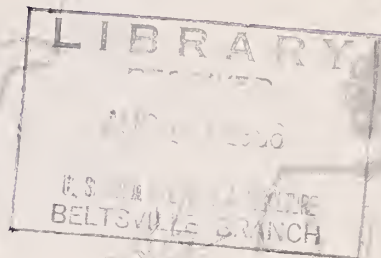


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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*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 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. BOLL-WORMS 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.

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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 (Lycium 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 Centreville; 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 Dona 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 Pahranaagat 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. (Boulanger, 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 Hammonton. (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 (Phyllo-coptruta 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).

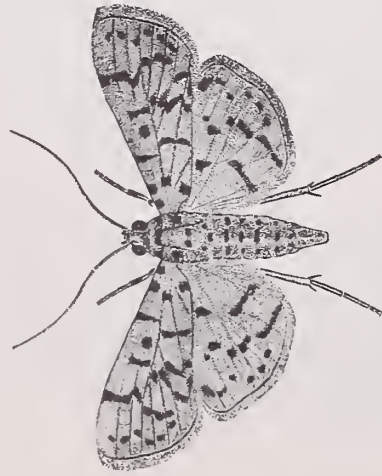
Beneficial Insects - Heavy adult population of a LADY BEETLE (Stethorus vagans) observed feeding on mites on papayas in Kahuku, Oahu. (Kumabe). Larvae, pupae and adults of a WEEVIL (Apion antiquum) light to medium on Emex spinosa (emex) in Waimea State Nursery, Hawaii Island. (Haw. Ins. Rpt.). Appreciable 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.



Capnodis sp.

## 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.

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

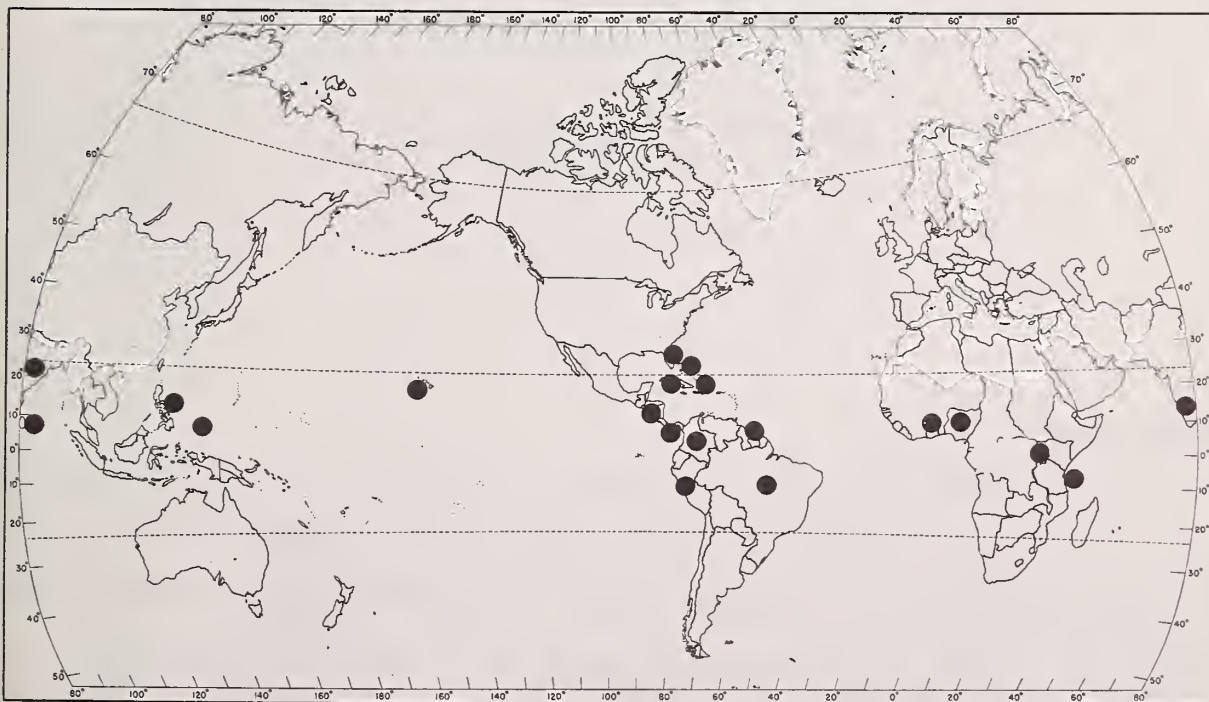
## A ROOT MEALYBUG (Geococcus coffeae Green)

**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.

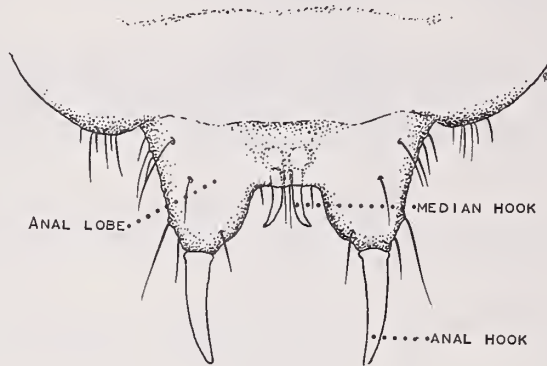
**Distribution:** Brazil, Canal Zone, Ceylon, Colombia, Costa Rica, Cuba, Dominican Republic, Dutch Guiana, Gold Coast, Guatemala, Honduras, India, Nigeria, Palau, Panama, Peru, Philippines, Uganda, El Salvador, Zanzibar and U.S.A. (Florida, Hawaii and Puerto Rico).



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)

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