworm) 108, 809, 829, 849, 921, 960
- Loxocera reclusi (a brown spider) 223, 226, 468, 616, 820, 943
- Loxostege spp. 132, 186, 187, 212, 362, 377, 569, 635, 636, 669, 696, 724, 751, 776, 779, 803, 831, 858, 878, 902, 917, 921, 944, 958, 976; Light traps: 764, 793, 794
- Loxostege commixtalis (alfalfa webworm) 132, 514, 572, 656, 724, 859, 878, 920, 958, 989; Light traps: 560, 593, 657, 715, 742, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 982, 912, 930, 947, 968, 982
- Loxostege similalis (garden webworm) 105, 108, 212, 443, 434, 545, 623, 635, 724, 751, 776, 803, 936, 958, 1029, 1144; Light traps: 132, 249, 560, 593, 604, 657, 715, 742, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 982
- Loxostege sticticalis (beet webworm) 456, 514, 545, 576, 607, 639, 701, 728, 765, 780, 990; Light traps: 529, 560, 593, 657, 686, 715, 742, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 982
- Lubber grasshopper
(*Brachyotus magna*)
- Lycius sp. (powder-post beetles) 146, 176, 226, 227
- Lycius brunneus 146, 1158
- Lycius carcolis 146

Lyctus planicollis (southern lyctus beetle) 54, 326

Lygaea spp. (lygae bugs)
4, 15, 31, 80, 114, 137, 198, 213, 219, 240, 275, 276, 304, 306, 362, 384, 385, 389, 409, 431, 452, 457, 456, 463, 483, 484, 485, 510, 513, 514, 542, 545, 572, 605, 606, 634, 638, 641, 671, 697, 700, 701, 723, 727, 750, 753, 754, 777, 779, 803, 806, 831, 832, 835, 861, 877, 880, 901, 904, 920, 937, 940, 958, 972, 974, 984, 989, 1012, 1028, 1044, 1080, 1101, 1133

Lygaeus elisus
137, 276, 304, 362, 511, 605, 832, 972
Lygaeus hesperus
131, 304, 832, 974

Lygaeus lineolaris (tarnished plant bug)
95, 137, 155, 158, 161, 180, 189, 213, 218, 219, 275, 304, 336, 351, 362, 368, 384, 389, 409, 431, 435, 437, 455, 510, 511, 513, 517, 542, 544, 546, 547, 572, 573, 575, 604, 606, 634, 638, 639, 667, 668, 669, 670, 672, 674, 697, 702, 703, 723, 727, 741, 749, 750, 751, 753, 755, 774, 775, 779, 780, 781, 803, 806, 830, 831, 835, 837, 838, 859, 861, 877, 900, 901, 905, 918, 937, 958, 1012, 1028, 1044, 1064, 1079, 1080

Lymanea olibula (a freshwater anail)
377, 911, 1018
Lyssiphebus sp. (a braconid wasp)

322
Lyssiphebus testaceipes
373, 312, 342
Lytta reticulata (a blister beetle)
604

M

Macalla thrysisalis (a wevform)
493
Macroctonus ancylicivorus (a braconid wasp) 38

Macrocheles muscae (a macrocheilid mite)
54
Macroclatypus subspinosus (rose chafer)
112, 190, 207, 321, 322, 435, 437, 491, 511, 512, 645, 678, 729

Macrochitonella sanborni (chrysanthemum aphid) 17, 33, 278, 415, 438, 492, 1156
Macrosiphum spp.
86, 367
Macrosiphum avenae (English grain aphid)
3, 15, 31, 51, 67, 79, 24, 119, 143, 169, 197, 197, 217, 239, 273, 301, 334, 359, 381, 406, 428, 451, 479, 507, 538, 569, 601, 631, 666, 695, 722, 749, 802, 988, 1012, 1028, 1044, 1064, 1079, 1133, 1143, 1150, 1155

Macrosiphum euphorbiae (potato aphid)
179, 221, 415, 428, 546, 577, 608, 640, 641, 672, 702, 729, 741, 754, 781, 808, 837, 863, 882, 990
Macrosiphum rosae (rose aphid)
17, 200, 259, 390
Macrosiphum fascifrons (six-spotted leaf-hopper) 51, 79, 52, 140, 143, 144, 169, 237, 301, 357, 405, 427, 449, 478, 506, 536, 568, 600, 628, 664, 692, 720, 748, 778, 1027, 1155
Maculis barbata (black elm bark weevil)
522

Megacida spp. (periodical cicadas)
161, 261, 435, 461, 517, 522, 561, 585, 730
Megacida cassini
161
Megacida septendecim
161, 316, 730, 839

Magnolia scale
(Meclecanium cornuparvum)

Maize billbug
(Sphenophorus maidis)

Malacoeca spp.
63, 172, 285, 371, 372, 392, 412, 466, 488, 493, 521, 522, 679, 1151
Malacoeca americana (eastern tent caterpillar) 121, 154, 159, 172, 200, 222, 245, 255, 276, 277, 306, 309, 338, 342, 352, 351, 368, 371, 388, 396, 412, 415, 438, 488, 493, 517, 519, 521, 530, 552, 585, 613, 647, 679

Malacoeca distria (Forest tent caterpillar) 17, 157, 172, 253, 252, 322, 323, 372, 392, 466, 486, 493, 521, 536, 595, 613, 647, 679, 702
Malacoeca fragile (Great Basin tent caterpillar) 252, 309, 371, 372, 415, 439, 466, 493

Malacoeca incurvum discoloratum
309
Malacoeca pluvialis (western tent caterpillar) 46, 152, 371, 372, 412, 488

Malacoeca tigris
172
Malariae castanea (Asiatic garden beetle)
859, 977

Manestra brassicae (cabbage moth)
69, 204, 265, 1124, 1125
Manestra configurata (bertha armyworm)
1150

Manuca spp. (hornworms)
208, 545, 599, 627, 663, 719, 729, 748, 772, 800, 828, 875, 899
Manuca quinquemaculata (tomato hornworm)
57, 178, 501, 561, 627, 664, 729, 742, 748, 800, 856, 935

Light traps: 6, 19, 35, 54, 71, 83, 84, 101, 150, 175, 205, 226, 347, 378, 399, 445, 472, 529, 593, 599, 621, 657, 686, 715, 764, 793, 821, 850, 872, 889, 912, 930, 947, 969, 996, 1019
Manuca sexta (tobacco hornworm)
57, 178, 208, 421, 531, 576, 599, 627, 692, 729, 821, 828, 1157. Light traps: 6, 19, 35, 54, 71, 83, 84, 101, 150, 175, 205, 214, 399, 445, 472, 501, 529, 550, 593, 621, 657, 686, 715, 742, 764, 793, 850, 872, 889, 912, 930, 947, 968, 982, 996, 1019, 1070, 1086

Mango beetle
(Protetia fusca)

Manonia pertusans (a mosquito)
287, 341, 372, 392, 415, 467, 586, 614, 650, 680, 708, 735, 760, 787, 815, 942, 1048, 1066

Mantis religiosa (European mantid)
46
Maple bladder-gall mite
(Vasates quadrupes)

Maple petiole borer
(Caulocompus acericaulis)

Marsmia trapezialis (a pyraustid moth)
105, 175, 956
Marginal blister beetle
(Epicauta pestifera)

Maruca testularis (bean pod borer)
103, 267, 393, 1085, 1125
Masked hunter
(Reduvius personatus)

Megachilus aculeae (an aphid)
595
Matsucoccus spp. (margaroid scales)
245, 440
Matsucoccus acalyptus
440

Matsucoccus resinosa (red-pine scale)
253
Matsucoccus phaeolei (an clethrethid moth) 69

May beetles
612
Mayetiella destructor (Hessian fly)
31, 91, 92, 307, 370, 666, 722, 775, 974, 1022, 1064, 1114, 1133

Mayetiella rigidae (willow-barked gall midge) 246
Meadow spittlebug
(Philaenus spumarius)

Mealybugs
53, 165, 200, 243, 307, 437, 452, 518, 784, 840
Mealy plum aphid
(Eualopterus pruni)

Mediterranean flour moth
(Anagasta kuehniella)
Mediteranean fruit fly
(Ceratitis capitata)

Mesochila frigida (a leafcutting bee)
525
Mesochila rotundata
221, 545, 555, 616

Mesochylene robiniae (locust borer)
613, 734, 925, 942, 962, 966, 992
Mesopolopys opercularis (puss caterpillar)
52, 307

Mesoxyla spp. (xyelid sawflies)
39, 413
Mesoxyla langstoni
333

Melalgus confertus (a false powder-post beetle) 704, 1014
Melanocromyza n. sp. (a leaf miner fly)
1051

Melanogramyza gibsoni (a stem mining fly)
697
Melanaspis bromeliae (an armored scale)
151, 148

Melanaspis obscura (obscure scale)
256, 309, 313, 551, 554, 648, 734, 759, 1031, 1066
Melanaspis caryaeifoliae (an aphid)
338

Melanoplus spp.
83, 89, 343, 442, 469, 498, 557, 588, 589, 616, 617, 653, 654, 682, 710, 711, 736, 737, 761, 762, 817, 818, 845, 869, 870, 887, 909, 927, 964
Melanoplus angustipennis
761, 927

Melanoplus bivittatus (two-striped grasshopper) 88, 89, 90, 91, 343, 374, 395, 418, 442, 469, 498, 526, 556, 557, 588, 589, 616, 617, 653, 682, 711, 761, 762, 790, 818, 845, 869, 870, 887, 927, 964

Melanoplus devastator (devastating grasshopper) 88, 89, 91, 343, 374, 395, 418, 442, 469, 498, 526, 556, 557, 588, 589, 616, 617, 653, 682, 711, 761, 762, 790, 818, 845, 869, 870, 887, 927, 964

Melanoplus bruneri
887
Melanoplus confusus
442, 469, 589

Melanoplus davsoni
525, 889
Melanoplus devastator (devastating grasshopper) 682

Melanoplus differentialis (differential grasshopper) 88, 89, 91, 343, 374, 395, 418, 442, 469, 498, 526, 557, 588, 589, 617, 653, 682, 711, 737, 761, 762, 790, 818, 845, 869, 870, 927, 944, 964, 979, 993, 1016

Melanoplus femurrubrum (red-legged grasshopper) 88, 89, 91, 343, 374, 395, 418, 442, 469, 498, 526, 557, 588, 589, 617, 653, 654, 682, 711, 737, 761, 762, 790, 818, 845, 869, 870, 887, 910, 927, 944, 964, 979, 993, 1016, 1033

Melanoplus glandstoni
979
Melanoplus laktus
927, 979

Melanoplus marginatus
682
Melanoplus occidentalis
525, 682, 979

Melanoplus packardii (Packard grasshopper)
88, 89, 90, 557, 589, 616, 653, 790,
818, 845, 869, 887

Melanoplus sanguinipes (migratory
grasshopper) 83, 89, 92, 418, 469,
498, 526, 556, 589, 615, 653, 654, 682,
710, 711, 761, 789, 790, 817, 818, 845,
869, 887, 927, 944, 964, 979

Melanotus sp.
61

Melanotus communis
112, 334, 479, 507, 537, 569, 630, 749

Melanotus oregonensis (Oregon wireworm)
386, 960

Melasis rufipennis (an eucnemid beetle)
326

Meloidae nigrescens (a sap beetle)
673

Melissopus latifreemans (filbertworm)
162, 645, 812, 838, 975

Melittia cucurbitae (squash vine borer)
187, 638, 642, 674, 703, 759, 782, 960

Meloe angusticollis (a blister beetle)
702

Melolontha melolontha (common cockchafer)
659

Melon aphid
(Aphis gossypii)

Melon fly
(Dacus cucurbitae)

Melonworm
(Diaphania hyalinata)

Melospiza ovinus (sheep head)
223, 231, 693, 873, 888, 1104

Menacanthus stramineus (chicken body
louse) 4, 18, 1083

Mermiria maculipennis (a grasshopper)
589, 790, 818

Merodon equestris (narcissus bulb fly)
695

Mercuzya americana (wheat stem maggot)
28, 631, 666, 695, 871

Metamasus hemipterus sericeus (silky
cone weevil) 267

Metalia pruinosa (a flatid planthopper)
644

Metecorus n. sp. (a braconid wasp)
1068, 1069

Metergus laphygmae
1069

Metoponum spp. (darkling beetles)
179, 180

Metriona spp.
642

Metriona bicolor (golden tortoise beetle)
183, 778

Mexican bean beetle
(Epilachna varivestita)

Mexican fruit fly
(Anastrepha ludens)

Mexican mealybug
(Phenacoccus gossypii)

Mexia membranacea (a flat bug)

Micotetrus picrostris (clover seed
weevil) 481, 540, 634, 895

Microcentrum retinerive (angular-winged
katydid) 464

Microcerasias sphenophori (a tachina
fly) 502

Microlarinus spp.
75, 993

Microlarinus lareynii (a puncture-vine
seed weevil) 75, 101, 321, 817, 849,
944, 979, 993, 1117

Microlarinus lyrriformis (a puncture-vine
stem weevil) 73, 75, 321, 377, 714,
810, 862, 967, 993, 995, 1069, 1159

Micromys formosanus (an onion aphid)
250, 473

Micromytilis croceipes (a braconid wasp)
373

Microthece ochroleuca (yellow-margined
leaf beetle) 895, 974

Microvexia misella (a lady beetle)
652

Midge
289, 587

Migratory grasshopper
(Melanoplus sanguinipes)

Milchicella circularis (a milchid fly)
86

Millipede
228, 681, 1146

Minosa webi
(Homodaula albizziae)

Mites
138, 159, 192, 214, 257, 550, 676, 757

Mnesocricia suricyanae (an eriocranid moth)
392

Mocis spp. (grassworms)
830

Mocis latipes
957

Mole crickets
972

Monacha carthusiana (a snail)
267

Monarthralopus buxi (boxwood leaf miner)
63, 391, 646, 1103

Monelasma armata (a long-horned beetle)
1103, 1106

Monellia spp.
162, 645

Monellia carvae (an aphid)
940

Monellia carvela
645

Monellia costalis (black-margined aphid)
162, 413, 645, 705, 731, 784

Monellia nigropunctata
645

Monocasta corvii (larger elm leaf
beetle) 553, 866

Monochamus scutellatus (white-spotted
sawyer) 841

Monodontomerus montivagus (a torymid)
324

Monotomus obscurus
525, 612

Monotomus pharaonis (Pharaoh ant)
868

Monophadnotes geniculatus (raspberry
sawfly) 279, 612

Monoptilota pyrrhialis (lima-bean
vine borer) 673, 755, 756

Montandonicola moraguesi (an anthocorid
bug) 73, 75, 86, 502, 620

Morvanella longispina (an armored scale)
287, 1129

Mormon cricket
(Anabrus simplex)

Mosquitoes
17, 58, 146, 172, 192, 201, 222, 246,
287, 393, 416, 441, 1144, 1467, 1494,
822, 574, 599, 586, 650, 680, 708,
735, 760, 787, 815, 867, 1056, 1136,
1152

Mossy-rose-gall wasp
(Diplolepis rosae)

Mountain-ash sawfly
(Cristiphora geniculata)

Mountain pine beetle
(Dendroctonus ponderosae)

Mourning-cloak butterfly
(Nymphalis antiopa)

Mozena spp. (coreid bugs)
815

Mozena lineolata
815

Mozena obtusa
815

Murpatisa hibernica (harlequin bug)
434, 576, 939

Musca autumnalis (face fly)
38, 71, 280, 284, 285, 291, 352, 373,
393, 416, 468, 495, 500, 523, 587, 615,
650, 680, 709, 735, 741, 760, 788, 815,
849, 843, 867, 886, 908, 926, 942, 963,
977, 992, 1032, 1049, 1051, 1146

Musca domestica (house fly)
75, 86, 223, 291, 310, 329, 352, 416,
441, 468, 587, 735, 760, 788, 816, 886,
908, 911, 943, 966, 977, 993, 1015,
1066

Mycetaspis personata (an armored scale)
46, 75, 1125

Mycetophagidae
40, 41, 42

Mycodiplosis alternata (dogwood club-gall
midge) 33, 53, 201, 1066

Mycota limata (a tephritid fly)
678

Myrceina americana (an ant)
46, 101

Myzocallis alhambra (an aphid)
440

Myzocallis arundinariae
244

Myzocallis carveae-foliae (black pecan
aphid) 162, 389, 462, 518, 609, 645,
883, 922, 940, 990

Myzocallis corvii (filbert aphid)
389, 645, 839

Myzocallis elegans
46, 259

Myzocallis kahawaluokalani (crapemyrtle
aphid) 492

Myzocallis platani
1103

Myzocallis ulmifolia (elm leaf aphid)
494, 708

Myzocallis valshii
1014

Myzus cerasi (black cherry aphid)
158, 160, 388, 461, 492, 517, 548, 643,
704

Myzus persicae (green peach aphid)
4, 80, 99, 144, 146, 160, 161, 170,
171, 179, 180, 182, 186, 190, 199,
207, 208, 209, 217, 219, 220, 221,
242, 276, 278, 306, 320, 321, 323,
336, 367, 368, 388, 414, 436, 473,
461, 485, 488, 517, 546, 548, 576,
577, 609, 639, 640, 641, 671, 672,
673, 701, 702, 729, 754, 781, 782,
808, 811, 836, 837, 838, 863, 904,
905, 920, 961, 974, 990, 1052, 1134,
1135, 1144, 1151, 1155, 1159

N

Nabis spp. (damself bug)
174, 202, 223, 361, 363, 373, 374, 394,
410, 496, 524, 555, 588, 616, 652, 681,
736, 761, 789, 817, 844, 869, 887, 909,
926, 964, 979, 1015, 1033, 1117

Nabis alternatus
418, 616, 887

Nabis tenuis
359, 917

Nacodes melanura (wharf borer)
326, 353, 713

Nalepella halougea (an eriophyid mite)
1103, 1106

Nalepella touffoulae
40

Nantucket pine tip moth
(Rhyacionia frustrana)

Narcissus bulb fly
(Merodon equestris)

Native dark beetle
(Byrrhocinus rufipes)

Native holly leaf miner
(Phytomyza illicicola)

- Navel orangeworm
(*Parameiopsis transitella*)
- Neartoptis bakeri* (clover aphid)
135, 831
- Neocibia rufipes* (red-legged ham beetle)
135, 831
- Neodes rufipes* (a stit bug)
639
- Neivamyrmex nigrescens* (an ant)
394
- Nematus fasciatus* (a cricket)
603
- Nemoctenes* spp. (veevila)
611, 732, 865
- Nemoctenes incomptus*
135, 831
- Nemophilus pyste* (a tachina fly)
223
- Neoborus* spp.
440, 614
- Neoborus amoenus* (ash plant bug)
554, 867
- Neoborus albitus*
440, 392
- Neoborus pacificus*
648
- Neoceruraphis viburnicola* (snowball
aphid) 439, 492
- Neodiprion* spp. (conifer sawflies)
440, 441, 465, 493, 552, 649, 786
- Neodiprion lecontei* (red-headed pine
sawfly) 34, 253, 352, 552, 649, 679,
759, 842, 962, 1014, 1048, 1082, 1116
- Neodiprion merkeii*
786
- Neodiprion namulus namulus* (red-pine
sawfly) 493, 521, 649
- Neodiprion pinetum* (white-pine sawfly)
493, 734
- Neodiprion pratti banksianae* (jack-pine
sawfly) 649
- Neodiprion pratti pratti*
415, 440, 614
- Neodiprion seriferi* (European pine
sawfly) 415, 440, 465, 493, 521, 551,
649, 786, 895, 925
- Neodiprion taedae linearis*
309, 440, 552
- Neodiprion tuscage* (hemlock sawfly)
221
- Neovestireta spinigera* (a stratiomyid fly)
713
- Necolecanium cornusparvum* (magnolia scale)
260
- Neglyps carvae* (hickory plant bug)
218
- Necynus circumflexus* (crescent-marked
lily aphid) 550
- Nesphyllaphis araucaricae* (an aphid)
285, 390, 967, 1119
- Nesphyllaphis podocarpi*
250, 439, 900, 1047
- Necropsinopsis harpeni* (an armored scale)
46, 74, 309, 313
- Neotropical corn borer
(*Zenodiatraea lineolata*)
- Nephelethes emedonius* (bronzed cutworm)
1150
- Nephotettix apicalis* (a leafhopper)
267
- Nepitula slingerlandella* (a cherry leaf
miner) 1051
- Nepytia* sp. (a looper)
814
- Neurocolpus mibilus* (a plant bug)
213
- Neurostus saltatorius* (a gall wasp)
685
- Neurotoma fasciata* (a web-spinning
sawfly) 158
- Neurotoma inconspicua* (plum web-spinning
sawfly) 46
- New Guinea sugarcane weevil
(*Rhabdocelus obscurus*)
- New-house borer
(*Arhopalus productus*)
- Nezara viridula* (southern green stink
bug) 86, 103, 151, 205, 231, 250, 286,
315, 337, 444, 473, 502, 879, 919, 920,
937, 958, 989, 1045, 1069
- Nezara viridula* var. *senaragadia*
71, 72, 595, 685, 740, 763, 792, 810,
856, 969, 987, 995, 1036, 1107, 1119,
1139, 1149
- Niditinea fuscipunctella* (a clothes moth)
280, 284
- Nilotaspis halli* (Hall scale)
857
- Nippononthezia cuscalcalalis* (an ensign
scale) 46, 76
- Nomia melanderi* (alkali bee)
324, 555, 616, 789
- Nomophila noctuella* (a pyraustid moth)
980
- Northern cattle grub
(*Hypoderma bovis*)
- Northern masked chafer
(*Cyclocephala borealis*)
- Northern pine weevil
(*Pissodes approximatus*)
- Notanissocorcha sinislei* (a eulophid wasp)
329, 343
- Nothrus* sp. (an oribatid mite)
973
- Novomessor cockerelli* (an ant)
45
- Nuculaspis californica* (black pine-leaf
scale) 33, 46, 81, 260, 707
- Nuculaspis phaeorrhoea* (brown-tail moth)
148, 152, 224, 395, 497, 617, 712, 847,
1147
- Nymphalis antis* (mourning-cloak butter-
fly) 235, 309, 392, 416, 439, 494,
647, 679, 787, 814
- Nyctus* spp.
95, 213, 228, 359, 496, 595, 602, 750,
801, 850, 859
- Nyctus caledoniae*
337, 345
- Nyctus ericae* (false chinch bug)
630, 703, 775, 802, 811, 921, 960, 988
- Nyctus rapanum*
699, 709, 722, 750
- Oak skeletonizer
(*Bucculatrix dimidiella*)
- Oat cyst nematode
(*Heterodera avenae*)
- Obera tripunctata* (a roundheaded wood
borer) 922
- Olive-banded leaf roller
(*Choristoneura rosaceana*)
- Obolodiplosis robiniae* (a cecidomyid
midge) 312, 313
- Obscure scale
(*Helanaspis obscura*)
- Ochrastoma lineolifera* (a lygaeid bug)
339
- Ocotoma scabrigenis* (a leaf beetle)
250, 530, 559, 695, 763, 948
- Odonaspis penicillata* (armored scale)
52
- Odonaspis ruthae*
890
- Odontopus calceatus* (a leaf-mining weevil)
279, 439, 466, 494, 522, 553, 585, 613,
643
- Ogorous house ant
(*Tapinoma sessile*)
- Ocbeilus pugnx* (rice stink bug) -
114, 423, 451, 479
- Oceanopus* spp. (snowy tree crickets)
292, 672
- Oedaleonotus borckii* (a grasshopper)
589
- Oedaleonotus epigma*
90, 343, 418, 498, 526, 556, 616, 653,
710
- Oecibia* spp.
See *Idea* spp.
- Oestrus ovis* (sheep bot fly)
246, 816
- Oideanotophorus inguinatus* (a plume moth)
175
- Old-house borer
(*Hylotrupes caryulus*)
- Oleander aphid
(*Aphis nerii*)
- Oleander scale
(*Aspidiotus hederae*)
- Olethreutes oruscana* (an clethreutid moth)
175
- Oligonychus* spp. (spider mites)
114, 277, 658
- Oligonychus confiferarum*
340
- Oligonychus ilicis* (southern red mite)
261, 279
- Oligonychus milleri*
102
- Oligonychus platani*
53, 843
- Oligonychus pratensis* (Banks grass mite)
114, 115, 352, 774
- Oligonychus punicea* (avocado brown mite)
16
- Oligonychus stickneyi*
774, 1044
- Oligonychus ununguis* (spruce spider mite)
261, 391, 438, 585
- Oligonychus viridis*
45, 227
- Olive fruit fly
(*Dacus oleae*)
- Olive scale
(*Parlatoria oleae*)
- Omnivorous leaf tier
(*Cnephasia longana*)
- Omnivorous looper
(*Sabulodes caberata*)
- Omphis anaconosalis* (sweetpotato vine
borer) 980
- Oncideres circulata* (twig girdler)
975, 1046, 1065, 1066, 1082, 1102
- Oncopeltus punctilinea* (a noctuid moth)
372
- Oncopeltus fasciatus* (large milkweed bug)
1082
- Onion maggot
(*Delania antiqua*)
- Onion thrips
(*Thrips tabaci*)
- Oniticellus militaris* (a scarab)
23
- Onychium encarpatus* (a springtail)
1030
- Onychium finetarius*
174
- Ooencyrtus huwani* (an encyrtid wasp)
229, 352
- Ooportheta brunata* (winter moth)
58, 1118
- Ooportheta occidentalis* (a geometrid
moth) 398
- Opbyra senescens* (a muscid fly)
101
- Opus oophilus* (a braconid wasp)
714
- Opus stactogalus* (a leafhopper)
562

Oracella acuta (a mealybug)
706, 842, 849

Orange (a color)

(Papilio cressphontes)

Orange-striped oakworm
(Anisota senatoria)

Orange tortrix
(Agryotaenia citrana)

Orchidophilus sp. (an orchid weevil)
377

Orchidophilus aterrimus
74, 530

Orchidophilus perezirator
74

Oregon wireworm
(Melanotus oregonensis)

Oriental beetle
(Anomala orientalis)

Oriental cockroach
(Blattella orientalis)

Oriental fruit fly
(Dacus dorsalis)

Oriental fruit moth
(Grapholitha molesta)

Orus spp. (flower bugs)
322, 496, 652, 632, 709, 789, 844, 869, 887, 926, 944

Orus insidiosus
281, 322, 343, 418, 496, 652, 681, 747, 761, 771, 887, 926, 979

Orus tristicolor
410, 497, 887

Ornithoeca confluenta (a louse fly)
993, 994

Ornithomyia bacoti (tropical rat mite)
18, 82, 896, 943

Ornithomyia sylvianum (northern fowl mite)
75, 82, 173, 246, 296, 342, 417, 468, 1083

Orothrips kelloggii (a thrips)
440

Orthesia insionis (greenhouse orthesia)
86, 308, 595, 1136

Orthomyia signifera (a mosquito)
586

Orthotylus translucens (a plant bug)
309

Orthorhinus kluxii (a weevil)
46, 74

Orthosia hibisci (a noctuid moth)
277

Orthotylus icelani (a mirid bug)
419

Orthotylus translucens

Oryzaephilus surinamensis (saw-toothed grain beetle)
18, 40, 41, 42, 192, 199, 327, 417, 709, 789, 817, 865, 1033, 1049, 1067, 1117

Oscinella formosa (a chloropid fly)
148, 151

Oscinella frit (frit fly)
407, 1143

Ostrinia nubilalis (European corn borer)
21, 35, 57, 104, 105, 126, 177, 178, 191, 222, 239, 273, 301, 325, 335, 351, 359, 381, 406, 488, 450, 478, 486, 501, 505, 536, 546, 578, 600, 628, 636, 664, 692, 702, 720, 741, 748, 754, 772, 791, 800, 828, 837, 852, 856, 876, 882, 891, 892, 896, 899, 905, 916, 935, 955, 959, 971, 981, 1011, 1027, 1029, 1043, 1063, 1079, 1133, 1150. Light traps: 445, 478, 529, 560, 568, 593, 621, 657, 686, 715, 742, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 982, 1053

Otaia lactea (a snail)
252, 667, 907

Otaia vermiculata
207

Otobius megnini (ear tick)
256

Oulema melanopus (cereal leaf beetle)
21, 22, 204, 343, 346, 374, 395, 418, 446, 469, 497, 528, 589, 617, 652, 682, 711, 737, 762, 846, 896, 1150

Oxalis gracilis (a millipede)
262, 329

Oxva chinensis (a grasshopper)
230

Oxychilus sp. (a snail)
1143

Oxycma effusa (a snail)
882

Oyster shell scale
(Lepidodermis ulmi)

P

Pachylister caffer (a Histerid beetle)
46

Pachylobius piciporus (a conifer weevil)
551

Pachypyllia spp. (psyllids)
392

Pachypyllia venusta
201

Pachyscomoides stupidus (an Ichneumon wasp)
19

Pacific beetle cockroach
(Blattella punctata)

Pacific Coast tick
(Dermacentor occidentalis)

Pacific Coast wireworm
(Limonius canus)

Pacific drywood termite
(Zootermopsis angusticollis)

Pacific flatheaded borer
(Chrysobothris mali)

Pacific spider mite
(Tetranychus pacificus)

Pacific willow leaf beetle
(Pyrrhalta decora carbo)

Packard grasshopper
(Melanoplus packardii)

Painted lady
(Vanessa cardui)

Painted maple aphid
(Drepanaphis acerifoliae)

Palaearctia vernata (spring cankerworm)
172, 201, 255, 279, 340, 372, 392, 439, 460, 466, 493, 521, 552, 786, 1152

Pale-striped flea beetle
(Systena blanda)

Palea weevil
(Hylobius pales)

Pale western cutworm
(Agrotis orthogonia)
429

Palmtoiletor oceanicus (a mealybug)
1129

Palm leaf skeletonizer
(Homaledra sabalella)

Pamphilius rhyllisae (a Pamphiliid sawfly)
553, 614, 787

Panaphis juglandis (a walnut aphid)
856

Pandora moth
(Coloradia pandora)

Pangaesus spp. (burrowing stink bugs)
903, 919, 937, 959

Pangaesus bilineatus
959

Panonychus citri (citrus red mite)
16, 32, 80, 144, 165, 170, 200, 243, 277, 306, 307, 340, 369, 391, 436, 462, 518, 582, 677, 706, 731, 784, 840, 961, 975, 976, 1046, 1081, 1135, 1145

Panonychus ulmi (European red mite)
46, 57, 58, 126, 152, 157, 158, 243, 261, 277, 306, 338, 351, 352, 368, 388, 413, 435, 461, 489, 490, 517, 549, 581, 610, 643, 644, 676, 705, 731, 741, 756, 757, 783, 784, 811, 839, 852, 864, 906, 907, 922, 940, 960, 1151

Pantomorus cervinus (Fuller rose weevil)
87, 68, 129, 763, 813, 862, 907, 929, 999, 1035, 1051, 1069, 1139

Pantomorus godmani
See Pantomorus cervinus

Pantomorus taeniatulus
1023

Papaipema sp.
210

Papaipema nebris (stalk borer)
96, 108, 178, 238, 506, 537, 569, 600, 629, 631, 665, 673, 693, 729, 741, 811, 971

Papaya fruit fly
(Toxotrypana curvicauda)

Papilio cressphontes (orange-dog)
258, 883, 1047

Papilio philetor (a swallowtail butterfly)
941

Papilio polyxenes asterus (black swallowtail, parsleyworm)
838

Paralobesia viteana (grape berry moth)
163, 490, 583, 645, 732, 785, 866, 884, 907, 961

Parasetoma transitella (navel orangeworm)
320

Parasetormes simplicicornis (a damewood termite)
226

Paranthrene robiniae (a clearwing moth)
759

Parasetes and predators
202, 418

Parasitic Hymenoptera
869

Paratirocia cockerelli (potato psyllid)
177, 180, 239, 276, 333, 356, 359, 381, 449, 477, 505, 535, 568, 599, 628, 654, 692, 720, 748, 772, 828, 875, 920, 1082

Parcoblattia spp. (wood cockroaches)
327

Pardalophora baldemanni (a grasshopper)
355, 413

Pardaria camelliae (an armored scale)
120

Pariatoria cinerea
267, 1125

Pariatoria oleae (olive scale)
83, 99, 145, 160, 171, 759, 1082, 1085, 1136

Pariatoria pergandii (chaff scale)
16, 32, 80, 164, 165, 200, 220, 243, 307, 369, 436, 462, 518, 582, 677, 706, 731, 784, 820, 840, 975, 1046, 1081, 1135

Pariatoria proteus
339, 390

Pariatoria pyri
696

Pariatoria zizyphus (black parliatoria scale)
24, 267, 1125

Parsleyworm
(Papilio polyxenes asterus)

Pavement ant
(Tetramorium caespitum)

Pea aphid
(Acyrtosiphon pisum)

Peach buprestid
(Coprosma tenebrionis)

Peach fruit moth
(Carposina niponensis)

Peach silver mite
(Aceria cornutus)

Peach tree borer
(Sannicoides exitiosa)

Peach twig borer
(Anarsia lineatella)

Pea leaf miner
(Liriomyza bryoniae)

Pea leaf weevil
(Sitona lineata)

Peafly azaleae (azalea whitefly)
40, 53, 261, 339, 415, 520, 896

Pea leaf miner mite
(Eriophyes pyri)

- Fear psylla
(*Psylla pyricola*)
- Fear rust mite
(*Botriomerus pyri*)
- Fear sawfly
(*Hoplocampa brevis*)
- Fear weevil
(*Calliroa cerasi*)
- Pea weevil
(*Bruchus pisorum*)
- Pecan carpenterworm
(*Cossula maculata*)
- Pecan leaf casebearer
(*Acrobasis juglandis*)
- Pecan leaf phylloxera
(*Phylloxera notabilis*)
- Pecan leafroll mite
(*Aceria caryae*)
- Pecan nut casebearer
(*Acrobasis caryae*)
- Pecan phylloxera
(*Phylloxera devastatrix*)
- Pecan weevil
(*Curculio caryae*)
- Pectinophora gossypiella (pink bollworm)
16, 33, 61, 83, 123, 209, 211, 212,
225, 233, 247, 268, 286, 395, 419, 443,
471, 500, 557, 590, 619, 683, 731, 762,
793, 818, 847, 871, 888, 896, 910, 927,
944, 965, 979, 983, 993, 1016, 1017,
1033, 1035, 1050, 1051, 1067, 1084,
1105, 1106, 1117, 1137, 1147, 1155
- Pegomya betae (beet leaf miner)
607, 672, 704, 1151
- Pegomya hyoscyami (spinach leaf miner)
182, 485, 514, 545, 547, 576, 578, 609,
640, 642, 674, 701, 728, 729, 1151
- Pegomya rubrova (raspberry cane maggot)
414, 678
- Peleciobates sp. (a haplozetid mite)
53
- Pemphigus junctisensoriatus
906
- Pemphigus populitransversus (poplar
petiole gall aphid) 382
- Pemphigus populivorus* (sugar-beet root
aphid) 57
- Pemphredon tenax (a sphecid wasp)
442
- Pentatlonia nigronervosa (an aphid)
283
- Pentamerismus erythrae (a false spider
mite) 308
- Pentamerismus taxi
46, 171, 175, 261
- Pentatrachopus spp.
See *Chaetochorus* spp.
- Penthaleus major (winter grain mite)
15, 51, 92, 169, 217, 218, 237, 239,
240, 274, 302, 328, 334, 1044, 1064,
1101, 1143
- Pepper-and-salt moth
(*Biston cognataria*)
- Pepper maggot
(*Zonosemata electa*)
- Pepper weevil
(*Anthrenomus eugenii*)
- Peridroma saucia (corn planthopper)
125, 620, 656, 713
- Peridroma saucia (variegated cutworm)
56, 108, 132, 154, 178, 181, 186, 188,
190, 208, 238, 304, 395, 399, 392, 410,
411, 428, 437, 458, 485, 487, 501, 509,
511, 516, 541, 640, 751, 809, 1120,
1148, 1150, 1157. Light traps: 6, 19,
35, 54, 84, 101, 150, 175, 205, 226,
249, 285, 314, 347, 378, 399, 421, 432,
445, 450, 453, 459, 472, 529, 560, 593,
621, 657, 686, 715, 748, 764, 793, 821,
850, 872, 889, 912, 930, 947, 968, 982,
996, 1019, 1037, 1053, 1070, 1086, 1108
- Perilampus chrysopa (a perillampid wasp)
738
- Periphyllus negundinis (boxelder aphid)
259, 962
- Periphyllus populicola (an aphid)
759
- Periplaneta americana (American cockroach)
136, 327, 1146
- Periplaneta fuliginosa (smoky-brown cock-
roach) 327, 1033, 1035
- Periploca canothellae (a walshiid moth)
308
- Periploca nigra
313
- Peritelimus oreogmus (a weevil)
488, 611
- Petrobia spp. (spider mites)
390, 579
- Petrobia apicalis
410
- Petrobia latens (brown wheat mite)
95, 138, 183, 240, 274, 302, 305, 334,
359, 370, 382, 385, 410, 429, 451, 479,
500, 530, 602, 762, 1103, 1143
- Petrova albicapitata (an cleitrotrichid mite)
842
- Peucezia viridans (a green spider)
208
- Phaedon sp. (a leaf beetle)
132
- Phaeneta hospes (banded sunflower moth)
140, 863, 920
- Phaenax ant
(*Monomorium pharaonis*)
- Phaenicia sp. (an ant)
329
- Phaenicia bicarinata
46
- Phaenicia megacephala (big-headed ant)
258
- Phaedon morrisii morrisii
47
- Phenacoccus cockerelli (an armored scale)
85, 706, 976, 992, 1047, 1145
- Phenacoccus pinifoliae (pine needle scale)
42, 172, 221, 260, 279, 452, 493, 521,
552, 679, 786, 814, 885, 907, 976,
1032, 1082
- Phenacoccus aceris (apple mealybug)
58, 160, 351, 323, 1152
- Phenacoccus dearnessi
970
- Phenacoccus defectus
81
- Phenacoccus gossypii (Mexican mealybug)
733, 813, 941, 952, 1115, 1136, 1145
- Phenacoccus graminosus
315
- Phenacoccus solenopsis
1030, 1035
- Phisania spumarius (meadow spittlebug)
135, 139, 121, 304, 335, 362, 384, 389,
410, 431, 451, 452, 463, 483, 511, 538,
542, 573, 605, 635, 668, 697, 723, 751,
757, 876, 901, 958, 1012
- Philetonia delatrix (a noctuid moth)
47, 74
- Philibotroma quadrinaculatum (a grasshopper)
94, 469, 498, 525, 557, 589,
682, 737, 761, 818, 845, 870, 927,
979
- Phloeosinus sp. (a bark beetle)
1103
- Phloeosinus cristatus
35
- Phoetaliotes nebrascensis (a grasshopper)
88, 653, 845
- Pholus achemon (achemon sphinx)
645, 561, 978
- Phorocntha sesipunctata (a cerambycid
beetle) 76
- Phorodon humuli (hop aphid)
485, 576, 701, 781
- Phoschilia turbulenta (a noctuid)
148
- Phryganidia californica (California
oakworm) 172, 222, 309, 415, 466,
1031
- Phthirus pubis (crab louse)
34
- Phthorimaea operculella (potato tuberworm)
5, 69, 178, 208, 320, 641, 728, 781,
787, 795, 812, 839, 840, 923, 961, 975,
1046, 1068, 1081, 1135
- Phyllophaga spp. (May beetles, white
grubs) 57, 162, 302, 382, 398, 553,
906, 963, 991, 1150
- Phyllophaga anxia
957
- Phyllophaga bruneri (a Cuban May beetle)
322, 497, 525, 556, 711, 896
- Phyllophaga congrua
407
- Phyllophaga fusca
382
- Phyllophaga rugosa
829
- Phyllophaga tristis
47, 115, 392
- Phyllophaga spp. (flea beetles)
56, 385, 696, 724, 726, 741
- Phyllotreta crociferae
56, 458, 487, 578, 660, 781, 1150
- Phyllotreta striolata (striped flea
beetle) 176, 185, 457, 484, 574, 641
- Phylloxera spp.
413, 489
- Phylloxera caryocaulis
600
- Phylloxera devastatrix (pecan phylloxera)
149, 518, 523, 610, 757
- Phylloxera notabilis (pecan leaf
phylloxera) 489
- Physokermes piceae (spruce bud scale)
679, 707
- Phytomyza n. sp. (a holly leaf miner)
121
- Phytomyza atricornis (chrysanthemum leaf
miner) 244, 262, 339, 370
- Phytomyza lilicola (native holly leaf
miner) 68, 244, 245, 261, 262, 308,
341, 438, 492
- Phytomyza lilicis (holly leaf miner)
261
- Phytomyza ranunculii flavoscutellata
47
- Phytomyza rufipes
263
- Phytomyza sellanense (filbert bud mite)
389
- Phytoseiulus macroplis (a phytoseiid
mite) 656, 605
- Picklesworm
(*Diabasis nitidalis*)
- Pieris protodice (southern cabbageworm)
974
- Pieris rapae (imported cabbageworm)
57, 67, 86, 182, 231, 242, 244, 285,
371, 315, 322, 371, 385, 398, 419, 434,
458, 463, 487, 515, 547, 578, 674, 703,
729, 741, 755, 781, 809, 863, 882, 905,
920, 995, 1030, 1069, 1134, 1149, 1151
- Pigeon tremex
(*Trypoxyna columba*)
- Pikonomes alkaneensis (yellow-headed spruce
sawfly) 707, 813
- Pimpla aequalis (an ichneumon wasp)
222
- Pimplae mealybug
(*Chrysomella brevipaes*)
- Pine bark aphid
(*Pinus strobi*)

* Carried in Vol. 16 as *Pemphigus betae*.

- Pine leaf chermid
(*Pineus pinifoliae*)
- Pine needle miner
(*Xroteleia pinifolletta*)
- Pine needle scale
(*Phenacaspis pinifoliae*)
- Pine root collar weevil
(*Hylobius nectus*)
- Pine processionary moth
(*Thaumetopoea pityocampa*)
- Pine spittlebug
(*Aphrochora parvella*)
- Pine tip moths
309, 439
- Pine tortoise scale
(*Toumevillea numismaticum*)
- Pine tussock moth
(*Dasychira plagiata*)
- Pineus* spp.
17
- Pineus pinifoliae* (pine leaf chermid)
352
- Pineus strobi* (pine bark aphid)
121, 392, 440, 493, 520, 552, 707, 1103
- Pine webworm
(*Tetratropa robustella*)
- Pink bollworm
(*Pectinophora gossypiella*)
- Pink scavenger caterpillar
(*Sastrobractea rileyi*)
- Pinopsis* *ampidintrae* (fern scale)
339, 462
- Pinopsis buxi* (an armored scale)
371, 444, 559
- Pinopsis strachani*
51, 154
- Pisodes approximatus* (northern pine weevil)
259, 679
- Pisodes nemorensis* (decid. weevil)
551
- Pisodes strobi* (white-pine weevil)
41, 253, 396, 464, 492, 520, 649, 707, 758, 813, 841, 856, 1014
- Pityogenes hopkinsi* (a bark beetle)
551
- Pityophthorus* sp. (a bark beetle)
465
- Pityophthorus carmeli*
404
- Plagiatora versicolora* (imported willow leaf beetle)
192, 494, 680, 706, 842
- Plagiodermus spinipennis* (a cerambycid beetle)
37, 72, 151, 206, 398, 419, 656, 929, 1149
- Plagiotrochus suberti* (a gall wasp)
392
- Planococcus citri* (citrus mealybug)
51, 155, 390, 419, 656
- Plant bug
199, 209, 387, 413, 440, 435, 517, 750, 779, 1152
- Planthoppers
51
- Platyphena scabra* (green cloverworm)
119, 130, 131, 138, 170, 184, 242, 336, 410, 482, 511, 542, 572, 635, 636, 641, 698, 724, 754, 776, 781, 803, 804, 832, 837, 859, 878, 902, 918, 936, 937, 952, 958, 972, 989, 1133
- Platycolis vittata* (a treehopper)
374, 377
- Platyedra villosa* (cotton stem moth)
47, 896
- Platynota rostrana* (a leaf roller moth)
840
- Platynota stultana*
212, 394, 442, 572, 606, 643, 645, 756, 813, 835, 919, 924, 940, 941, 962
- Platyptilia* sp.
221
- Platyptilia carduidactyla* (artichoke plume moth)
192, 437
- Platypus* spp. (platypodid beetles)
68, 714, 862
- Platypus compositus*
68, 707
- Platypus flavicornis*
68
- Platypus lecontei* (a hisier beetle)
54
- Platyllella abietina* (a cecidomyiid midge)
1125
- Pleurophorus caesus* (a scarab)
957
- Plodia interpunctella* (Indian-meal moth)
40, 41, 42, 174, 220, 227, 1033, 1049
- 1105, 1141
- Plum curculio
(*Conotrachelus nenuphar*)
- Plum fruit moth
(*Gnorhitha funebrana*)
- Plum gouger
(*Anthonomus scutellaris*)
- Plum web-spinning sawfly
(*Neurotoma inconspicua*)
- Plutella maculipennis* (diamondback moth)
31, 57, 57, 382, 390, 276, 286, 309, 347, 412, 503, 545, 547, 478, 714, 729, 792, 810, 882, 960, 995, 1134, 1150
- Podocasia sylvinae fraxini* (ash borer)
1048
- Poecilognathus lineatus* (four-lined plant bug)
137, 160, 551, 674
- Poecilognathus costalis* (a trigonalid wasp)
143
- Pogonomyrmex barbatus* (red harvester ant)
802, 858
- Pogonomyrmex occidentalis* (western harvester ant)
452
- Polistes* spp. (vespid wasps)
75, 231, 294, 342
- Polistes exclamans* (a vespid wasp)
19
- Polistes fuscatus centralis* (a vespid wasp)
173
- Pollenia rufida* (cluster fly)
50, 329, 352
- Polycaon stouti* (a false powder-post beetle)
943
- Polysema unbricola* (a noctuid moth)
530, 656
- Polyphegus moth
(*Antheraea polyphemus*)
- Polyphya decemlineata* (ten-lined June beetle)
115, 480, 632
- Ponderosa-pine cone beetle
(*Conophthorus ponderosae*)
- Pontania* spp. (sawflies)
885
- Popillia japonica* (Japanese beetle)
60, 155, 227, 259, 324, 352, 469, 526, 551, 550, 618, 654, 686, 711, 737, 741, 818, 790, 818, 846, 849, 870, 887, 896, 910, 927, 944, 965, 966, 960
- Poplar-and-willow borer
(*Sternonchetus lapathi*)
- Poplar petiole gall aphid
(*Pezomachus noulti-transversus*)
- Poplar tent maker
(*Ichthyura inclusa*)
- Porthezia dispar* (gypsy moth)
148, 229, 253, 322, 343, 352, 442, 469, 500, 618, 654, 713, 710, 739, 762, 790, 818, 847, 870, 888, 910, 927, 980, 1016, 1118
- Potato aphid
(*Macrosiphum euphorbiae*)
- Potato flea beetle
(*Epiditrix cucumeria*)
- Potato leafhopper
(*Empoasca fabae*)
- Potato psyllid
(*Paratrioza cockerelli*)
- Potato stalk borer
(*Trichobaris trinitata*)
- Potato stem borer
(*Hydroecia micacea*)
- Potato tuberworm
(*Phthorimaea operculella*)
- Poultry mite
68
- Praon paeudocorum* (a braconid wasp)
132
- Praon simians*
222, 593
- Predaceous mites*
964
- Premitotypes* spp. (weevils)
69, 204
- Preoclesis imperis californica* (an ant)
- Priomus californicus* (California priomus)
199, 962
- Priomus laticollis* (broad-necked root borer)
152, 157, 160, 830, 962
- Pristiphora abbreviata* (California pear-bug)
461, 521
- Pristiphora erichsoni* (larch sawfly)
47, 252, 353, 680, 708, 734, 786, 842, 849, 871, 942
- Pristiphora geniculata* (mountain-ash sawfly)
683, 708
- Privet mite
(*Brevipalpus obovatus*)
- Privet thrips
(*Dendrothrips ornatus*)
- Procingilia fraxinifolia*
- Prociophilus imbricater* (beech blight aphid)
925
- Prociophilus tessellatus* (woolly ailer aphid)
252, 554, 614, 647, 741, 815, 820
- Prociophilus venafuscus*
260
- Proctorus decipiens* (a weevil)
1048, 1051
- Prodenia* spp.
- Prodenia eridania* (southern armyworm)
642, 921
- Prodenia ornithogalli* (yellow-striped armyworm)
108, 122, 129, 212, 304, 335, 421, 433, 451, 289, 344, 605, 609, 639, 636, 638, 641, 657, 749, 776, 833, 878, 901, 918, 939, 958, 1086, 1114, 1120, 1134, 1157. Light traps: 6, 19, 31, 54, 84, 101, 150, 175, 226, 249, 285, 314, 347, 378, 399, 445, 457, 472, 501, 544, 560, 593, 621, 657, 686, 715, 742, 764, 793, 821, 850, 831, 872, 889, 912, 930, 947, 968, 982, 996, 1019, 1037, 1053, 1070, 1108, 1138, 1148
- Prodenia praefica* (western yellow-striped armyworm)
132, 184, 546, 635
- Prodenia* sp. (a sawfly)
843
- Protemna canadensis*
262
- Protemna lucifera*
843
- Protemna mainensis*
843
- Prospira bicincta* (a spittlebug)
115, 570, 632, 957, 988, 1044, 1079
- Prospaltella ornithia* (a eulophid wasp)
115, 224, 343, 457
- Prostethanus truncatus* (a false powder-post beetle)
18, 320
- Protaetia fusca* (mango beetle)
151, 249, 250, 444, 502, 559, 862
- Proteocera aesculani* (an eldrediid moth)
340, 341, 386
- Protospulvinaria pyriformis* (pyriform scale)
1135
- Protorthodes rufula* (a noctuid moth)
61

Proxenus mindara (rough-skinned tortoise)
186, 611

Psyllis eriatum (cotton leafhopper)
213, 411, 458, 484, 513, 544, 575, 606,
638, 639, 670, 671, 700, 727, 779, 806,
835, 861

Pseudaletia unipuncta (armyworm)
56, 21, 22, 103, 111, 273, 301, 322,
375, 381, 405, 427, 444, 449, 477, 501,
530, 535, 567, 599, 627, 656, 663, 691,
719, 741, 764, 771, 792, 799, 827, 855,
899, 915, 935, 952, 955, 987, 1043,
1063, 1113, 1120, 1150, 1157, 1187
traps: 6, 19, 35, 94, 71, 84, 101, 150,
175, 205, 226, 249, 285, 314, 347, 399,
421, 427, 445, 472, 505, 529, 560, 593,
621, 657, 686, 715, 742, 747, 764, 793,
821, 850, 872, 889, 912, 930, 947, 968,
992, 995, 1019, 1037, 1053, 1070, 1086,
1108, 1138, 1148

Pseudanthrenus validus (currant fruit
weevil) 706

Pseudanidius clavigera (an armored scale)
856, 1065

Pseudanidius duplex (camphor scale)
100

Pseudanidius raeconiae
120, 145, 370

Pseudalacaspis pentagona (white peach
scale) 3, 33, 35, 36, 150, 170, 171,
220, 308, 368, 388, 413, 488, 581, 612,
739, 922, 923, 976, 1014, 1031, 1047,
1065, 1082, 1103, 1115, 1134, 1136,
1145, 1156

Pseudexentera mali (an apple leaf tier)
100

Pseudexentera spoliata (an oletinid
moth) 175

Pseudococorhinus bifasciatus (a Japanese
weevil) 613, 896, 924, 1031, 1035

Pseudococcus spp.

Pseudococcus adonidum (long-tailed
mealybug) 53, 81, 245, 261, 390, 714,
976

Pseudococcus comstocki (Comstock mealybug)
656

Pseudococcus fragilis (citrophilus
mealybug) 856

Pseudococcus parvulus (grape mealybug)
163

Pseudococcus microcirrus
33, 279

Pseudococcus obscurus
145, 308, 308, 559, 740, 862, 929, 992,
1066, 1136

Pseudophilippia quasitanti (a soft scale)
370

Pseudostyphnethorus rubripennis (a bark
beetle) 328

Pseudoplusia includens (a noctuid moth)
80, 139, 177, 181, 184, 211, 878, 937,
1045

Pseudoponera sexoculata (a collembola)

Pseudosinea violenta
1029, 1030

Psila rosae (carrot rust fly)
57, 1151

Psilon leucotarsus (an ephyrid fly)
24, 125, 126, 485, 545, 701

Psococlea delicatula (a grasshopper)
343, 374, 395, 396

Psococlea thamnocaea
526

Psorophora spp. (mosquitoes)
288, 454, 815, 925

Psorophora ciliata
283, 441, 467, 494, 522, 650, 815, 843,
885, 942, 1043

Psorophora confinis
283, 393, 415, 467, 494, 495, 522, 523,
554, 586, 650, 680, 708, 787, 815, 843,

885, 942, 963, 977, 992, 1032, 1043

Psorophora cyanescens
494, 527

Psorophora ferox
173, 554, 586

Psorophora howardii
33, 393, 494, 586, 1048

Psoroxys oviv (sheep scab mite)
373

Psylla buxi (boxwood psyllid)
492

Psylla mali (apple sucker)
48, 162, 163, 164, 165, 220, 306, 338,
368, 387, 435, 461, 488, 497, 549, 581,
676, 757, 865, 1151

Psylla pyricola (pear psylla)
145, 308, 312, 559, 714, 867

Psylla uncatoides
191

Psyllid
191

Pterocomma spp. (aphids)
227

Pterochorus perigeldactylus (grape plum
moth) 163, 583

Ptinus clavipes (brown spider beetle)
83, 320, 328, 1117

Ptinus fur (white-marked spider beetle)
311

Ptinus variegatus
223, 225

Ptycholoma peritana (a leaf roller moth)
80, 120, 186, 189, 519

Pulvinaria spp. (soft scales)
17, 508

Pulvinaria acericola
47, 260

Pulvinaria citricola
732

Pulvinaria ericicola
147, 260

Pulvinaria floccifera
350

Pulvinaria hydrangeae
492

Pulvinaria immersabilis (cottony maple
scale) 256, 494, 505, 647, 734, 759

Pulvinaria psidii
492, 496, 841, 991

Pumpkin caterpillar
(Diaphania indica)

Purple-backed cabbageworm
(Evergetis pallidata)

Purple scale
(Lepidosaphes beckii)

Puss caterpillar
(Mesalopye opercularis)

Putan scale
(Aspidiotus ancyllus)

Puto yuccae (a mealybug)
646

Pyrriform scale
(Pyrruliprinaria pyrriformis)

Pyrrhalta sp. (a leaf beetle)
191

Pyrrhalta cavicollis (cherry leaf beetle)
232

Pyrrhalta decora carbo (Pacific willow
leaf beetle) 232

Pyrrhalta decora decora (gray willow leaf
beetle) 232

Pyrrhalta luteola (elm leaf beetle)
171, 246, 252, 259, 273, 309, 311, 328,
341, 352, 374, 415, 439, 468, 494, 524,
593, 595, 858, 585, 613, 648, 679, 707,
734, 759, 787, 814, 842, 844, 849, 866,
884, 924, 942, 962, 992, 1043, 1054

Pyrrhalta nymphaeae (waterlily leaf beetle)
232

R

Ragweed plant bug
(Chlamydula associatus)

Raisin moth
(Cadra figuilliolella)

Ramosia tibicenensis (strawberry crown
moth) 923

Ramosia tipuliformis (currant borer)
220

Range caterpillar
(Semiothisa oliviae)

Rapid plant bug
(Aediphorus rapidosus)

Passalus thoracicus (an assasin bug)
909

Raspberry cane maggot
(Resana rubivora)

Raspberry crown borer
(Bembecia marginata)

Raspberry sawfly
(Monophadnoides geniculatus)

Red-backed cutworm
(Oryza cobbrogaster)

Red-banded leaf roller
(Argyrotaenia velutinana)

Red-banded thrips
(Selenothrips rubrocinctus)

Red flour beetle
(Tribolium castaneum)

Red harvester ant
(Pogonomyrmex barbatus)

Red-headed pine sawfly
(Neodiprion lecontei)

Red-lipped caterpillar
(Schizura concinna)

Red-legged grasshopper
(Melanoplus femurrubrum)

Red-legged ham beetle
(Neorhodes rufipes)

Red-necked cane borer
(Agrius pumicollis)

Red-necked pearworm
(Stegasta bosquella)

Red-pine sawfly
(Neodiprion ramulus ramulus)

Red-pine scale
(Vasucoccus resinosae)

Red tick
(Rhizophthalmus evertsi)

Red turnip beetle
(Entomocallis americana)

Red turnip beetle
(Dendroctonus valens)

Redvirus personatus (masked hunter)
224

Red wax scale
(Ceroplastes rubens)

Red-winged pine beetle
(Dendroctonus obesus)

Reticulitermes spp. (subterranean
termites) 122, 202, 222, 223, 247, 311,
326, 394

Reticulitermes flavipes (eastern subter-
ranean termite) 18, 174, 202, 223, 246,
247, 311, 326, 342, 394, 612, 1028,
1047

Reticulitermes hesperus (western subter-
ranean termite) 58, 202, 311, 326, 394,
524, 909

Reticulitermes tibialis
63, 223, 394

Retinocarpus inopis
See Cecidomyia pininopis

Retinodiplosis resinicola
See Cecidomyia resinicola

Rhabdophaga strobiloides (a cecidomyiid midge) 192
Rhabdophaga swainei 1157, 1158
Rhabdocelus obcurus (New Guinea sugarcane weevil) 502, 559, 948
Rhagoletia spp. (fruit flies) 57, 705, 758, 785, 975
Rhagoletia cerasi (European cherry fruit fly) 59, 268, 1126
Rhagoletia cingulate (cherry fruit fly, cherry maggot) 157, 161, 488, 644, 675, 705
Rhagoletia cingulate indifferens 435
Rhagoletia completa (walnut husk fly) 163, 675, 731, 784, 883, 922, 940, 961, 975, 991, 1115, 1120
Rhagoletia fausta (black cherry fruit fly) 157, 609, 644
Rhagoletia mendax (blueberry maggot) 163, 164, 353, 583, 611, 645, 678, 705, 732, 785, 813, 840
Rhagoletia pomonella (apple maggot) 54, 122, 158, 788, 851, 852, 644, 675, 704, 730, 741, 757, 783, 791, 812, 838, 864, 883, 906, 922, 975, 1081, 1138, 1151
Rhagoletia suavis 163, 757, 865
Rhinacia fonticornis (a plant bug) 199, 204, 337, 345, 740
Rhiciphthalmus evertai (red tick) 896, 946
Rhiciphthalmus sanguineus (brown dog tick) 74, 82, 122, 225, 496, 868, 978
Rhizoctonia brunnea (a thrips) 440
Rhizococcus falcifer (ground mealybug) 896
Rhizococcus pritchardi 279
Rhizoglyphus echinopus (bulb mite) 183, 188, 370, 547, 609
Rhodes-grass scale (Antonina graminis)
Rhododendron lace bug (Stephanitis rhododendri)
Rhododendron whitefly (Dialeurodes chittendeni)
Rhopalosiphum staphyleae (an aphid) 1135
Rhopalosiphum spp. 1113, 1143
Rhopalosiphum fitzbii (apple grain aphid) 123, 124, 160, 169, 197, 239, 260, 273, 206, 334, 338, 368, 387, 406, 412, 440, 464, 774, 991, 1031, 1079, 1113, 1133
Rhopalosiphum maidis (corn leaf aphid) 3, 31, 57, 67, 75, 94, 104, 112, 113, 119, 120, 169, 197, 217, 237, 273, 301, 321, 333, 357, 406, 427, 449, 477, 567, 599, 627, 663, 691, 710, 719, 741, 747, 771, 799, 827, 855, 875, 899, 916, 935, 967, 1011, 1043, 1063, 1079, 1101, 1113, 1143, 1151, 1155
Rhopalosiphum nymphaeae (waterlily aphid) 100, 250, 1119
Rhopalosiphum padi 3, 15, 31, 67, 79, 55, 169, 192, 197, 217, 239, 273, 367, 381, 428, 988, 1044, 1064, 1113, 1143
Rhopalosiphum rufiabdominale 94, 123, 1028, 1064, 1143, 1156
Rhopalosiphum subterraneum
See Rhopalosiphum rufiabdominale
Rhynchosia nersana (black-headed fruitworm) 163, 677, 786, 785
Rhyncosia spp. 553, 613, 1103
Rhyncosia buoliana (European pine shoot moth) 283, 288, 415, 439, 465, 520, 525, 556, 584, 613, 614, 678, 896

Rhyncosia frustrana (Nantucket pine tip moth) 285, 288, 289, 279, 340, 465, 492, 584, 614, 649, 758, 841, 1014, 1115, 1145
Rhyncosia pasadenana (an olethreutid moth) 439, 614
Rhynchocentrus rufipes (willow flea beetle) 256
Rhynchites bicolor (rose curculio) 646
Rhynchites bicolor wickhami 491
Rhynozeptha dominica (lesser grain borer) 40, 41, 42, 174, 220, 394, 417
Rice delphacid (Sogata arizicola)
Rice stink bug (Oebalus pugnax)
Rice water weevil (Lissorhoptrus oryzophilus)
Rice weevil (Sitophilus oryzae)
Rocky Mountain wood tick (Dermacentor andersoni)
Rodolia caroliniana (vedalia) 151, 206, 220, 315, 339, 369, 370, 398, 1149
Rogas terminalis (a braconid wasp) 691
Romalea microptera (eastern lubber grasshopper) 395, 339, 950
Rose aphid (Macrosiphum rosae)
Rose chaffer (Macrodactylus subsinosus)
Rose curculio (Rhynchites bicolor) 646
Rose leafhopper (Evardiana rosae)
Rose-alug (Endelomyia aethiops)
Rosy apple aphid (Dysaphis plantaginea)
Rough-skinned cutworm (Proxema mindara)
Rumina decolorata (a snail) 54, 101, 124, 279, 284
Rusty plum aphid (Hyaleroneura setariae)

S

Sabulodes caberata (omnivorous looper) 79
Safia bilineata (a noctuid moth) 884
Sagebrush defoliator (Arcoa websteri)
Saissetia spp. (soft scales) 145, 1156
Saissetia coffeae (hemispherical scale) 121, 123, 308, 370, 492, 520, 733, 836, 866, 941, 1014, 1115, 1156
Saissetia hemisphaerica
See Saissetia coffeae
Saissetia nigra 896
Saissetia oleae (black scale) 51, 86, 114, 145, 164, 200, 221, 243, 280, 369, 465, 468, 518, 582, 677, 784, 975, 1047, 1068, 1081, 1135, 1151
Salt-marsh caterpillar (Eutispene aerea)
Salt-marsh mosquito (Aedes sollicitans)
Salt-Jose scale (Aspidiotus perniciosus)
Sanninoides spp. 548, 643
Sanninoides exitiosa (peach tree borer) 152, 243, 408, 530, 643, 730, 838, 864,

906, 991, 1102
Sanninoides exitiosa graefi (western peach tree borer) 530, 643, 704, 1103
Sap beetles 900
Saratoga spittlebug (Aphrophora saratogensis)
Satrobusta rileyi (pink scavenger caterpillar) 16, 81, 119, 165, 976, 1012, 1028
Satin moth (Stilponotia salicis)
Sawflies 436, 648, 708
Saw-toothed grain beetle (Oryzaephilus surinamensis)
Say stink bug (Chlorochroa evyi)
Scale insects 255, 257, 895
Scaptomyza aetulus (southern mole cricket) 203, 370, 1044
Sciara sp. (a sciardid midge) 1103
Sciococera americana (American grasshopper) 91, 1044
Sciococera lineata 887
Sciococera shoshone 90, 736
Sciococera vana (a grasshopper) 67, 73, 103, 176, 206, 286, 315, 444, 559, 620, 740, 887, 911, 1085, 1107, 1139
Schizaphis graminis (greenbug) 3, 15, 51, 51, 67, 79, 24, 99, 119, 169, 197, 217, 237, 273, 301, 312, 333, 342, 357, 381, 405, 427, 449, 477, 505, 507, 535, 567, 599, 627, 636, 959, 987, 1011, 1027, 1043, 1063, 1079, 1101, 1113, 1133, 1143
Schizococca spp. (aphids) 370
Schizolachmus pineti 260
Schizolachmus piniradiatae 758
Schizonomia sp. (a spider mite) 47
Schizotetranychus lycoursi (a spider mite) 47
Schizura concinna (red-humped caterpillar) 127, 162, 225, 867, 922, 990
Schizura ipnense 758
Schizura unicornis (unicorn caterpillar) 864
Schoene spider mite (Tetranychus schoenei)
Schreckensteini festalialla (a heliothid moth) 72, 176, 286, 398, 656, 810
Scirpites obcurus (a weevil) 189, 190, 732, 865, 923
Scirpithrips citri (citrus thrips) 125, 277, 307, 339, 369, 413, 437, 462, 518, 611, 1031
Scobicia declivis (lead-cable borer) 326, 709
Scotia dubia (a scollid wasp) 944, 994
Scolytus multistriatus (smaller European elm bark beetle) 47, 222, 246, 255, 256, 259, 416, 466, 521, 553, 585, 613, 734, 759, 787, 885, 888, 906, 908, 924, 928, 942, 992, 1145, 1157, 1159, 1160
Scolytus quadripunctatus (hickory bark beetle) 814
Scolytus rugulosus (shot-hole borer) 57, 127, 413, 460, 488, 549, 1047
Scolytus unispinosus (Douglas-fir engraver) 464
Scolytus ventralis (fir engraver) 1047

- Screw-worm
Cochliomyia hominivorax
- Scudderia furcata* (fork-tailed bush katydid) 812
- Scutigerella immaculata* (garden symphylan) 57, 182, 219, 262, 412, 601, 631, 666, 694, 714, 837
- Somus* spp. (leaf beetles) 223, 281
- Secondary screw-worm
Cochliomyia macellaria
- Seed-corn beetle
(Anoderus lecontei)
- Seed-corn maggot
(Hyalema pictura)
- Selca brunella* (an arctiid moth) 31, 72, 86, 176, 473, 685, 862, 1036, 1069, 1119, 1139
- Selenophorus rubrocinctus* (red-banded thrips) 74, 206, 1149
- Semiothisa* sp. (a looper) 252
- Senn pest
(Baryscapus integricornis)
- Sepsis macropus* (a acicynid fly) 25, 911, 957, 1018, 1052
- Sepsis* spp. (cutworms) 23, 352
- Sequoia pitch moth
(Vespaesia seioidea)
- Serica brunnea* (brown chafer) 659
- Sericothrips variabilis* (a thrips) 213, 605, 636, 724
- Sesamia nonagrioides* (a noctuid moth)
- Sheep bot fly
(Oestrus ovis)
- Sheep ked
(Melophagus ovinus)
- Sheep scab mite
(Psoralepis ovis)
- Short-nosed cattle louse
(Haematopinus eurysternus)
- Spot-hole borer
(Scolytus rugulosus)
- Silky cone weevil
(Necanusus hemipterus sericeus)
- Silpha bimbrerosa*
 (a carrion beetle)
- Silverfish
(Leptisus sacharinus)
- Silver-spotted tiger moth
(Halictodota argentata)
- Silvius pollinosus* (a deer fly) 292, 291, 555
- Smilium* spp. (black flies) 499, 507
- Smoking coniferum* (a bostrichid) 268, 696
- Siteroptes granium* (a pycnotid mite) 47
- Sitka-spruce beetle
(Pissodes caryocaeus)
- Sitodiplosis mosellana* (wheat midge) 25
- Sitona* spp.
 361, 408, 1012
- Sitona aridicollis* (sweetclover weevil) 56, 131, 304, 430, 434, 481, 509, 540, 571, 604, 634, 896, 1150
- Sitona hispidula* (clover root curculio) 131, 139, 275, 304, 361, 384, 408, 540, 631, 878, 957, 1012, 1080, 1144, 1148
- Sitona lineata* (pea leaf weevil) 335, 408, 481, 500, 696, 896
- Sitona scissifrons*
 131, 481, 509, 541
- Sitophilus granarius* (granary weevil) 40, 320, 417, 468, 1049
- Sitophilus oryzae* (rice weevil) 5, 18, 35, 40, 174, 320, 327, 987, 1028
- Sitophilus zeamais*
 40, 320
- Sitotroga cerealella* (Angoumois grain moth) 5, 35, 40, 41, 42, 123, 311, 320, 681, 1049, 1084
- Six-spotted leafhopper
(Macrostelus fascifrons)
- Six-spotted mite
(Eotetranychus sexmaculatus)
- Slugs
 182, 646
- Smaller European elm bark beetle
(Scolytus multistriatus)
- Smaller Mexican pine beetle
(Dendroctonus frontalis)
- Smaller yellow ant
(Acanthomyces claysoni)
- Smitronyx comatus* (a weevil) 47
- Smithurus* spp. (springtails) 198
- Smithurus packardii* (a springtail) 198, 204
- Smoky-brown cockroach
(Periplaneta fuliginosa)
- Smithytrichus betae* (an aphid) 47
- Snowball aphid
(Urocorythia viburnicola)
- Sol webworm
 775, 858, 877
- Soft scales
 520, 647, 707
- Sogata orizicola* (rice delphacid) 895
- Solenopotes capillatus* (a cattle louse) 122, 173, 246, 280, 294, 295
- Solenopsis geminata* (fire ant) 1064
- Solenopsis molesta* (thief ant) 322
- Solenopsis saevissima richteri* (imported fire ant) 19, 60, 71, 83, 123, 124, 225, 247, 325, 396, 398, 469, 618, 738, 848, 871, 896, 910, 965, 966, 980, 994, 1017, 1034, 1084
- Solenopsis xyloni* (southern fire ant) 122, 1017
- Solitary oak leaf miner
(Cameraria hamadryadella)
- Sorghum midge
(Contarinia sorghicola)
- Sorghum webworm
(Celana sorghivella)
- Southern armyworm
(Prodenia eridania)
- Southern buffalo gnat
(Cnephia pumilus)
- Southern cabbageworm
(Pieris protodice)
- Southern corn rootworm
(Diabrotica undecimpunctata howardi)
- Southern fire ant
(Solenopsis xyloni)
- Southern garden leafhopper
(Empoasca solana)
- Southern green stink bug
(Hemys viridula)
- Southern lyctus beetle
(Lyctus planicollis)
- Southern mole cricket
(Scapteriscus acletus)
- Southern pine beetle
(Dendroctonus frontalis)
- Southern potato wireworm
(Conoderus fallii)
- Southern red mite
(Oligonychus ilicis)
- Southwestern corn borer
(Zea diatraea grandioella)
- Southwestern pine beetle
(Dendroctonus brevicornis)
- Soybean cyst nematode
(Heterodera glycines)
- Spaelotis* spp.
- Spaelotis clandestina* (v-marked cutworm) 350
- Spalangia endius* (a pteromalid wasp) 75
- Spangoncus albofasciatus* (a fleshopper) 199, 204, 213, 324, 513, 575, 606, 671, 700, 727, 779, 1143
- Sparganochia mifurcata* (a leaf roller moth) 124, 228, 706, 865, 923
- Sphecius speciosus* (cicada killer) 681, 736, 741, 761
- Sphenoborus* spp.
- Sphenoborus callosus*
 232, 508, 695, 972
- Sphenoborus maidis* (maize billbug) 112, 428, 429, 666, 1143
- Sphenoborus parvius* (bluegrass billbug) 47, 972, 1079, 1085
- Sphenoborus rhoecitarsis*
 18, 198
- Sphenoborus venatus vestitus*
 47, 73, 79, 151, 151, 473, 602, 667, 763, 911, 917, 929, 948, 972, 980, 988, 1036, 1139
- Spider mites
 17, 96, 140, 144, 152, 159, 162, 185, 207, 217, 261, 389, 544, 575, 579, 581, 673, 676, 700, 702, 703, 728, 751, 774, 777, 780, 801, 805, 807, 809, 810, 811, 815, 833, 835, 860, 866, 883, 884, 920, 976, 1146
- Spilococcus geraniae* (a mealybug) 696
- Spilonota ocellana* (eye-spotted bud moth) 28, 124, 126, 129, 308, 412, 460, 488, 515, 516
- Spinach leaf miner
(Pegomya hyoscyami)
- Spirea aphid
(Aphis spiraeicola)
- Sprius-helmsi* (three-cornered alfalfa hopper) 73, 79, 99, 136, 139, 242, 250, 276, 304, 336, 362, 384, 410, 431, 455, 483, 573, 635, 668, 697, 698, 779, 604, 832, 833, 859, 860, 878, 902, 918, 919, 937, 958, 983, 989, 1028, 1045, 1064, 1060, 1114, 1144
- Spittlebugs
 242, 389, 490, 695, 705, 731, 802, 877, 900, 922, 924
- Spodoptera exigua* (beet armyworm) 5, 15, 43, 332, 170, 186, 190, 198, 208, 209, 212, 221, 244, 275, 278, 390, 411, 433, 458, 514, 577, 630, 670, 672, 709, 763, 776, 779, 812, 835, 858, 876, 879, 901, 904, 911, 917, 921, 959, 983, 991, 1013, 1018, 1030, 1031, 1045, 1065, 1102, 1107, 1117, 1120, 1134, 1155, 1157. Light traps: 54, 445, 434, 472, 529, 544, 593, 621, 657, 686, 742, 764, 793, 821, 850, 872, 889, 912, 930, 968, 982, 996, 1019, 1037, 1053, 1070, 1086, 1108, 1139, 1144, 1148
- Spodoptera frugiperda* (fall armyworm) 57, 21, 92, 107, 114, 139, 478, 501, 593, 629, 721, 749, 773, 777, 779, 801, 805, 806, 829, 830, 832, 858, 876, 877, 879, 900, 903, 905, 945, 971, 919, 936, 937, 956, 958, 971, 972, 988, 1011, 1028, 1044, 1101, 1114, 1120, 1157. Light traps: 6, 19, 35, 54, 101, 130, 132, 175, 226, 347, 378, 399, 472, 529, 560, 621, 657, 686, 715, 742, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 982, 996, 1019, 1037, 1053, 1070, 1086, 1108, 1148
- Spodoptera litura* (Egyptian cottonworm, tobacco and tomato caterpillar) 47, 1138

<u>Spodoptera mauritia</u> (a noctuid moth)	<u>Sternonchus mangiferae</u> (a weevil)	<u>Sweetpotato vine borer</u>
1120	268, 1126	(<u>Ophtasia anastomosalis</u>)
<u>Spodoptera mauritia acronyctoides</u> (awn armworm)	<u>Stethorus punctum</u> (a lady beetle)	<u>Sweetpotato weevil</u>
37, 73, 530, 685, 1107, 1119, 1126, 1139, 1149, 1159	52	(<u>Cylas formicarius elegantulus</u>)
<u>Spodoptera pecten</u>	<u>Stethorus vagans</u>	<u>Syagrus fulviterans</u> (a weevil)
1120	763	44
<u>Spotted alfalfa aphid</u>	<u>Stictoccephala bubalus</u> (buffalo treeshopper)	<u>Sycamore lace bug</u>
(<u>Therioaphis maculata</u>)	783, 804, 812, 973	(<u>Corythucha ciliata</u>)
<u>Spotted asparagus beetle</u>	<u>Stilpnocia salicis</u> (satin moth)	<u>Sycamore tussock moth</u>
(<u>Diabrotica undecimpunctata howardi</u>)	222, 221, 613, 647, 679, 696	(<u>Halisdota harrisi</u>)
<u>Spotted garden slug</u>	<u>Stilpnus anthomyioides</u> (an ichneumon wasp)	<u>Symlesis viridula</u> (a eulophid wasp)
(<u>Limax maximus</u>)	47	109, 497, 522
<u>Spring cankerworm</u>	<u>Stink bugs</u>	<u>Synanthedon castaneae</u> (a clearing moth)
(<u>Paleacrita vernata</u>)	382, 419, 479, 559, 710, 727, 728, 780, 939, 973, 989, 1013, 1029	52
<u>Springtail</u>	<u>Stirellus</u> spp. (leafhoppers)	<u>Synanthedon pictipes</u> (lesser peach tree borer)
53, 385, 547	143	156, 170, 243, 306, 548, 580, 643, 675, 730, 756, 783
<u>Spruce aphid</u>	<u>Stomacoccus plantani</u> (a margaroid scale)	<u>Syneta albida</u> (a leaf beetle)
(<u>Etiabium abietinum</u>)	140, 494	127
<u>Spruce bud scale</u>	<u>Stomoxys calcitrans</u> (stable fly)	<u>Synygma haemorrhoidalis</u> (a noctuid moth)
(<u>Phyocermes piceae</u>)	16, 54, 222, 393, 417, 467, 495, 523, 555, 587, 615, 650, 680, 709, 735, 741, 760, 788, 816, 843, 868, 886, 909, 925, 977, 1032, 1104	72
<u>Spruce budworm</u>	<u>Stratiolus laticeps</u> (a stratiomyid fly)	<u>Syrphid flies</u>
(<u>Choristoneura fumiferana</u>)	509, 1104, 1148	202, 497, 556, 789, 1137
<u>Spruce coneworm</u>	<u>Strausia longipennis</u> (sunflower maggot)	<u>Systenella</u> sp.
(<u>Diorctria reniculella</u>)	882	367
<u>Spruce needle miner</u>	<u>Strawberry crown borer</u>	<u>Systenella blanda</u> (pale-striped flea beetle)
(<u>Chrysa albolineana</u>)	(<u>Tyloclerma fragariae</u>)	124, 468, 573, 578, 634, 636, 641, 696, 703, 724, 809, 902
<u>Spruce spider mite</u>	<u>Strawberry crown moth</u>	<u>Systenella elongata</u> (elongate flea beetle)
(<u>Oligonychus umunguis</u>)	(<u>Amphisia bifloripennis</u>)	179
<u>Squash beetle</u>	<u>Strawberry aphid</u>	<u>Systenella frontalis</u>
(<u>Epilachna borealis</u>)	(<u>Chaetosiphon fragaefolii</u>)	773, 1151
<u>Squash bug</u>	<u>Strawberry leaf roller</u>	
(<u>Anasa tristis</u>)	(<u>Ancylocyrtana fragariae</u>)	
<u>Squash vine borer</u>	<u>Strawberry root weevil</u>	
(<u>Melittia cucurbitae</u>)	(<u>Trachymachus cavaus</u>)	
<u>Stable fly</u>	<u>Strawberry spider mite</u>	
(<u>Stomoxys calcitrans</u>)	(<u>Tetranychus altanticus</u>)	
<u>Stalk borer</u>	<u>Strawberry weevil</u>	
(<u>Papaipema nebris</u>)	(<u>Anthonomus signatus</u>)	
<u>Stegasta bosqueella</u> (red-necked peanutworm)	<u>Striped cucumber beetle</u>	
132, 636, 669, 777, 805, 860, 919, 937, 1013	(<u>Acalymma vittatum</u>)	
<u>Stegobium paniceum</u> (drugstore beetle)	<u>Striped cutworm</u>	
202, 221, 342	(<u>Buxos tessellata</u>)	
<u>Stelidota</u> sp. (a sap beetle)	<u>Striped flea beetle</u>	
677	(<u>Phyllotreta striolata</u>)	
<u>Stelidota geminata</u>	<u>Striped horse fly</u>	
677, 758, 906	(<u>Tabanus lineola</u>)	
<u>Stelidota octomaculata</u>	<u>Striped mealybug</u>	
611, 677	(<u>Ferriesia virgata</u>)	
<u>Stenocarenum ananas</u> (a tarsonemid mite)	<u>Strymon melinus</u> (cotton square borer)	
308, 313	212, 673, 699, 729	
<u>Stenodema pilosipes</u> (a grass bug)	<u>Sugar-beet root aphid</u>	
803	(<u>Pemphigus populivornae</u>)	
<u>Stenodema vicinum</u>	<u>Sugar-beet root maggot</u>	
803	(<u>Tetanops myopaeformis</u>)	
<u>Stenodiplosis bromicola</u> (a bromegrass seed midge)	<u>Sugar-beet wireworm</u>	
539, 696	(<u>Limonius californicus</u>)	
<u>Stenoma castifer</u> (an avocado seed moth)	<u>Sugarcane beetle</u>	
59, 205, 268, 1126	(<u>Rhachia rugiceps</u>)	
<u>Stenotaronemus pallidus</u> (cyclamen mite)	<u>Suleima helianthana</u> (a sunflower moth)	
124, 159, 560, 785	519, 808	
<u>Stephanitis pyrioides</u> (azalea lace bug)	<u>Summer chafer</u>	
924, 1014, 1103	(<u>Amphimallon solstitialis</u>)	
<u>Stephanitis rhododendri</u> (rhododendron lace bug)	<u>Sunflower maggot</u>	
733	(<u>Strausia longipennis</u>)	
<u>Stephanitis takaya</u>	<u>Sunflower moth</u>	
47, 520, 813	(<u>Homoeosoma electellum</u>)	
<u>Stephanoderes</u> sp. (a bark beetle)	<u>Supella supercilium</u> (brown-banded cockroach)	
206	18, 34, 192, 227, 1084, 1146	
<u>Stephanoderes birmanus</u>	<u>Susana cupressi</u> (a cypress sawfly)	
337	465, 521	
<u>Stephanoderes georgiae</u>	<u>Sweetclover aphid</u>	
337, 345	(<u>Therioaphis riebmi</u>)	
<u>Stephanoderes maculicollis</u>	<u>Sweetclover weevil</u>	
337	(<u>Etiona cylindricollis</u>)	
<u>Sternonchus lapathi</u> (poplar-and-willow borer)	<u>Sweetpotato flea beetle</u>	
522, 553, 713, 814, 992, 1152	(<u>Chaetocnema confinis</u>)	
	<u>Sweetpotato leaf miner</u>	
	(<u>Sedellia orchifolia</u>)	

T

<u>Tabanid flies</u>	293, 294, 615, 651, 681, 735, 886
<u>Tabanus</u> spp. (tabanid flies)	293, 294, 587, 681, 760, 788, 815, 843
<u>Tabanus abactor</u>	926
<u>Tabanus atratus</u> (black horse fly)	293, 294, 587, 788, 815, 926
<u>Tabanus lineola</u> (striped horse fly)	293, 294, 788, 815, 926
<u>Tabanus mularis</u>	293, 294, 587, 788
<u>Tabanus quinquevittatus</u>	681
<u>Tabanus similis</u>	681
<u>Tabanus sulcifrons</u>	293, 294, 788, 815, 926
<u>Tachyterellus consors</u> (a weevil)	553
<u>Taeniothrips atratus</u>	268, 1126
<u>Taeniothrips ericae</u>	1126
<u>Taeniothrips eucharis</u>	1126
<u>Taeniothrips hawaiiensis</u>	269, 1126
<u>Taeniothrips simplex</u> (gladiolus thrips)	852
<u>Tamalia coveni</u> (an aphid)	308
<u>Tamias albolineana</u> (spruce needle miner)	42, 245, 252, 279, 340, 371, 415, 439, 469, 591, 649, 733, 786, 953
<u>Tarpania sessile</u> (odorous house ant)	247
<u>Targionia hartii</u> (an armored scale)	269
<u>Tarnished plant bug</u>	(<u>Lygus lineolaris</u>)
<u>Taro leafhopper</u>	(<u>Tarophagus proserpinus</u>)

- Tarophagus proserpina* (taro leafhopper)
74, 103, 377, 502, 1139
- Taracomea scouarsi* (a taracomeid mite)
43
- Taraxacum setifer*
40, 621
- Tathorhynchus angustiorata* (a noctuid moth)
901
- Tawny garden slug
(*Limax flavus*)
- Tee scale*
(*Florinia theae*)
- Tetanicula* sp. (a prodoxoid moth)
- Tetelonus basalis* (scelionid wasp)
75
- Tetelonus scurrulosa* (lantana lace bug)
75, 1119
- Tetmaloniscus albipunctatus* (a moth fly)
329
- Tetmelicha forbesi* (an ichneumon wasp)
- Tetraspidiotus excisus* (an armored scale)
433
- Tetraspilota virescens* (a predaceous ostomid beetle)
48, 496, 661
- Tetrisp* spp.
312
- Tetrisp molor* (yellow mealworm)
102, 310
- Tetroboides mauritanicus* (cadelle)
40, 41, 42, 500, 886, 1049
- Tetrisp June beetle*
(*Polyhyalla decemlineata*)
- Tetradia aridifolia sinensis* (Chinese mantid)
617
- Tent caterpillars
524, 521
- Tetranychus mekeri* (a false spider mite)
1153
- Tetranychus pacificus*
84
- Termites
325, 326, 342, 394
- Tetanus myosepiformis* (sugar-beet root maggot)
56, 185, 242, 411, 433, 456, 465, 514, 545, 607, 672, 701, 797, 808, 863, 959, 1013
- Tetraneura obscuriventris* (a tephritid fly)
85
- Tetraneura* sp. (a spider)
361
- Tetraneura acaciae* (a whitefly)
1156
- Tetraneura robustella* (pine weevils)
145, 733, 1115
- Tetraneura caespitum* (pavement ant)
328, 342, 394, 1051
- Tetraneura hirsuta* (a root aphid)
896
- Tetranychus* spp. (spider mites)
17, 32, 33, 67, 82, 95, 114, 121, 138, 153, 157, 168, 180, 185, 187, 188, 189, 191, 213, 244, 257, 261, 338, 371, 386, 391, 432, 437, 463, 485, 487, 492, 520, 549, 551, 570, 575, 581, 611, 612, 631, 639, 641, 644, 656, 671, 672, 694, 702, 703, 705, 722, 724, 731, 732, 753, 756, 757, 758, 774, 784, 804, 807, 830, 833, 836, 839, 858, 862, 865, 877, 879, 881, 883, 904, 922, 936, 938, 956, 960, 976, 115
- Tetranychus atlanticus* (strawberry spider mite)
140, 189, 209, 213, 575, 583, 607, 639, 671, 724, 728, 741, 750, 776, 780, 804, 807, 836, 862, 881, 902
- Tetranychus canadensis* (four-spotted spider mite)
352
- Tetranychus cinnabarinus*
See *Tetranychus telarius*
- Tetranychus hydrangeae*
371
- Tetranychus marianae*
48, 82, 84, 171, 261, 464
- Tetranychus mcdanieli*
147, 159, 171, 226, 556, 705, 731, 736, 757, 811, 883, 906, 940
- Tetranychus pacificus* (Pacific spider mite)
147, 162, 754, 758, 780, 922, 923
- Tetranychus schoenei* (Schoene spider mite)
159
- Tetranychus telarius* (carmine spider mite)
37, 38, 82, 250, 337, 348, 456, 530, 656, 685, 724, 763, 810, 860, 922, 1018, 1085, 1159
- Tetranychus tumidus* (tumid spider mite)
33, 656
- Tetranychus urticae* (two-spotted spider mite)
38, 99, 114, 152, 153, 170, 180, 185, 186, 188, 190, 339, 368, 370, 371, 389, 391, 411, 437, 461, 485, 486, 489, 545, 576, 579, 581, 583, 605, 607, 611, 671, 694, 701, 705, 707, 728, 733, 741, 757, 776, 780, 782, 802, 804, 807, 836, 837, 838, 862, 904, 906, 921, 956, 1047
- Tetranychus viennensis*
205
- Tetrastichus incertus* (a eulophid wasp)
497, 751
- Texas citrus mite
(*Eutetranychus banksi*)
- Texas leaf-cutting ant
(*Atta texana*)
- Thaumophecia scitula* (dogwood borer)
81, 258, 278
- Thaumotopsis pectinifer* (a sod webworm)
109
- Thaumetopoea pityocampa* (pine processionary moth)
203
- Theba pisana* (white garden snail)
59, 205, 269, 791, 1017, 1105, 1126, 1127
- Thecodiplosis cockerelli* (a cecidomyiid mite)
172, 733
- Therioaphis maculata* (spotted alfalfa aphid)
3, 15, 31, 48, 51, 67, 99, 119, 132, 133, 134, 143, 169, 197, 217, 237, 273, 301, 321, 333, 357, 381, 405, 427, 450, 478, 506, 536, 560, 628, 694, 698, 720, 736, 748, 772, 800, 828, 856, 875, 896, 899, 915, 935, 955, 966, 971, 983, 987, 1011, 1027, 1038, 1043, 1051, 1063, 1079, 1011, 1106, 1113, 1143, 1148, 1155
- Therioaphis riehmi* (sweetclover aphid)
1024
- Therioaphis trifolii* (yellow clover aphid)
409, 455, 723, 831
- Thief ant
(*Solenopsis molesta*)
- Thiothraupis venusta* (genista caterpillar)
941
- Thoracaphis fici* (an aphid)
103, 250, 1141
- Three-cornered alfalfa hopper
(*Sphenostethus festinus*)
- Three-lined potato beetle
(*Lema trilineata*)
- Thrips
31, 99, 114, 119, 120, 140, 144, 171, 185, 187, 200, 207, 213, 242, 262, 276, 362, 393, 432, 433, 436, 440, 485, 486, 488, 489, 491, 512, 537, 543, 544, 570, 573, 575, 578, 601, 603, 631, 635, 656, 659, 669, 674, 694, 703, 728, 751, 804, 807, 837, 921, 1145
- Thrips flavus* (a thrips)
10
- Thrips hawaiiensis*
377, 419, 752
- Thrips madroñii*
140
- Thrips major*
1127
- Thrips tabaci* (onion thrips)
80, 103, 183, 336, 398, 414, 463, 515, 530, 575, 578, 642, 674, 703, 729, 756, 780, 804, 810, 839, 864
- Thurberibius affinis* (a noctuid moth)
983
- Thyanta acerra* (a stink bug)
48, 73, 74, 175, 286, 315, 559
- Thyreopagus entomophagus* (an acarid mite)
926
- Thyridopteryx ephemeriformis* (bagworm)
257, 258, 370, 463, 491, 519, 550, 583, 612, 678, 706, 732, 758, 759, 785, 813, 841, 884, 907, 962
- Thyridium pacificus* (a grass bug)
570
- Tibicen spp. (cicadas)
942
- Ticks
173, 201, 353, 417, 441
- Tinocla bisvittellata* (webbing clothes moth)
943
- Tinostoma smaragdinus* (a sphinx moth)
1107
- Tiphia vernalis* (a tiphid wasp)
24
- Tipula paludosa* (European crane fly)
940, 949, 956, 1152
- Tobacco and tomato caterpillar
(*Spodoptera litura*)
- Tobacco budworm
(*Heliothis virescens*)
- Tobacco flea beetle
(*Delia tritarsis*)
- Tobacco hornworm
(*Manduca sexta*)
- Tobacco moth
(*Antestia elutella*)
- Tobacco stalk borer
(*Trichobaris mucroea*)
- Tobacco thrips
(*Frankliniella fusca*)
- Tobacco weevil
(*Conoderus vespertinus*)
- Tomato fruitworm
(*Heliothis zea*)
- Tomato hornworm
(*Manduca quinquemaculata*)
- Tomato pinworm
(*Keiferia lycopersicella*)
- Tomato russet mite
(*Aculus lycopersici*)
- Tomotinus communis* (a burrowing stink bug)
939
- Tomostethus multicinctus* (brown-headed ash sawfly)
237
- Tortoise beetles
642, 703
- Torymus varians* (apple seed chalcid)
304
- Tomovella liriodendri* (tuliptree scale)
202, 226, 247, 260, 326, 522
- Tomovella numismaticum* (pine tortoise scale)
456, 521
- Tomovella parvicornis* (a soft scale)
1032
- Tomovella pinifolia*
81
- Tomoptera aurantii* (black citrus aphid)
243
- Tomoxiphites inornatus* (a mosquito)
315
- Tomoxiphites rutilus septentrionalis*
585, 680
- Tomoxipana curvicauda* (papaya fruit fly)
10
- Tomoxiphites septentrionalis obscuriflor* (an ant)
43
- Trachynilous* spp. (weevils)
865
- Trachynilous aristatus*
901

Trachyploeus bifoveolatus
896

Trechites insidiosus (an encyrtid wasp)
43, 497

Tremex columba (pigeon tremex)
942, 952

Trialetodes vaporariorum (greenhouse whitefly)
37, 74, 85, 102, 125, 180, 184, 206, 231, 250, 286, 315, 377, 473, 530, 612, 656, 685, 706, 792, 810, 941, 997, 1018, 1036, 1052, 1082, 1085, 1139, 1151

Trialetodes vittatus
884

Triatoma spp. (assassin bugs)
234, 651

Triatoma gerstaeckeri
992

Triatoma protracta (western bloodsucking conenose)
294, 964

Triatoma sanguisuga (bloodsucking conenose)
584, 651, 816, 926, 964

Triatoma sanguisuga texana
651

Tribolium spp. (darkling beetles)
1105

Tribolium castaneum (red flour beetle)
40, 41, 42, 174, 192, 312, 327, 394, 417, 1105

Tribolium confusum (confused flour beetle)
18, 40, 41, 192, 312, 1105, 1117

Tribolium destructor
319

Tribolia hispida (a snail)
269

Trichia striolata
1127

Trichocampus viminalis (a sawfly)
885

Trichobaris compacta (a weevil)
119

Trichobaris mucroa (tobacco stalk borer)
33

Trichobaris trinotata (potato stalk borer)
179, 961

Trichogramma spp. (minute egg parasites)
108

Trichophaea tapetzella (carpet moth)
926, 928

Trichoplusia spp.
204

Trichoplusia ni (cabbage looper)
4, 16, 32, 52, 139, 111, 177, 181, 190, 184, 208, 209, 211, 244, 278, 362, 367, 385, 386, 411, 414, 421, 433, 434, 437, 459, 463, 472, 487, 501, 512, 515, 516, 529, 543, 545, 576, 577, 593, 606, 608, 611, 621, 638, 642, 670, 699, 702, 703, 709, 727, 729, 741, 753, 755, 779, 781, 782, 792, 803, 804, 806, 809, 810, 811, 832, 835, 837, 838, 859, 861, 863, 864, 878, 879, 880, 882, 883, 902, 903, 905, 920, 921, 937, 939, 952, 955, 960, 974, 982, 983, 990, 1013, 1018, 1028, 1038, 1045, 1065, 1081, 1102, 1114, 1120, 1134, 1144, 1156, 1157. Light traps:
6, 19, 35, 54, 84, 101, 150, 175, 226, 249, 285, 314, 347, 378, 399, 445, 501, 529, 560, 561, 593, 594, 621, 622, 651, 658, 715, 764, 793, 821, 850, 872, 889, 912, 930, 947, 968, 996, 1019, 1037, 1053, 1070, 1086, 1108, 1148

Trichopoda sp. (a tachina fly)
995

Trichopoda pennipes
79, 103, 231, 286, 810, 1052, 1069

Trichopoda pennipes var. pilipes
444, 810

Tricorynus herbarius (an anobiid beetle)
444

Tricostulus lumbricinus (a milliped)
37

Trimerotropis spp. (grasshoppers)
526, 789

Trimerotropis pallidipennis
556, 928, 929, 948, 1107

Trimerotropis rebellii
556

Trionyx dimidiatus (a mealbug)
279, 370, 1066

Triploa longicaudatus (a tadpole shrimp)
92

Trioxa alacris (a psyllid)
322

Trogoderma spp. (dermestid beetles)
20, 319

Trogoderma glabrum
319, 324

Trogoderma granarium (khapra beetle)
99, 60, 205, 269, 319, 343, 345, 896, 1127, 1147

Trogoderma inclusum
373

Trogoderma parabile
93, 215, 245, 1117

Trogodylon prostomoides (a powder-post beetle)
174, 280, 284, 326, 327, 1015

Trombicula spp. (chigger mites)
220

Tropical rat mite (Ornithonyssus bacoti)
977

Trox suberosus (a scarab)
977

Tuber flea beetle (Epitrix tuberis)
101

Tulip bulb aphid (Dasynipha tulipae)
101

Tuliptree scale (Toumeayella lirioidendri)
101

Tullbergia iowensis (a collembola)
1030

Tumid spider mite (Tetranychus tumidus)
656

Turnip aphid (Hyalosiphia pseudobrassicae)
101

Turnip maggot (Delmia floralis)
101

Twig girdler (Oncideres cingulata)
101

Twig pruner (Elaphidionoides villosus)
101

Two-marked treehopper (Enchocma binotata)
101

Two-spotted spider mite (Tetranychus urticae)
101

Tydeus kochi (a tydeid mite)
101

Tylocodermis fragariae (strawberry crown borer)
102

Typhasa stercorae (a hairy fungus beetle)
320

Typhlocyba pomaria (white apple leaf-hopper)
676, 940, 961

Typhlodromus spp. (phytoseal mites)
761, 844

Typhlodromus occidentalis
323, 556

Tyria jacobaeae (a cinnabar moth)
324

Tyrophagus spp. (an acarid mite)
789

Tyrophagus dimidiatus
186, 244, 278

U

Udea spp.
5

Udea profundalis (false celery leaf tier)
3, 32, 80, 99, 120, 126, 199

Udea rubigalis (celery leaf tier)
190, 544, 1081

Ugly-need caterpillar (Archips cerasivoranus)
101

Umbonia crassicornis (a treehopper)
33

Unaia citri (an armored scale)
38, 51, 125, 220, 462, 677, 705, 923, 941, 994, 1031, 1047, 1115, 1144, 1156

Unaia euvonmi (eucynon scale)
120, 200, 245, 260, 438, 492, 612, 678, 789, 923, 941, 962, 976, 1065

Unaia vagans
690, 1127, 1128

Undulambia polytichalis (a pyraustid moth)
991, 1065

Unicorn caterpillar (Schioura unicornis)
101

Uranotaenia spp. (mosquitoes)
1056

Uranotaenia lowii
885

Uranotaenia sapphirina
107

Urbanus proteus (bean leaf roller)
181, 937, 974, 1030, 1045

Urocrania flavicornis (a horntail)
192

Uropelta girardi (a hispid beetle)
37, 12, 125, 595, 695, 714, 763, 929, 1119, 1159

V

Vallonia pulchella (a snail)
112, 988, 1079, 1143

Vanduzee triguttata (a treehopper)
522

Vanessa sp. (a nymphalid butterfly)
514

Vanessa cardui (painted lady)
56, 140, 223, 324, 372, 452, 464, 480, 508, 519, 538, 543, 550, 570, 573, 602, 612, 632, 669, 698, 866, 979

Vanessa tameamea
967

Variable oak leaf caterpillar (Heterocampa manteo)
101

Varied carpet beetle (Athetis versicolor)
101

Variegated cutworm (Peridroma saucia)
101

Vasates quadrupes (maple bladder-gall mite)
227, 228, 252, 522, 586

Vedalia (Rhodolia cardinalis)
101

Vegetable weevil (Listroderes costirostris obliquus)
101

Velvetbean caterpillar (Anticarsia gemmatilis)
101

Vespa crabro germana (giant hornet)
480, 524

Vespanina sp.
1136

Vespanina sequoiae (sequoia pitch moth)
17, 1048

Vespid wasps
98

Vesulia maculifrons (bald-faced hornet)
294

Vetch bruchid (Bruchus brachialis)
270, 1128

Vingonia stictifera (a soft scale)
101

Virginia-creeper leafhopper (Rhythoneura zizac)
101

Vitacea polistiformis (grape root borer)
48, 732

W

Walkingstick
(*Diachrocerus femorata*)

Walnut caterpillar
(*Detana integerrima*)

Walnut husk fly
(*Rhagoletis completa*)

Walnut scale
(*Aspidiotus juglansregiae*)

Wasp
58

Waterlily aphid
(*Rhopalosiphum nymphaeae*)

Waterlily leaf beetle
(*Pyrralta nymphaeae*)

Webbing clothes moth
(*Tineola bisselliella*)

Webworms
723, 751

Western bean cutworm
(*Loxagrotis albicosta*)

Western bloodsucking conenose
(*Triatoma protracta*)

Western brown stink bug
(*Dasynotus occidentalis*)

Western corn rootworm
(*Diabrotica virgifera*)

Western drywood termite
(*Incisitermes minor*)

Western flower thrips
(*Frankliniella occidentalis*)

Western grape leaf skeletonizer
(*Harrisina brillians*)

Western harvester ant
(*Pogonomyrmex occidentalis*)

Western oak looper
(*Lambdina fiscellaria gomaria*)

Western peach tree borer
(*Sanninioidea exitiosa graefii*)

Western pine beetle
(*Dendroctonus brevicomis*)

Western potato flea beetle
(*Delia subserinita*)

Western potato leafhopper
(*Empoasca abrupta*)

Western raspberry fruitworm
(*Byrrhus bakeri*)

Western spotted cucumber beetle
(*Diabrotica undecimpunctata undecimpunctata*)

Western striped cucumber beetle
(*Acalymma trivittata*)

Western subterranean termite
(*Reticulitermes hesperus*)

Western tent caterpillar
(*Malacosoma plumbea*)

Western tree-hole mosquito
(*Aedes sierrensis*)

Western tussock moth
(*Hemerocampa vetusta*)

Western wheat aphid
(*Brachycolus tritici*)

Western yellow-striped armyworm
(*Prodenia praefica*)

West Indian fruit fly
(*Anastrepha mombinpraecoptans*)

West Indian sweetpotato weevil
(*Eucosma postfasciatus*)

Wheat borer
(*Macrodies melanura*)

Wheat curl mite
(*Aceria tulipae*)

Wheat head armyworm
(*Parona diffusa*)

Wheat midge
(*Stolidoptera mosellana*)

Wheat stem maggot
(*Mercyza americana*)

Wheat stem sawfly
(*Cephus cinctus*)

Wheat wireworm
(*Agriotes mancus*)

White apple leafhopper
(*Phyllocyta rosaria*)

White-fir needle miner
(*Epinotia meritana*)

Whiteflies
16, 17, 32, 51, 80, 184, 187, 200, 213,
243, 307, 462, 520, 732, 784, 840, 975,
1145

White-fringed beetles
(*Graphognathus* spp.)

White garden anail
(*Theba pisana*)

White grub
57, 276, 601, 695, 802, 830

White-lined sphinx
(*Celerio lineata*)

White-marked spider beetle
(*Scius fur*)

White-marked tussock moth
(*Hemerocampa leucostigma*)

White peach scale
(*Pseudaulacaspis pentagona*)

White-pine aphid
(*Pinus strobi*)

White-pine sawfly
(*Neodiprion pinetum*)

White-pine weevil
(*Pissodes strobi*)

White-shouldered house moth
(*Androsia sarotrella*)

White-spotted sawyer
(*Monochamus scutellatus*)

Willow-beaked gall midge
(*Mesochorus rigidus*)

Willow flea beetle
(*Rhynchonema rufipes*)

Winter grain mite
(*Penthaeus major*)

Wintex moth
(*Ooperophtera brunata*)

Winter tick
(*Dermacentor albipictus*)

Winthemia quadripustulata (a tachina fly)
22

Wireworms
56, 112, 177, 179, 207, 209, 367, 479,
513, 537, 545, 569, 576, 601, 722, 959

W-marked cutworm
(*Spaleticus claudastina*)

Woolly alder aphid
(*Protophila besselatus*)

Woolly apple aphid
(*Priosoma lanigerum*)

Woolly elm aphid
(*Priosoma americanum*)

Woolly whitefly
(*Aleurothrixus floccosus*)

X

Xenochalepus dorsalis (locust leaf miner)
466, 494, 522, 613, 648, 680,
707, 759, 787, 814

Xenylla grisea (a collembola)
1030

Xerophilus wilsoni (a noctuid moth)
464

Xylea radiata (a xyelid sawfly)
245

Xyleborus formicatus (a scolytid beetle)
862

Xyleborus semipaucus
290

Xylina thoracica (a cutworm)
191

Xylobius basilaris (a false power-pot beetle)
787, 1030, 1061

Xylococcus betulae (a margaroid scale)
48

Xylocopa sonorina
929

Xylocopa virginica (carpenter bee)
265, 394, 496, 615

Xylocandrus compechus (a bark beetle)
74, 103, 151, 206, 810, 1048, 1082

Xylotrechus nauticus (a long-horned beetle)
328

Y

Yellow-clover aphid
(*Therioaphis trifolii*)

Yellow-fever mosquito
(*Aedes aegypti*)

Yellow-headed fireworm
(*Acleris minuta*)

Yellow-headed spruce sawfly
(*Pikonema alaskense*)

Yellow jackets
353

Yellow-margined leaf beetle
(*Microtheba ochroleuca*)

Yellow mealworm
(*Tenebrio molitor*)

Yellow-necked caterpillar
(*Detana ministra*)

Yellow peach moth
(*Dichrochrysa punctiferalis*)

Yellow scale
(*Aonidiella citrina*)

Yellow spider mite
(*Zotetranychus carpini borealis*)

Yellow-striped armyworm
(*Prodenia ornithogalli*)

Yucca plant bug
(*Balticotoma valida*)

Yucca spider mite
(*Zotetranychus yuensis*)

Z

Zatropis albiclavus (a pteromalid wasp)
312, 313

Zenaidura grandisella (southwestern corn borer)
8, 108, 169, 197, 239,
273, 334, 406, 506, 629, 665, 693,
713, 773, 801, 823, 829, 877, 900,
925, 956, 966, 987, 1011, 1017, 1027,
1035, 1043, 1051, 1063, 1068, 1101,
1113, 1120

Zenaidura lineolata (neotropical corn borer)
801, 820, 823, 876, 896

Zebra caterpillar
(*Cremata picta*)

Zethenia sp. (a bud moth)
252

Zellaria baimbachi (a pine needle-sheath miner)
550, 649

Zenaidura grandisella (a cecidomyid midge)
72, 151, 419, 1052

Zimmerman pine moth
(*Dicryctes zimmermani*)

Zodion obliquefasciatum (a conopid fly)
789

Zonosemata electa (pepper maggot)
17, 754, 1151

Zootermopsis angusticollis (Pacific dampwood termite)
75

Zootermopsis nevadensis
53

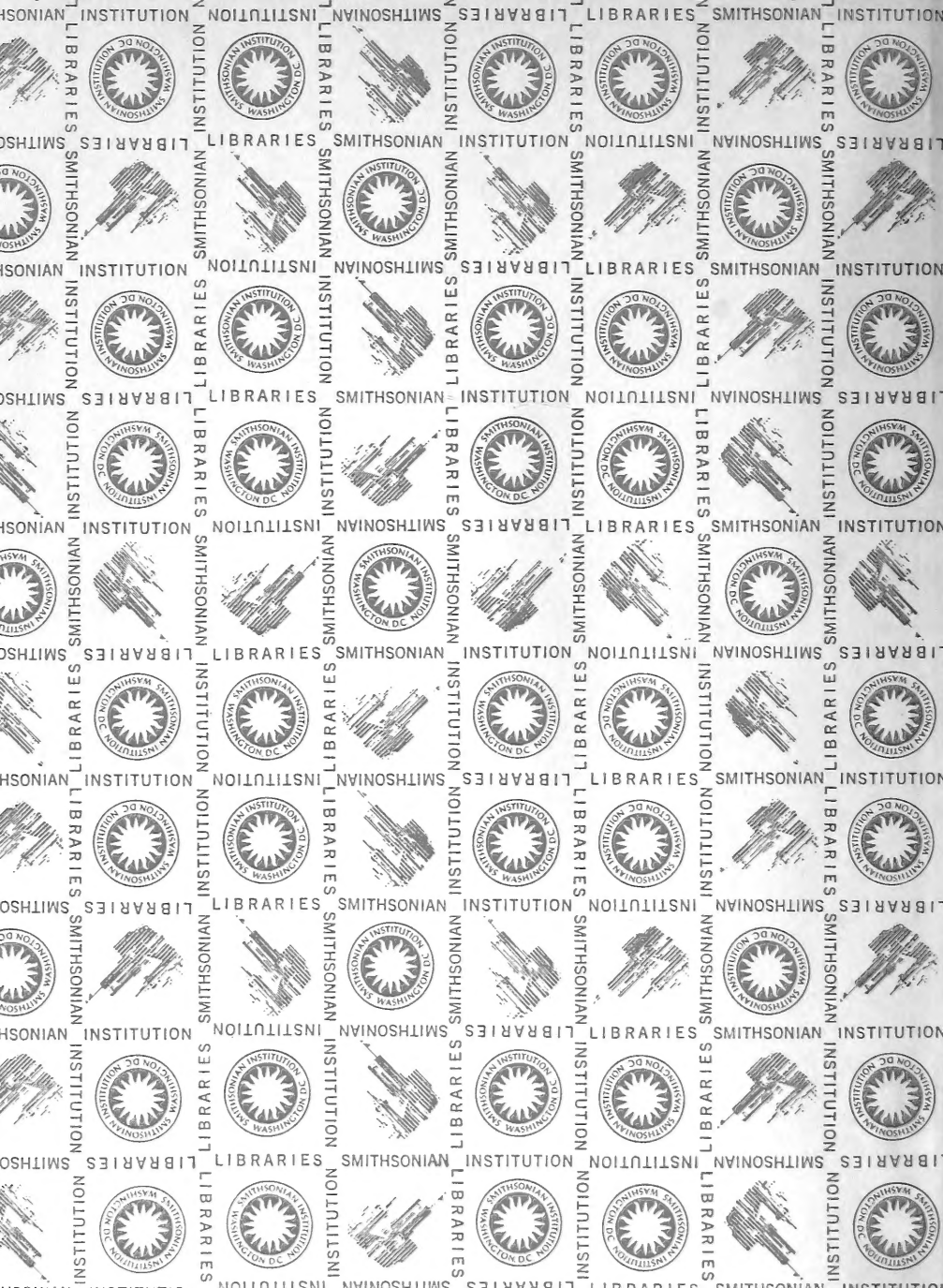
Zootermopsis tranquilla (a noctuid moth)
438

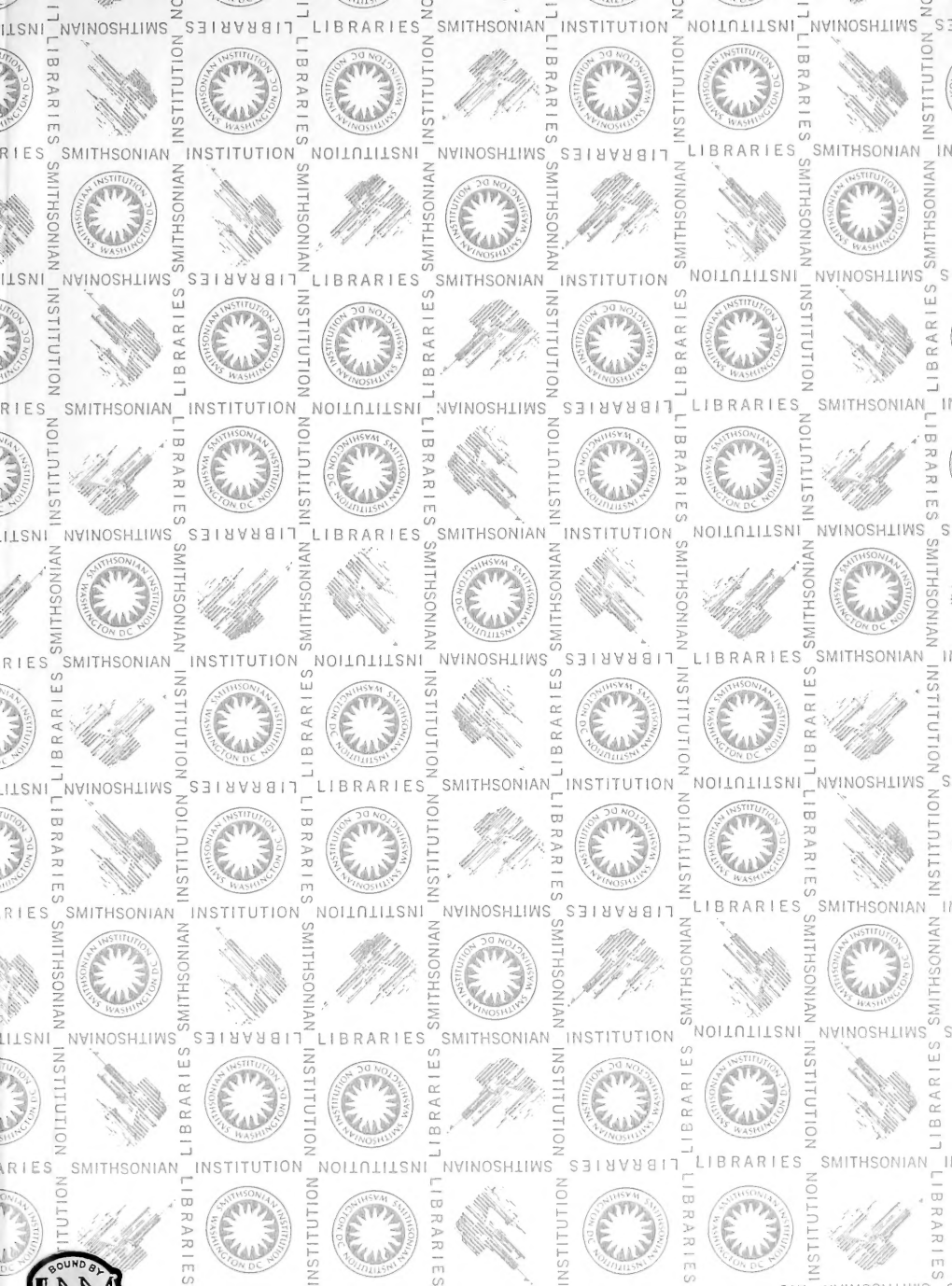
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