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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PROTECTION DIVISION**

### **ECONOMIC INSECT SURVEY AND DETECTION**

**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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Hyattsville, Maryland 20782**

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM larvae increasing in South Dakota; adult flights increasing in Wisconsin, and in Indiana light trap collections. Second generation may be problem in mid-July in South Dakota and late July in Minnesota. (p. 439). For light trap collections see page 456. CORN EARWORM surveys indicate possible heavier than normal infestations in Indiana; moth flights heavy in Maryland and larvae increased on corn in Tennessee. (p. 439).

EUROPEAN CORN BORER egg laying heavy in New York and populations expected to remain heavy on Eastern Shore of Maryland (p. 440); moth emergence increased in Minnesota (p. 441).

ALFALFA WEEVIL damaged alfalfa in Vermont and New York, larvae increased in Black Hills area of South Dakota, and damage severe in north and central Utah. (p. 442). PEA APHID heavy on alfalfa in Colorado. (p. 443).

BOLLWORMS increasing in light traps in South Carolina; major problems in cotton in delta area of Mississippi, above control levels in west Tennessee, and increasing in parts of Texas. (p. 444).

COLORADO POTATO BEETLE outbreak on potatoes worst ever in northern Utah; heavy in Minnesota and larval control inadequate in Suffolk County, New York. (p. 446).

HORN FLY heavy on livestock in Texas, Oklahoma, and Missouri. FACE FLY heavy on horses and cattle in California, increasing in east and southeast Nebraska. (p. 451). MOSQUITOES annoying man and livestock in several States. (pp. 451-452).

GRASSHOPPERS heavy on crops in several States. (pp. 453-454).

Detection

AN OLETHREUTID MOTH reported from California for a new State record. (p. 449).

For new county records see page 455.

Special Reports

1969 Cereal Leaf Beetle Infestation and Oats Crop Loss Survey. (pp. 457-468).

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WEATHER OF THE WEEK ENDING JUNE 29

HIGHLIGHTS: The hottest temperatures in many years occurred over the Southwest. The coolest weather in several weeks spread over the Northeast. Numerous severe thunderstorms spotted south from Texas to South Carolina.

PRECIPITATION: Wide areas from California to the central Great Plains received no rain or only light sprinkles during the week. Numerous light to moderate scattered thundershowers occurred in the Northwest but most weekly totals did not exceed 0.50 inch. Much heavier showers in the Northeast and across the South from Texas to the Atlantic Ocean. Generous showers fell in the Northeast on Friday and Saturday with flash flooding resulting in parts of Pennsylvania. Heavy rain fell early in the week in North Carolina where Wanchese received 8.10 inches from Sunday afternoon to Monday night, June 21 and 22. Hail as large as baseballs fell at Bethlo, Florida, Tuesday afternoon. On Wednesday heavy thunderstorms became general from the central Great Plains to the western gulf coast. Palacios, Texas, received 3.96 inches Wednesday forenoon when 4.50 inches fell at Ottumwa, Iowa. More torrential rains fell in the afternoon with Corpus Christi, Texas, receiving 4.72 inches and Memphis, Tennessee, 2.28 inches. Much needed rain fell in all parts of South Carolina. One of the heaviest weekly totals, 6.58 inches, fell at Sumter, South Carolina. Strong winds raked western Montana late Saturday and early Sunday. High winds raised clouds of dust in the agricultural areas of the Southwest.

TEMPERATURE: The week began sunny and pleasant especially over the North Central States. Minimums were mostly in the 50's from the northern Rocky Mountains to New England and as far south as the central Great Plains. Warm humid weather prevailed over the Deep South with temperatures ranging from the 70's in the morning to the 90's in the afternoon. The West warmed early in the week and the heat intensified as each day passed. Miles City, Montana, registered 100° or higher. By Thursday numerous locations in the Southwest set new high-temperature records. Afternoon maximums at Thermal and Blythe, California, reached 122° and Needles recorded 121°. In Arizona, Phoenix registered 116° and Flagstaff 95°. The extreme heat spread eastward. By Sunday, 100° maximums were common over the central Great Plains from Grand Forks, North Dakota, to Wichita Falls, Texas. Almost all areas in Nebraska and Kansas warmed to 100° or higher on Sunday. Meanwhile, cool temperatures became general over the Northeast with minimums tumbling to the 40's and low 50's as far south as Kentucky and Virginia. Weekly temperatures averaged above normal from the Pacific Ocean to the northern and central Great Plains and below normal from Texas to New England. Much of the Northeast averaged 3° to 8° cooler than normal. (Summary supplied by Environmental Data Service, ESSA.)



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM** (*Pseudaletia unipuncta*) - NEBRASKA - Adults light at light traps in Lancaster County area. (Keith, June 19). IOWA - Larvae averaged less than 1 per 25 sweeps in bromegrass and oats in Harrison County and in oats in Woodbury County. Visual check in bromegrass in Woodbury County showed 1 per square yard or less on June 24. In central area, 90 percent of larvae observed June 23-25 parasitized by tachanids. Braconids noted under windrowed hay. (Iowa Ins. Sur.). Larvae one-fourth to one inch long in bromegrass at Ankeny, Polk County, June 18. Nearly 50 percent parasitized. This occurrence nearly normal; not observed in 1969. (Iowa Ins. Inf.). SOUTH DAKOTA - Infestations found in 9 counties to date. Mostly on rye with some winter wheat. Most larvae small. Larvae increasing in Brookings County. Some parasite activity. Adults numerous first half of June; another heavy larval brood may occur by mid-July. (Jones). MINNESOTA - Moth collections in blacklight trap much lighter, and larvae still light. Larvae 2-3 per square foot in parts of ryefield in Lincoln County. Small grain should be watched closely in west-central and northwest districts for larvae from moth flights of last 2 weeks. Other areas appear past greatest danger although second generation may be problem in late July. (Minn. Pest Rpt.). WISCONSIN - Larvae heavy near Arcadia, Trempealeau County; damage minimal; mostly last instars in corn. Very few larvae found along margins of peafields, but conditions right for another outbreak, since adult flights increasing. (Wis. Ins. Sur.). MICHIGAN - Larvae damaged wheat, timothy, and some corn in Cass County. Virus disease killed many larvae as of June 22, and undoubtedly keeping numbers down this year. (Ruppel). Moth collections minimal at all blacklight stations. Last instars in small grains, numbers still below problem level. (Newman, June 22). INDIANA - Large increase of adults in southwest district light trap week ending June 20, and more recently in northwest district blacklight trap. Indicates emergence of spring generation. (Huber). PENNSYLVANIA - Light on nontill grassy corn in Blair County, none found in other corn or barley. (Gesell). WEST VIRGINIA - Larval damage light to field corn in Pendleton County June 19. (W. Va. Ins. Sur.). VIRGINIA - Adults moderate in blacklight traps in Montgomery County. (McFarlane, June 23). Larval damage severe to corn in one field in Highland County. (Shepherd, June 19).

**ASTER LEAFHOPPER** (*Macrosteles fascifrons*) - FLORIDA - Remains light, 4 per 100 sweeps, on foot-high alfalfa at Gainesville, Alachua County. (Mead). NEW YORK - In at least one carrot field at Geneva, Ontario County. (N.Y. Wkly Rpt., June 22). WISCONSIN - Averaged 12 per 100 sweeps in Marquette County and 35 per 100 sweeps in Waushara County oatfields. As grain matures, migration into lettuce, celery, and carrots will increase. (Wis. Ins. Sur.). MINNESOTA - Adults decreased in all areas. Nymphs appearing, range trace to 1,200 per 100 sweeps. Aster yellows disease less than 1 percent in small planting of pyrethrum in Scott County. (Minn. Pest Rpt.). COLORADO - Adults not found on lettuce as of June 13 in Arkansas Valley. (Burchett).

**CORN EARWORM** (*Heliothis zea*) - KANSAS - Light feeding in whorls of less than 5 percent of corn checked in Neosho County. Much egg laying in whorls. Eggs and larvae on all silking sweet corn in Sedgwick County. (Gates). WISCONSIN - Collected 2 adults in Platteville, Grant County, blacklight trap. (Wis. Ins. Sur.). INDIANA - Larvae in corn whorls in central district; larva on corn in Dubois County. (Meyer). Adult in blacklight trap June 19-20 in northwest district and 3 trapped June 17-18 in southwest district (plus 9 more during 3 subsequent nights). (Huber). Indicates probability of heavier infestations than usual. Adults and larvae appeared very early this year. (Meyer). DELAWARE - Adults still light in blacklight traps in most areas. (Burbutis, Kelsey). MARYLAND - Moth flights increasing rapidly in Worcester, Dorchester, and Queen Annes Counties. Heaviest at Snow Hill, Worcester County; averaged 27 per night June 21-23. Larvae infested 16 percent of 32 acres of sweet corn near Pittsville, Wicomico County. (U. Md., Ent. Dept.). TENNESSEE - Increased in all cornfields surveyed. Damage light to moderate. (Gordon). GEORGIA - Light on peanuts throughout south area. (French, Morgan). Moderate on sweet corn in Tift County (French), destroyed 2 acres of tomatoes in Spalding County (Tippins). MISSISSIPPI - Infestations

averaged 5 percent in 4 cornfields checked in Pike County. (Sartor). ARKANSAS - Light, about 1 second instar per 10 heads of blooming sorghum in Lafayette, Little River, and Miller Counties. Occasional fourth instar in sorghum in Lafayette County. (Boyer, Jones). Of 204 larvae collected from corn in Hempstead County and 32 larvae in Drew County, all determined H. zea. (Wall).

CORN LEAF APHID (Rhopalosiphum maidis) - ARKANSAS - Spotted and heavy, up to several hundred per sorghum plant, in Hempstead County. Parasitism and predation reducing numbers and infestation considered noneconomic. Survey negative in Lafayette, Little River, and Miller Counties. (Boyer, Jones). TEXAS - Reported from most counties in Rolling and High Plains areas on grain sorghum. (Green). OKLAHOMA - Averaged 200 per sorghum plant in Tillman County. Ranged 0-150 per plant in Payne, Noble, Garfield, and Logan Counties. (Okla. Coop. Sur.). KANSAS - Light to moderate on sorghum in Shawnee, Leavenworth, Jefferson, Atchison, Doniphan, Brown, and Jackson Counties. (Iselin). NEBRASKA - Increasing, but still light on grain sorghum. Infested 80+ percent of plants in fields checked in Phelps and Gosper Counties. Colonies ranged 5-125 individuals. Light in Lancaster and Saunders Counties. (Keith et al.).

GREENBUG (Schizaphis graminum) - TEXAS - Generally light on grain sorghum throughout State. (Green). OKLAHOMA - Ranged 200-250 per 10 row feet of sorghum in Tillman County. Green lacewings and lady beetles appear effective. Greenbug ranged 10-17 per leaf on occasional lower leaves in fields in Payne, Noble, and Garfield Counties. (Okla. Coop. Sur.). NEBRASKA - Very light on wheat checked in southern counties. Trace on sorghum, ranged 2-25 per lower leaf, on about 10 percent of plants in Phelps and Gosper Counties. Colonies ranged 5-60 on lower leaves of about 60 percent of plants in Saunders County field. (Keith et al.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Continues to increase in regrowth alfalfa; some treatments made in Sauk County. Averaged about 1 per sweep in most fields. Adults averaged 1 per linear foot in commercial lima beans in Rock County. No nymphs observed and most activity limited to row margins. (Wis. Ins. Sur.). MARYLAND - Increasing slowly in all sections. Counts remain below 5 per sweep in Frederick, Howard, Montgomery, and Prince Georges Counties. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adults ranged 0-4 per 100 sweeps of potatoes checked in Weld County. Controls effective. (Johnson). TENNESSEE - Found on tomatoes in Johnson County. Determined by R.P. Mullett. (Walker).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increased from last week. Ranged 200-600 per 100 sweeps of alfalfa. (Lee). OKLAHOMA - Some increase in most alfalfa checked. Ranged 2-70 per 10 sweeps in Payne, Pawnee, Grant, and Logan Counties. (Okla. Coop. Sur.). FLORIDA - Remains light, about 45 adults and nymphs in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

TOBACCO HORNWORM (Manduca sexta) - GEORGIA - Moderate in 1 tobacco field in Colquitt County. (French).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Moderate on tobacco in Colquitt County. (French).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW YORK - Egg laying and hatch started early week of June 8 and continuing at heavy rate in Monroe, Orleans, and Genesee Counties. Moths not waiting for corn to reach 7 to 8-leaf stage. (N.Y. Wkly. Rpt., June 22). DELAWARE - Late instars in early planted corn, adults 1-2 per night in blacklight traps in Kent and Sussex Counties. (Burbutis, Kelsey). MARYLAND - First-generation larvae pupating in Somerset, Wicomico, and Worcester Counties in earliest sweet corn. Expected to remain heavy throughout Eastern Shore production areas, where infested stalks ranged as high as 10 percent in many fields. Heaviest, averaged 82 percent in 16 acres of field corn, in central

area near Thurmont, Frederick County. (U. Md., Ent. Dept.). VIRGINIA - European corn borer larvae damaged corn in Amelia County June 19. (Roberts). INDIANA - Averaged less than one per plant on 14 percent of 30-inch plus corn in central district. Mostly early instars with occasional whorl penetration. Occasional adults still seen. (Meyer). MICHIGAN - Moths peaked at all blacklight stations: 609 at Lenawee County station and 586 at Livingston County station. About 60 percent of hatch completed; egg laying will peak within 10-14 days. Food will be sufficient for peak of hatch. (Newman, June 22). WISCONSIN - Leaf feeding light in southern and southwestern areas; highest 20 percent. (Wis. Ins. Sur.). ILLINOIS - Not too severe in fields examined. About 5-10 percent of corn mature enough for high larval survival. About 10-20 percent of these fields have enough borers to warrant controls. Few eggs still deposited in area north of St. Louis, south of Rock Island, and west of U.S. Highway 51. Borers entering stalks. Light in east area; few fields require protection. (Sur. Bull.). MINNESOTA - Moth emergence increased, egg laying spotty. Egg masses ranged 0-12 per 100 plants. Larvae ranged 0-16 per 100 plants. First and second instars in south counties. (Minn. Pest Rpt.). IOWA - Larvae per 100 plants in corn with Sudan grass 22 and 2 in cultivated corn. Forty percent of early corn at Ankeny, Polk County, showed leaf feeding in whorls June 18. Larvae averaged 60-65 per 100 plants with 80 percent first instar and 20 percent second instar. (Iowa Ins. Inf.). MISSOURI - Leaf feeding averaged 83.5 percent on 48-inch corn in southwest area field. Larvae averaged 3.6 per plant. Instars ranged 10 percent second, 80 percent third, 10 percent fourth. Chemical controls applied. Leaf feeding on 51 percent of plants on 38-inch corn in 2 fields. Larvae averaged 2.4 per plant; 40 percent second and 60 percent third instar. (Munson).

NEBRASKA - European corn borer very light, less than 1 percent of plants infested in 2 fields near Ceresco in Saunders County. (Campbell, Keith). Flights peaked at Lincoln, Lancaster County, June 6, at Concord, Dixon County, June 8. Catches at Concord heavy, with 643 moths. First-brood damage likely in area on early planted corn. (Berogan, Keith). KANSAS - Infested 5-20 percent of corn in Jefferson, Atchison, Brown, Jackson, and Shawnee Counties. (Iselin).

BLACK CUTWORM (Agrotis ipsilon) - WISCONSIN - Damage appearing on corn in scattered fields in Dane, Dodge, Fond du Lac, Green Lake, Dunn, Walworth, and Racine Counties. Damage varies considerably even within field and in most cases restricted to low areas and along margins. Middle plantings appear hardest hit. (Wis. Ins. Sur.). ILLINOIS - Apparently decreasing in corn. Some problems in control; present methods and insecticides vary in results. (Sur. Bull.).

CUTWORMS - NEBRASKA - Agrotis ipsilon (black cutworm) and Feltia subgothica (dingy cutworm) still damaging in east, southeast, and central areas. Dinky cutworm averaged 5.3 per 10 square feet in untreated areas in corn near Wahoo, Saunders County. Black cutworm in same field averaged about 1 per 10 square feet. (Keith, Berogan, June 18).

STALK BORER (Papaipema nebris) - WISCONSIN - Damage along marginal corn rows in Rock, Iowa, Lafayette, and Grant Counties; extends into fields for 5-6 rows in some cases. (Wis. Ins. Sur.). KANSAS - Light in border rows of all fields examined in Neosho County. In corn margins in most eastern and central areas. Much heavier than usual. Already penetrated plants, treatments ineffective. (Gates).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - NEBRASKA - First adult of season on squash blossoms at Mead in Saunders County on June 22. (Wedberg, Munson). MINNESOTA - Hatch continues but larvae light. Most in first instar with occasional second instar. (Minn. Pest Rpt.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Extremely light on grain sorghum in central area. Johnson grass head samples collected from several South Plains counties. To date no emergence noted from Johnson grass in area. (Thomas et al.).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - MAINE - Slightly more abundant than at this time in 1969 but little damage yet. (Boulanger). NEW HAMPSHIRE - Adults 3, larvae 365 per 100 sweeps of alfalfa in Berkshire County field. Tip damage 95 percent in uncut alfalfa. (Miller, June 16). Much parasitism in field samples held for parasite emergence in Merrimack County. (Mason, Morse). VERMONT - Stripping fields in Rutland, Addison, and Chittenden Counties. Damage less in Bennington County. Damage heavy to regrowth alfalfa in Pawlet and Middletown Springs areas of Rutland County. (Nielsen). NEW YORK - First field sprayed June 15 at Peru, Clinton County. Damage observed in Clinton, Essex, and parts of Franklin Counties. Expect many fields in Clinton and Franklin Counties will need treatment. Little damage noted before June 15. (N.Y. Wkly. Rpt.). MARYLAND - Weevil activity completed for 1970 season. Larvae and adults averaged less than 2 per sweep throughout State. (U. Md., Ent. Dept.). FLORIDA - Remains light, larvae 5 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

INDIANA - Alfalfa weevil larvae averaged less than 2 per sweep of alfalfa in central district. (Meyer). MICHIGAN - Heavy throughout Muskegon County; sprays applied. Controls mostly completed in south area. Insecticide usage greatly exceeded earlier predictions. (Ruppel, June 22). WISCONSIN - Declined, averaged 1 per 10 sweeps in Rock and Lafayette Counties. *Bathyplectes curculionis* (an ichneumon wasp) reared from larvae collected in several fields in south area. (Wis. Ins. Sur.). NORTH DAKOTA - Larvae 1 per 200 sweeps of alfalfa in Turtle Mountain area in Bottineau and Rollette Counties. These are new county records. (Brandvik). SOUTH DAKOTA - Larvae increased in northern Black Hills last 2 weeks. Larvae up to 3,400 per 100 sweeps of uncut alfalfa northeast of Spearfish, Lawrence County. Adults up to 175 per 100 sweeps. First cutting of alfalfa one-third completed. Larvae mostly in second instar. Numbers probably higher in some areas of northern Black Hills due to heavy alfalfa growth and lodging from heavy rain. Larvae 100 and adults up to 20 per 100 sweeps near Opal and Red Owl in east Meade County. Larvae 30 and adults 3 per 100 sweeps of alfalfa south of Eagle Butte in eastern Ziebach Counties. (Jones). NEBRASKA - Adult activity peaked. Larvae ranged 0-730 (averaged 60) and adults 0-59 (averaged 7.5) per 100 sweeps in 12 western Dawson County alfalfa fields on June 16. In eastern Dawson County, larvae ranged 1-8 (averaged about 1.0) and adults ranged 0-1 (averaged less than 1.0) per 100 sweeps in 12 fields. Most alfalfa surveyed was new growth following first cutting. (Manglitz, Stevens, June 17).

ARKANSAS - Alfalfa weevil adults 4-5 and larvae 8-10 in 100 sweeps in Washington County. (Boyer, Jones). TEXAS - Larvae medium on burclover in De Witt County and larvae and adults medium on burclover in Lavaca County for new county records. Collected by C.L. Cole April 29. Larvae light on alfalfa in Mills County for a new county record. Collected by H.J. Stockdale May 18. Determined by R.E. Warner and D.M. Anderson. (PPD). NEW MEXICO - Adults ranged 5-30 and larvae 3-120 per 25 sweeps of alfalfa at Farmington, Aztec, and Bloomfield in San Juan County. Adults more abundant at Kirtland and larvae more abundant southeast of Bloomfield. (Heninger). COLORADO - Decreasing in Weld, Boulder, and Larimer Counties. Larvae ranged 0-150 per 100 sweeps and adults 0-80 in most alfalfa checked. (Johnson). UTAH - Larval damage severe to late-cut alfalfa in northern and central areas. Stubble spraying common following removal of first crop. (Roberts, Knowlton). IDAHO - Infested 90 percent of tips at Aberdeen, Bingham County, June 17. (Carpenter, Sutherland). WYOMING - Larvae ranged 15-220 per 10 sweeps of first-cutting alfalfa in Fremont, Hot Springs, Washakie, Big Horn, and Park Counties. Heaviest in Washakie and Big Horn Counties. First cutting 50-80 percent completed. Infested 80 percent of tips, damage moderate, in Washakie County field. (Parshall).

PEA APHID (*Acyrtosiphon pisum*) - IDAHO - Light, averaged 10-15 per sweep in alfalfa seed fields in Adams and Washington Counties. Pea aphid mummies resulting from parasitism by *Aphidius pulcher* (a braconid) general throughout area. Syrphid fly larvae also present June 18-19. (Gibson et al.). NEVADA - *A. pisum* very light, up to 5 per sweep, in Antelope Valley alfalfa seed fields. Variable and spotted in Reese River Valley, Lander County, alfalfa seed fields. Ranged 5-15 per sweep

in some fields, up to 500+ per sweep in other fields. (Lundahl, Peters). ARIZONA - Pea aphid ranged 20-80 per 100 sweeps of alfalfa in Yuma and Gila Valleys. (Ariz. Coop. Sur.). WYOMING - Ranged 7-600 per 10 sweeps of first-cutting alfalfa in Fremont, Washakie, Hot Springs, Big Horn, and Park Counties. Heaviest in Washakie County, averaged 400 per 10 sweeps. Winged forms in all fields checked. (Parshall). COLORADO - Increasing, ranged 2,000-15,000 per 100 sweeps of alfalfa in Weld, Boulder, and Larimer Counties. (Johnson). TEXAS - Ranged 40-50 per 100 sweeps of alfalfa in Burleson County. (Green). ARKANSAS - Declined, only occasional aphid in Washington County and none found on Lafayette County alfalfa. (Boyer, Jones). FLORIDA - Remains very light, nymphs 5 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead). WISCONSIN - Still heavy in most alfalfa. Many appear parasitized or diseased. (Wis. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Adults ranged 2-21 per 10 sweeps of alfalfa in Payne, Pawnee, Grant, and Logan Counties. Nymphs common in some fields, trace in others. (Okla. Coop. Sur.). ARKANSAS - Heavy, 100-200+ in 100 sweeps in Washington and Lafayette Counties. Two-thirds adults and one-third nymphs. (Boyer, Jones). FLORIDA - Collected 12 nymphs, 138 adults in 100 sweeps of foot-high alfalfa at Gainesville, Alachua County. (Mead).

LYGUS BUGS (Lygus spp.) - IDAHO - Ranged 1-5 per sweep in 40-acre alfalfa seed field in Adams County and averaged 1 per sweep in about 1,500 acres in Crane Creek area, Washington County, June 15-19. Damsel bugs, big-eyed bugs, lady beetles, and lace wings general throughout area. (Gibson et al.). NEVADA - Adults and nymphs ranged 10-15 per sweep in untreated alfalfa seed fields in Antelope Valley and Reese River Valley, Lander County. In fields treated 10 days ago in Reese River Valley counts now 4-6 per sweep. (Lundahl, Peters). WYOMING - Adults and nymphs averaged 20 per 10 sweeps of alfalfa in Fremont, Hot Springs, Washakie, Big Horn, and Park Counties. (Parshall). ARIZONA - Range per 100 sweeps of alfalfa: 180-400 in Yuma and Gila Valleys and 60-80 on Yuma Mesa. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 44-125+ per 25 sweeps on San Juan County alfalfa. (Heninger). TEXAS - Ranged 40-60 per 100 sweeps of alfalfa in Burleson County. (Green).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Nymphs nearly gone in southern counties and adults in most alfalfa fields. Declined in Dunn County. (Wis. Ins. Sur.). MISSOURI - Adults collected in Mississippi County for a new county record. (Hanning). NEW HAMPSHIRE - Adults 259, nymphs 41 per 100 sweeps of alfalfa in Berkshire County field. (Miller, June 16).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Ranged 20-40 per 100 sweeps of alfalfa on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Up to 10 per 100 sweeps of alfalfa in Yuma and Gila Valleys. Ranged 10-20 per 100 sweeps on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

LEAF MINER FLIES (Agromyza spp.) - NEW HAMPSHIRE - Adults of A. spiraeae widespread in alfalfa field at Concord, Merrimack County. Leaves black with ovipositing females. (Mason, Morse). MASSACHUSETTS - Adults of Agromyza spp. 649 per 100 sweeps of alfalfa in Hampshire County field. (Jensen).

#### SOYBEANS

BLACK CUTWORM (Agrotis ipsilon) - MISSISSIPPI - This species and Peridroma saucia (variegated cutworm) caused heavy damage in some Coahoma County fields. (Sartor).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Damaging in many fields. (Flowers, Nettles).

A BLISTER BEETLE (Epicauta sp.) - ARKANSAS - Heavy, spotty past weeks on young soybeans in few southeast areas. (Wall).

THRIPS - MARYLAND - Damage heavy to 60 acres of soybeans at Williston, Carolina County, and Dover Bridge, Talbot County. Thrips generally light and damage below economic levels throughout State. (U. Md., Ent. Dept.).

#### PEANUTS

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Heavy in peanuts in Lincoln County; 75 percent of terminals infested. First of season. (Okla. Coop. Sur.).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - In McLennan and Falls Counties, punctured squares averaged 2.7 (maximum 15.7) percent in 49 treated fields and 3.1 (maximum 11) percent in 19 untreated fields. New-generation weevil found in early planted cotton. (Cowan et al.). OKLAHOMA - Adult found on cotton plant in eastern Payne County. (Okla. Coop. Sur.). ARKANSAS - Collected 4 on 45 pheromone-baited wing traps in Lafayette County. (Lamb et al.). LOUISIANA - In Madison Parish, collected 27 weevils in 222 wing traps; total to date 1,685. Overwintered weevils in 4 of 29 fields checked, ranged 26-52 per acre. Punctured squares ranged 1.2-2 percent in 22 of 26 fields checked. (Cleveland et al.). MISSISSIPPI - Collected 1 male, first of season, on wing trap in delta counties June 22. No weevils in 12 fields inspected. Punctured squares in 6 of 10 fields, averaged 1.35 (maximum 5.5) percent. (Pfrimmer et al.). Light in Yazoo and Rankin Counties. Heavy in Madison County. (Sartor). TENNESSEE - Adults feeding in terminal buds in Fayette, Hardeman, Hardin, Chester, McNairy, Shelby, and Tipton Counties. Surveys indicate little activity late in day. Adults readily found in mornings. Some feeding on squares, no egg-laying punctures found. (Gordon, Locke). SOUTH CAROLINA - Collected 269 weevils on 16 wing traps in Florence County; total to date 1,663. Emergence lower than in 1969. Infestations in treated and untreated fields light. (Taft et al.). GEORGIA - Up to 20 (average 5) percent punctured squares in 50 southern fields. (Womack). For Boll Weevil in High Plains see page 453.

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Collected 18 *H. zea* in light trap; total to date 127. Field infestations light, adults increasing in light trap in Florence County. (Taft et al.). GEORGIA - Eggs up to 35 (average 5), larvae up to 15 (average 2) per 100 terminals in 40 fields in 7 southern counties. (Womack). MISSISSIPPI - In delta counties, larvae averaged 1.58 (maximum 5.5) per 100 terminals in 8 of 12 fields. Eggs averaged 2.42 (maximum 8) per 100 terminals in 10 of the 12 fields. Injured squares averaged 12.45 (maximum 37) percent in 10 squaring fields. Bollworms still major problem; controls being applied. (Pfrimmer et al.). *H. zea* and *H. virescens* infestations throughout State. Several *H. zea* moths in light trap at State College, Oktibbeha County. (Sartor). TENNESSEE - Above control levels in many fields in west area. Egg and larval counts 1-12 per 100 terminals in fields surveyed. Eggs laid in terminal buds. (Gordon, Locke). LOUISIANA - In Madison Parish, damaged squares in 20 of 26 fields, infestations averaged 1.5 percent. Larvae averaged 2 percent in 5 of 10 fields where terminal counts made; eggs averaged 2 percent in 8 of these fields. Collected 52 *H. zea* and 4 *H. virescens* in blacklight trap. (Cleveland et al.). TEXAS - Increased in McLennan and Falls Counties; eggs averaged 4.2 (maximum 13.6) and larvae 2.8 (maximum 14.5) per 100 terminals in 57 treated fields. Eggs averaged 2 (maximum 6.2) and larvae 2.1 (maximum 7.5) per 100 terminals in 23 untreated fields. Injured squares averaged 2.3 percent in 49 treated fields; averaged 1.4 percent in 19 untreated fields. Of larvae previously collected on native hosts, 36 identified *H. zea*; one larva identified *H. virescens*. Total to date on all hosts, 327 *H. zea* and 28 *H. virescens*. Of 55 larvae collected on cotton in June, 58 percent *H. virescens*. (Cowan et al.). ARIZONA - Populations of *H. zea* remain about same in Yuma County; no treatment reported. (Ariz. Coop. Sur.).



LYGUS BUGS (*Lygus* spp.) - TENNESSEE - *L. lineolaris* (tarnished plant bug) moving into most fields. Damage light, but pinhead square damage observed in all fields surveyed in west area. (Locke). ARIZONA - *Lygus* sp. light to medium at Marana. Pima County. Several Yuma County fields treated. Averaged 18 per 100 sweeps on Yuma Mesa. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*) - TEXAS - Increased in McLennan and Falls Counties. Ranged 3.7-108.3 (average 32.6) per 100 terminals in 53 treated fields, and 3.5-89 (average 45.3) in 23 untreated fields. (Cowan et al.). OKLAHOMA - Ranged 1-2 per row foot in 6 to 8-leaf cotton in Jackson and Tillman Counties. Light in Payne and Osage Counties. (Okla. Coop. Sur.).

SPIDER MITES - SOUTH CAROLINA - Caused extensive damage in some areas. Many farmers spraying but with little success. (Flowers, Nettles).

THRIPS - TEXAS - Appear to be decreasing. Still light to moderate in High Plains counties. Few heavy infestations still in some South Plains counties. (Clymer, Rummel).

#### TOBACCO

WIREWORMS - VIRGINIA - Damage light in several fields of newly set tobacco in Pittsylvania County. (Dominick, June 17). WISCONSIN - Damaged tobacco sets in one field in southern Dane County. (Wis. Ins. Sur.).

#### SUGAR BEETS

BEEET WEBWORM (*Loxostege sticticalis*) - NORTH DAKOTA - Moths in sugar beet fields in Crystal area of Pembina County. Light trap collections at Cavalier indicate moths above normal June 11-24. (Kaatz). WYOMING - Larvae ranged 4-8 per plant in Park County field. (Burkhardt). Fields treated in Big Horn, Washakie, and Fremont Counties. Infestations scattered and varying in severity. Larvae from less than 1 up to 13 per plant. Larvae appearing in Fremont County and up to three-fourths grown in Hot Springs, Washakie, Big Horn, and Park Counties. (Parshall). UTAH - Moths light in Cache and Salt Lake County fields. (Knowlton). COLORADO - *L. sticticalis*, *Systema taeniata* (a flea beetle), and *Pegomya hyoscyami* (spinach leaf miner) remain light in Weld, Boulder, and Larimer Counties. Damage light, heaviest in Longmont and Berthoud area of Boulder County. (Johnson).

SPINACH LEAF MINER (*Pegomya hyoscyami*) - WYOMING - Larvae infested 0-35 percent of leaves in Fremont, Hot Springs, Washakie, Big Horn, and Park Counties. Heaviest in Washakie County, averaged 22 percent. (Parshall).

SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*) - NORTH DAKOTA - Adults and eggs in most new sugar beet fields in Walsh and Pembina Counties. Adults averaged 15 per 100 row feet near edges. Ten to 100 percent of plants at edges of fields with 10-30 eggs per plant. Some egg hatch in Crystal area of Pembina County; up to 15 maggots per plant. Adult emergence nearly complete. (Kaatz). WYOMING - Infestation ranged 0-17 percent in scattered fields in Park and Big Horn Counties. Many sugar beets wilting and dying. Larvae 4-16 (averaged 5) per infested plant. Few adults still active. (Parshall).

FLEA BEETLES - WYOMING - Shotholes caused by *Systema blanda* (pale-striped flea beetle heavy, up to 20 per leaf, in field north of Basin, Big Horn County. (Parshall). UTAH - Unspecified species caused some damage to young sugar beets in early growth stages in several counties. (Knowlton).

WIREWORMS - NORTH DAKOTA - Larvae ranged 1-12 per plant (averaged 2 per 25 plants) in Pembina County fields. Wilted plants evident. (Kaatz).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Larvae in damaging numbers in spite of control efforts against adults. Possibly worst outbreak ever on potatoes in northern area, including Salt Lake and Box Elder Counties. (Knowlton). COLORADO - Light in all potatoes checked in Weld County. Larvae up to 2 (mostly first and second instar) per plant, damage very light. (Johnson). NORTH DAKOTA - Adults and eggs 8 per 25 plants in early potatoes in Walsh and Pembina Counties. (Kaatz). MINNESOTA - Damaging numbers on potatoes in Scott County and around east Grand Forks in Red River Valley. (Minn. Pest Rpt.). OHIO - Eggs, larvae, and adults found on tomato plants in Sandusky and Seneca Counties. Averaged 2-7 per leaf, damage light to heavy. (Kelly). NEW YORK - Larval control inadequate on Suffolk County potatoes. (N.Y. Wkly. Rpt., June 22). MAINE - Adults common on early planted potatoes from Houlton south in Aroostook County. Adults averaged 2 per plant. Some eggs laid. (Boulanger).

POTATO APHID (Macrosiphum euphorbiae) - NEW YORK - Light in Suffolk County. (N.Y. Wkly. Rpt., June 22). MAINE - Spring migrants moving to potatoes from wild roses. Colonies of up to 5 nymphs in 7 infestations on 600 plants in Aroostook County. (Boulanger).

GREEN PEACH APHID (Myzus persicae) - MAINE - Spring migrants moving from Canada plum to potatoes. One infestation on 600 plants examined in Aroostook County. (Boulanger). NEW YORK - Relatively light in Suffolk County. (N.Y. Wkly. Rpt., June 22). DELAWARE - Infested potatoes and peppers in Kent and Sussex Counties. (Burbutis, Kelsey).

BUCKTHORN APHID (Aphis nasturtii) - MAINE - Spring migrants moving to early potatoes, 17 infestations on 600 plants. Few colonies already started in Aroostook County. (Boulanger).

STALK BORER (Papaipema nebris) - KANSAS - In marginal rows of tomatoes in most eastern and central areas. Much heavier than usual. Already penetrated plants along margins of fields; could not be reached by insecticides. (Gates).

TOMATO PINWORM (Keiferia lycopersicella) - TEXAS - Very heavy on tomatoes in greenhouse in Brenham, Washington County. (Thomas).

## BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Continues to plague canners in much of State. About 500 acres of peas treated, ranged up to 200 per square foot. Counts per sweep ranged 3-70 (averaged 28) in northern Dane County, 5-35 (averaged 20) in Columbia County, 1-96 (averaged 28) in Fond du Lac County, 3-65 (averaged 30) in Dodge County. Populations most variable in late peas and peas fully podded (averaged 30 per sweep) in most fields. Generally "hot" spots in most fields. (Wis. Ins. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - Defoliation moderate to heavy in 3 of 20 acres of beans near Nampa, Canyon County. (Homan, Portman).

## GENERAL VEGETABLES

SQUASH BUG (Anasa tristis) - TEXAS - Appearing on squash in Wilbarger, Wichita, and Stephens Counties. (Boring).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - WYOMING - Numerous on asparagus in Hot Springs and Washakie Counties. (Parshall).

**DECIDUOUS FRUITS AND NUTS**

**CODLING MOTH** (*Laspeyresia pomonella*) - TEXAS - Infested 8 percent of 100 Holland apples in Eastland County. One pupa on cardboard bands in unsprayed apples in Comanche County. (Morrison). KANSAS - Damage severe in unsprayed central area orchards. (Gates). MICHIGAN - Fresh stings and fruit entries appearing regularly in abandoned orchards. Larvae in second to third instars, mostly third instar. (Thompson, June 22). NEW JERSEY - Nine adults in baited jar in Gloucester County. (Ins.-Dis. Newsltr.). NEW YORK - Threat in Ulster, Dutchess, and Orange Counties. (N.Y. Wkly. Rpt., June 22). CONNECTICUT - Some first instars on unsprayed trees at New Haven, New Haven County. (Savos, June 23). MAINE - Egg laying activity on apple above average due to warm evenings. Earliest laid eggs to hatch week ending June 26 at Monmouth, Kennebec County. (Boulanger).

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - NEW JERSEY - Second-generation adults laid eggs on peach. Controls recommended. Collected 14 adults in Gloucester County. (Ins.-Dis. Newsltr.). UTAH - Light, 0-8 per trap, past 2 weeks in infested area of Utah County. (Davis).

**PLUM CURCULIO** (*Conotrachelus nenuphar*) - KANSAS - Damage severe in unsprayed orchards in central area. (Gates). Light to moderate on backyard apples in Shawnee and Douglas Counties. (Iselin). CONNECTICUT - Larvae still active. (Savos, June 23). MICHIGAN - Adults still present in reduced numbers on apples and pears. New feeding punctures and egg laying scars found. (Thompson, June 22).

**A JAPANESE WEEVIL** (*Calomycterus setarius*) - IOWA - Defoliated small cherry tree and strawberry plants in several hours at Sioux City, Woodbury County, June 19. This is a new county record. (Iowa Ins. Sur.).

**APPLE MAGGOT** (*Rhagoletis pomonella*) - WISCONSIN - Adults emerging in northern Rock County. (Wis. Ins. Sur.). MICHIGAN - First flies June 20 in wild crab apple trees near Kalamazoo, Kalamazoo County. Weekend rains should hasten emergence and activity. (Thompson, June 22). NEW YORK - Increasing daily in Ulster, Dutchess, and Orange Counties. (N.Y. Wkly. Rpt., June 22). CONNECTICUT - First adult, male, on sticky board June 19 at New Haven, New Haven County. (Savos).

**CHERRY FRUIT FLY** (*Rhagoletis cingulata*) - MICHIGAN - Flies still plentiful in Berrien County research orchard near Stevensville. First emerged at Hart and Shelby, Oceana County, June 15. (Thompson, June 22). NEW YORK - Emergence very slow in Monroe and Orleans Counties. (N.Y. Wkly. Rpt., June 22).

**PEAR PSYLLA** (*Psylla pyricola*) - UTAH - Nymphs common in infested pear orchards in Weber County. Second release made June 18 of parasite *Trechmites insidiosus* (an encyrtid wasp). (Davis). MICHIGAN - In nymphal stage. Second adult generation will need controls in 10-15 days. (Thompson, June 22).

**APPLE APHID** (*Aphis pomi*) - UTAH - More numerous than usual in Utah and Salt Lake County apple orchards this spring. (Davis, Knowlton). NEW YORK - Heavy in most commercial orchards in Ulster, Dutchess, and Orange Counties. Up to 100 per Red Delicious leaf. (N.Y. Wkly. Rpt., June 22). MASSACHUSETTS - Nymphs and adults heavy on terminal foliage of untreated apple trees. Some winged forms in Hampshire County. (Jensen). MAINE - Heaviest in several years on new terminal growth at Monmouth, Kennebec County. (Boulanger).

**BLACK CHERRY APHID** (*Myzus cerasi*) - UTAH - Still causing much curling and sticky foliage on sweet cherry in Utah, Salt Lake, and Box Elder Counties. (Davis, Knowlton).

**EUROPEAN APPLE SAWFLY** (*Hoplocampa testudinea*) - CONNECTICUT - Larvae fully grown at New Haven, New Haven County. (Savos, June 23).

SPIDER MITES - SOUTH CAROLINA - Infestations severe and widespread on peach by June 19. (Ferree). MASSACHUSETTS - Panonychus ulmi (European red mite) adults 4 per 100 leaves on untreated apple trees in Hampshire County. (Jensen). MAINE - P. ulmi 3-15 per leaf on untreated trees of Red and Golden Delicious or McIntosh apples at Monmouth, Kennebec County. (Boulanger). MICHIGAN - P. ulmi increasing in many orchards statewide. Recent heat wave accelerated development and caused some overlap of generations. All stages present, but eggs in majority. (Thompson, June 22).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Light on Val Verde County pecans. (Neeb, Tatum).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - First-generation larvae emerged in Kinney County. (Neeb).

BLACK-MARGINED APHID (Monellia costalis) - MISSISSIPPI - Declining on Oktibbeha County pecans. (Sartor).

#### CITRUS

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy only in nurseries in Yuma County. (Ariz. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Immatures on 300 young grapefruit trees in nursery near Springhead, Hillsborough County. (Vaughan).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Buildup heavy in spots in some Yuma County groves. Treatment needed. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Buildup heavy in groves in Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

GRAPE MEALYBUG (Pseudococcus maritimus) - NEW YORK - Severe in Concord grape block near Penn Yan, Yates County. (N.Y. Wkly. Rpt., June 22).

A WEEVIL (Ampelogypter ater) - NEW YORK - Damage appears more prevalent than usual on grapes in Monroe and Orleans Counties. (N.Y. Wkly. Rpt., June 22).

GRAPE FLEA BEETLE (Altica chalybea) - NEW YORK - Very little adult damage. Larvae fed on grape leaves and clusters in several vineyards in Monroe and Orleans Counties past 2 weeks. (N.Y. Wkly. Rpt., June 22).

#### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Damage moderate to heavy on evergreens in several areas. Also damaging cypress, oaks, and raintree in Payne County. (Okla. Coop. Sur.). KANSAS - Still hatching in Riley County. (Thompson).

#### FOREST AND SHADE TREES

AN OLETHREUTID MOTH (Zeiraphera vancouverana) - CALIFORNIA - Larvae collected at Big Lagoon, Humboldt County, by R.H. Hunt May 15, 1970. Reared to adults. Determined by M. Gardner and W. Bauer. This is a new State record. The 0.25-inch larvae feed externally on growing tips of Sitka spruce (Picea sitchensis). Larvae work under bud scales which form a terminal cap which remains in place causing new needles to balloon. New growth develops somewhat normally, but some webbing causes bunching of several needles to stand out along new shoot. Later needle

shattering causes tree to have "ratty" appearance. Has not infested other spruce species so far. Unpublished records by P. Orr in Oregon indicate species present in Sitka spruce stands along Oregon coast. Moth described from Vancouver Island, British Columbia. (Cal. Coop. Rpt.).

OLETHREUTID MOTHS - IDAHO - Taniva albolineana (spruce needle miner) adults emerged June 16 on blue spruce south of Preston, Franklin County. (Tovey, Sutherland). NEBRASKA - Rhyacionia frustrana bushnelli heavy in commercial planting in Madison County. Damaged 25-70 percent of laterals on 4-year-old Austrian and Scotch pines. Adults emerged June 20 from caged tips. (Roselle). OHIO - R. frustrana (Nantucket pine tip moth) larvae in tips of red pine in Washington County. (Ehlers). NEW HAMPSHIRE - Petrova comstockiana (pitch twig moth) injured Scotch pine in Christmas tree plantation in Rockingham County. (Conklin).

TORTRICID MOTHS (Choristoneura spp.) - WISCONSIN - C. pinus (jack-pine budworm) light to moderate in central Juneau County except near New Miner where defoliation heavy for third year. Pupae and sixth instars present June 19. Fifth and sixth instars in Polk County June 17. Pupation began June 23 in Douglas County. (Wis. Ins. Sur.). MAINE - C. fumiferana (spruce budworm) spray largely completed in Aroostook County. (Boulanger).

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Damage heavy on terminals of Scotch pine in some Adams County Christmas tree plantations. About 30 percent of tips dying June 22 in 1 site. (Wis. Ins. Sur.).

BALSAM GALL MIDGE (Dasineura balsamicola) - MAINE - Appeared concentrated in Hancock County and in Enfield and Greenfield area of Penobscot County. Infestation levels much less than 20-30 percent at Enfield and Greenfield. Spring emergence in Hancock County showed general decline. Scattered, endemic infestations occasionally apparent on roadside fir stands at Greenfield. Several species of hymenopterous parasites probably responsible for much of general decline. (Boulanger).

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - Defoliation moderate in white spruce plantations; common on Colorado spruce. (Minn. Ins. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - RHODE ISLAND - Covered needles of entire trees in Washington County. (Field, June 18).

PINE SPITTLEBUG (Aphrophora parallela) - WISCONSIN - Adults emerged June 19 in Juneau County. Numbers heavy. (Wis. Ins. Sur.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MICHIGAN - Crawlers active in Benzie County, seems early. (Wallner, June 22).

FOREST TENT CATERPILLAR (Malacosoma disstria) - NORTH DAKOTA - Defoliation at Fort Totten, Benson County, not so severe as in 1969. Defoliation up to 25 percent in main area of infestation and up to 90 percent in several small scattered pockets outside main area. Some larvae almost full grown but feeding expected to continue for 7 days. Mortality due to weather, parasites, and diseases probably reduced numbers and defoliation. (Brandvik et al.). MINNESOTA - Mostly prepupae and pupae at International Falls, Koochiching County. Heavy defoliation area extends 7 miles southwest of Littlefork, an 8-mile extension from 1969. (Minn. Pest Rpt.). MICHIGAN - Larvae seeking pupation sites. Infestation in northwest Lower Peninsula not so severe in 1970; little defoliation reported. (Wallner, June 22). WEST VIRGINIA - Adult in blacklight trap June 17 in Monroe County, adult June 12 in Nicholas County, and 52 adults June 6-12 in Monongalia County for new county records. Adults emerged in Marshall, Wetzel, and Tyler Counties. Light trap counts high and defoliation heavy on oak and maple. Blacklight catches by county: Wetzel 724 June 16; Tyler 1,686 June 13; and Ritchie 50 on June 19. (W. Va. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - PENNSYLVANIA - New egg masses numerous on wild cherry in Centre County. (Gesell).

SADDLED PROMINENT (Heterocampa guttivitta) - MICHIGAN - Early second instars still skeletonizing lower leaf surfaces of maple, birch, and elm. Severe in Benzie and Manistee Counties in 1969, infestation area expected to enlarge this year. (Wallner, June 22). NEW HAMPSHIRE - Hatch nearly completed in east-central area. Two second instars in Carroll County. Trapped 1,051 adults June 18-19 in black-light traps at Ossipee, Carroll County. Also trapped 359 adults of the parasite Cratichneumon sblatus (an ichneumon wasp). (Mason, Morse).

BOXELDER LEAF ROLLER (Gracillaria negundella) - UTAH - Very damaging throughout Salt Lake County and in parts of Cache, Davis, Box Elder, and Weber Counties. Some larvae fully grown and spun down from foliage past 10 days. (Knowlton, Burningham).

MIMOSA WEBWORM (Homadaula anisocentra) - OKLAHOMA - Damage moderate on many mimosa and honeylocust trees at Stillwater, Payne County. Some first-generation pupae. (Okla. Coop. Sur.). KANSAS - In late larval instar in Riley County. (Thompson). TENNESSEE - Damage increased on mimosa trees statewide. (Gordon). ILLINOIS - Feeding on mimosa and honeylocust and constructing web nests. (Sur. Bull.). OHIO - First of season on black locust in Washington County, and on honeylocust in Franklin County. Numbers light. (Cunningham).

FALL WEBWORM (Hyphantria cunea) - KANSAS - Damage moderate on mulberry, ash, and walnut trees. (Gates). OHIO - Infested elm, red gum, redbud, and black locust trees in Ross, Washington, Athens, Jackson, and Vinton Counties. (Schaller, Ehlers). WEST VIRGINIA - Larvae and webs heavy on elm in Kanawha and Harrison Counties June 18. (W. Va. Ins. Sur.).

A NOCTUID MOTH (Enargia decolor) - MINNESOTA - Defoliation of aspen moderate in widely scattered spots and light generally. In Aitkin and southeast Itasca Counties last week and now in Koochiching and Beltrami Counties. (Minn. Pest Rpt.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Early instars on elms at Caliente, Lincoln County. Development behind normal due to cool, wet spring. (Zoller). UTAH - Larvae appeared at Kanab, Kane County; Moab, Grand County; and in Salt Lake County. (Knowlton, Burningham). OKLAHOMA - First-generation damage moderate to heavy on Siberian elm in most areas. (Okla. Coop. Sur.). KANSAS - Second-generation adults emerging but not laying eggs in Riley County. (Thompson). MISSOURI - Pupation completed in south area. Few new adults in southeast area. (Hanning). OHIO - Second-generation adults infested Chinese elm in Jackson County. (Ehlers).

PERIODICAL CICADAS (Magicicada spp.) - MARYLAND - M. septendecula still active in Prince Georges, Anne Arundel, Baltimore, Harford, and Cecil Counties. Singing and egg laying confined to small heavily wooded areas. M. septendecim still active in Frederick and Washington Counties in mountain timberlands. Damage due to M. septendecim becoming more evident in counties east of Frederick County, although this species died out 2 weeks ago. (U. Md., Ent. Dept.).

A CICADA (Okanagana rimosa) - NEW HAMPSHIRE - Adults emerging and numerous on scrub oak and pitch pine at Ossipee, Carroll County. (Morse, Mason).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - MICHIGAN - Heavy statewide. Crawler emergence beginning at Lansing, Ingham County. (Wallner, June 22).

SAWFLIES - NEW HAMPSHIRE - Pristiphora geniculata (mountain-ash sawfly) larvae stripped native trees in Strafford County. (Conklin). MAINE - Fenusa pusilla (birch leaf miner) damage appearing in central area. (Boulanger).



## MAN AND ANIMALS

**SCREW-WORM (*Cochliomyia hominivorax*)** - Total of 11 cases reported in U.S. June 21-27 as follows: TEXAS - Brewster 1, Terrell 4, Uvalde 1; ARIZONA - Pima 4, Santa Cruz 1. Total of 52 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 1, Sonora 25, Chihuahua 23, Nuevo Leon 1, Tamaulipas 2. Total of 20 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 47,918,000; New Mexico 1,760,000; Arizona 12,120,000; California 360,000; Mexico 92,930,000. In CEIR 20(26):430 - Sterile releases: Add California 360,000; change Mexico to read 109,060,000. (Anim. Health Div.).

**HORN FLY (*Haematobia irritans*)** - MISSISSIPPI - Averaged 70 per head on 100 animals in Pike County and 500 per head on 75 animals in Yazoo County. (Sartor). TEXAS - Heavy on livestock in Wichita and Stephens Counties. Light in Ward, Pecos, and Crockett Counties. (Boring, Neeb). OKLAHOMA - Averaged 1,500 per head on steers and 2,000 per head on cows in Payne County. Heavy in Garvin County. Moderate in Mayes, Nowata, and Cleveland Counties. (Okla. Coop. Sur.). KANSAS - Reached 100-150 per head on unsprayed range animals. (Gates). MISSOURI - Ranged 10-175 (averaged 66.9) and 80-1,100 (averaged 354.2) per head in 2 herds of untreated cattle in Boone County. (Thomas). WISCONSIN - Annoyance light to moderate to cattle in most counties. (Wis. Ins. Sur.). NEBRASKA - Averaged 200-400 per head on 3 Lancaster County herds. (Campbell, Keith). WYOMING - Ranged 20-25 per head of cattle near Lingle, Goshen County. (Lloyd).

**FACE FLY (*Musca autumnalis*)** - CALIFORNIA - Heavy on horse faces in Contra Costa County for a new county record. Collected by W. Johnson June 24. Heavy on 3 cows and 2 calves at Martinez. Severe pinkeye in both calves. Numbers more severe than in past 2 years in Humboldt County. Averaged 60-80 per face on dairy cattle at Ferndale. Averaged 50 per face, up to 500 on backs of beef cattle in Butler Valley. These animals sprayed 2-3 days earlier. (Cal. Coop. Rpt.). SOUTH DAKOTA - Ranged 1-13 (averaged 5.8) per face on 10 head near Big Sioux River in Moody County. (Kessler). NEBRASKA - Averaged about 5 per head in herd near Davey and 16 per face in herd in Lancaster County. (Jones, Hermanussen, June 18). Still increasing in east and southeast. Ranged 3-35 per face on 3 range herds in Lancaster County June 25. (Campbell, Keith). MISSOURI - Ranged 0-11 (averaged 2.4) and 0-16 (averaged 5.1) per head in 2 herds of untreated cattle in Boone County. (Thomas). MISSISSIPPI - Averaged 12 per face on 100 cattle in Monroe County. (Sartor). WISCONSIN - Annoyance to cattle light to moderate in most counties. (Wis. Ins. Sur.). VERMONT - Increasing. (Nielsen, June 24).

**HOUSE FLY (*Musca domestica*)** - CALIFORNIA - This and *Fannia canicularis* (little house fly) unusually abundant and difficult to control in many locations. Heavy in areas where livestock housed in spite of repeated treatments. (Cal. Coop. Rpt.).

**STABLE FLY (*Stomoxys calcitrans*)** - WISCONSIN - Annoyance to cattle moderate or severe in Columbia, Chippewa, Clark, and Calumet Counties. Annoyance elsewhere slight. Spraying underway in most counties. (Wis. Ins. Sur.). OKLAHOMA - Heavy on dairy cattle in Noble County. (Okla. Coop. Sur.). MARYLAND - Heaviest infestation at Buckeystown, Frederick County, ranged 75-100 per head on 45 Holsteins. (U. Md., Ent. Dept.).

**MOSQUITOES** - CALIFORNIA - Cool nights kept mosquitoes somewhat under control. Buildup begun. Control by mosquito abatement districts good so far but hampered in mosquito fish planting operations by late treatment of rice for insect pests and tadpole shrimps. Where there is rice and no abatement districts, buildup noticeable and mosquitoes drifting into populated areas. (Cal. Coop. Rpt.). UTAH - Extremely troublesome at Bluff, San Juan County, and Moab, Grand County. (Knowlton, Jones). Limited outdoor activities in residential area of Logan and other communities in Cache County. Very troublesome in mountains west of Woodruff,

Rich County. (Knowlton). Very numerous and annoying at Delta, Millard County. (Davis). WYOMING - Heavy and annoying man and animals in Fremont, Washakie, Hot Springs, Big Horn and Park Counties. Heavy in Albany County. (Parshall). KANSAS - Annoying in northwest and west-central districts. (Simpson). MINNESOTA - Aedes vexans 93.7 percent of 19,115 females in 16 light traps at Minneapolis and St. Paul week ending June 19. A. vexans 72 percent of 333 larval collections; Culex territans, C. restuans, and C. tarsalis in significant numbers. A. vexans dominant in evening and daytime bite collections; A. trivittatus, A. cinereus, and A. fitchii present. Total of 68 Coquilletidia perturbans in 82 daytime collections. Decline significant in light trap June 24. Coquilletidia emerged, will increase next 2 weeks, and should peak July 10-14. Present brood of mosquitoes passed middle of life span. (Minn. Pest Rpt.). WISCONSIN - Mosquitoes still heavy generally. In some wooded lowlands biting severe to unbearable all day. A. cinereus dominant during day near Mecan River in Waushara County and Mud Lake in Columbia County. A. vexans, A. trivittatus, and A. sollicitans present. Annoyance to cattle moderate to severe in all counties. (Wis. Ins. Sur.). VERMONT - Mosquitoes heavy on cattle and horses. (Nielsen).

DEER FLIES - FLORIDA - Numerous and annoying in and around woods and citrus groves of Highlands County. (Thomas). OKLAHOMA - Chrysops spp. averaged 2 per horse head in Payne County. Heavy on Noble County cattle. (Okla. Coop. Sur.). WISCONSIN - Deer flies severely annoying in localized areas. (Wis. Ins. Sur.). WYOMING - Numerous and annoying man and animals in Fremont, Hot Springs, Washakie, Big Horn, and Park Counties. (Parshall).

HORSE FLIES - WISCONSIN - Annoyance severe in localized areas. (Wis. Ins. Sur.). WYOMING - Numerous and annoying man and animals in Fremont, Washakie, Hot Springs, Big Horn, and Park Counties. (Parshall).

SHEEP KED (Melophagus ovinus) - TEXAS - Light to moderate on Pecos County sheep. (Neeb).

AMERICAN DOG TICK (Dermacentor variabilis) - WISCONSIN - Annoyance declined in north counties. Annoyance significant in parts of Dunn and Waupaca Counties. (Wis. Ins. Sur.). RHODE ISLAND - Prevalent in many areas of State June 5-19. (Relli, Field).

#### HOUSEHOLDS AND STRUCTURES

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Collected in home at Columbus Junction, Louisa County. This is a new county record. (Iowa Ins. Sur.).

#### BENEFICIAL INSECTS

LADY BEETLES - UTAH - Adalia bipunctata (two-spotted lady beetle) larvae and adults and syrphid fly maggots numerous, controlling a Cinara sp. outbreak on young ornamental junipers at Logan, Cache County. (Knowlton). WYOMING - Lady beetle adults averaged 4 per 10 sweeps of alfalfa in Fremont, Hot Springs, Washakie, Big Horn, and Park Counties. (Parshall). MAINE - Mostly Hippodamia tredecimpunctata tibialis (thirteen-spotted lady beetle) numerous in grain fields. Eggs abundant; larvae few. (Boulanger). TEXAS - H. convergens (convergent lady beetle) averaged 15 per tree on Dixie Red peaches in Eastland County. (Morrison).

HETEROPTEROUS PREDATORS - FLORIDA - Orius insidiosus (a flower bug) adults 43, Geocoris punctipes (a big-eyed bug) adults 8 and nymphs 32, and Nabis spp. (damselfly nymphs) 12 and adults 19 in 100 sweeps of 12-inch alfalfa at Gainesville, Alachua County. (Mead). ARKANSAS - O. insidiosus principal predator in grain sorghum heads in southwest area. Adults as high as 13 with fewer larvae per head. (Boyer, Jones).

ALFALFA WEEVIL PARASITES - UTAH - Odynerus dilectus (a vespid wasp) colony at North Logan, Cache County, storing only large larvae in its cells in soil. Wasps working since June 13. (Bohart). NEW YORK - Bathyplectes curculionis (an ichneumon wasp) and Microctonus aethiops (a braconid) released June 19 in Lewis, St. Lawrence, Franklin, and Clinton Counties. Additional releases in Oswego and Jefferson Counties June 22. (N.Y. Wkly. Rpt.).

A MYMARID WASP (Anaphes flavipes) - MICHIGAN - This egg parasite of cereal leaf beetle recovered in more locations and in larger numbers than in 1969. Recovered in 23 of 24 townships in 4 counties to date. Parasitism averaged 33.8 percent. (Maltby, June 22).

ALFALFA LEAFCUTTER BEE (Megachile rotundata) - UTAH - Development slow as alfalfa seed crop approaches peak bloom at Delta, Millard County. About 10 percent of adults out of nests June 24. (Davis).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Overwintered weevils declined on wing traps. None on traps in Andrews County since June 5. Negative to date on traps in Dawson and Gaines Counties. (Rummel, Clymer). For Boll Weevil in other areas see page 444.

CEREAL LEAF BEETLE (Oulema melanopus) - Following new county records determined by R.E. White. KENTUCKY - Larvae light on oats and wheat on State highway at Hazard, Perry County. Collected by D. Reckner May 27. ILLINOIS - Adults light on oats on farm at Toledo, Cumberland County. Collected by C. Compton June 17. Adults light on oats on farm at Gila, Jasper County. Collected by R. Guillermo June 17. Larvae light on oats on farm at Woodridge, Du Page County. Collected by W.L. Myers June 22. (PPD). OHIO - Adults beginning to emerge on oats in Defiance County. Damaged average of 50 percent of oats crop. (Roach). Adults 10 per corn plant in Muskingum and Licking Counties. (Taylor, Rice). MICHIGAN - Still damaging grains in parts of central and north areas, but activity mostly ended in southern area. (Ruppel, June 22).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - On one leaf on tree 0.3 mile south of border in Matamoros. Delimiting survey continues. (PPD).

GRASS BUGS - OREGON - Many Labops hesperius adults dying in National Forest reseeded area in Baker County; declined by about 50 percent. Current feeding injury on crested wheatgrass in about 2,000 acres of drier rangeland in Baker County. (Kamm). IDAHO - Labops sp. infested 4,000 acres at Long Tom, Elmore County. Controls planned June 19. (Edwards, Homan). UTAH - L. hesperius damaged grasses over large areas of Cedar Mountain, Iron County. (Roberts, Sjöblom). WYOMING - Irbisia sp. and Labops sp. damage light on intermediate wheatgrass in field near Newcastle, Weston County. (Spackman). SOUTH DAKOTA - Labops spp., primarily L. hesperius, collected in 15 counties past 2 weeks. Collected in Sully, Potter, Dewey, and Ziebach Counties this period. No economic damage in crested wheatgrass. (Zimmerman).

GRASSHOPPERS - WASHINGTON - Camnula pellucida and Melanoplus sanguinipes main species infesting 16,000 acres of private and State rangeland in Pine Creek drainage, Okanogan County. Development first and fourth instar. Exceed 50 per square yard in most areas. Economic on Colville Indian Reservation, Okanogan County, and in range areas of Stevens and Asotin Counties. (Jackson, Nonini). OREGON - Probably M. sanguinipes damage in residential Medford area, Jackson County. Mostly third and fourth instars. (Berry, June 19). NEVADA - M. sanguinipes fourth instars up to 4 per square yard in several Reese River Valley, Lander County, alfalfa seed fields. (Lundahl, Peters). UTAH - Second and third instars common but 1-2 per 10 sweeps at North Logan and Providence, Cache County. (Knowlton). Aulocara ellioti adults heavy in outbreak area northeast of

Gunnison, Sanpete County. (Thornley). WYOMING - Unspecified species infested 500 acres near Thermopolis, Hot Springs County. Ranged 3-150 per square yard June 8-12. (Hardy). ARIZONA - Treatment for *Aulocara elliotti*, *Melanoplus cuneatus*, and *M. sanguinipes* on 58,752 acres of rangeland on San Carlos Indian Reservation. (Ariz. Coop. Sur.). NEW MEXICO - Grasshopper nymphs averaged 6-15 per 25 sweeps of San Juan County alfalfa. (Heninger). TEXAS - Heavy on leaves and fruit of peach trees at Giddings, Lee County. (Spivey). OKLAHOMA - Several species damaged cotton, sorghum, gardens, and range grasses in several southwest and south-central counties. Heavy on Bermuda grass, alfalfa, and sorghum in Coal County. (Okla. Coop. Sur.). KANSAS - Early instars light in all alfalfa checked in northeast district. (Iselin). Third and fourth instars 10 per square yard of alfalfa in Comanche County. Similar levels in adjoining counties. (Gates). NEBRASKA - *Melanoplus* spp. heavy locally and scattered across State. Nymphs 25-30 per square yard in field margins and roadside ditches at several locations in Jefferson, Thayer, Nuckolls, Webster, Franklin, Harlan, Lincoln, and Frontier Counties. (Hohnholt, June 16-18). Nymphs heavy, 25-30 per square yard, in Saunders and Lancaster Counties. (Walstrom, Keith, June 19). NEBRASKA - *Melanoplus* spp. numerous in field margins and pastures in southeast quarter of State. Some counts exceed 30 per square yard in pastures and ranged 15-50 per square yard in field margins. Controls underway. (McClure, Roselle). MINNESOTA - Light, averaged 5 per square yard, in south half of northwest district. Ninety percent in first instar and primarily in field margins and ditchbanks. All probably *M. femurrubrum*. Ranged 3-4 per square yard in a few southwest district fields. Hatching in Blue Earth County with 15-20 per square yard in alfalfa field. (Minn. Pest Rpt.).

GYPSY MOTH (*Porthetria dispar*) - NEW JERSEY - Larvae as far south in Passaic County as Little Falls. Defoliation in Waldwick, Ramsey, Tenafly, and several areas along Palisades Interstate Parkway in Bergen County. Damage at Summit and Berkeley Heights, Union County. (Ins.-Dis. Newsltr.). CONNECTICUT - Larvae still persist in many parts of State, pupation started; most larvae should be gone in about 7 days. Damage very severe in many areas. (Savos, June 24). VERMONT - Larvae numerous on weeping willow. (Nielsen).

JAPANESE BEETLE (*Popillia japonica*) - ALABAMA - Adults heavy in trap in residential area at Anniston, Calhoun County, for a new county record. Collected by E. Ward June 9. Determined by V.H. Owens; confirmed by R.D. Gordon. (PPD). See CEIR 20(25):412. SOUTH CAROLINA - First report in Newberry County June 19. (Busby). Some emergence in upper Piedmont although weather dry. Damage increased in Richland County. (Bailey). VIRGINIA - Adults 90 per 100 sweeps of wheat in dough stage in Fluvanna County field. Adults 1 per sweep of oats at location in Dinwiddie County. Recent rain seemed to have assisted emergence. Adults 100 per 100 sweeps. (Allen, June 17). Medium on ornamentals and flowering trees in Prince Edward County; as many as 50 adults per small flowering tree. (Perry). Adults increased in Montgomery County and defoliated unsprayed grapevines. (Allen). WEST VIRGINIA - Adults emerged in Cabell, Wayne, Putnam, Roane, Mason, Jackson, Harrison, and Braxton Counties. Adult feeding light, some damage to beans and roses June 18. Current damage light to corn leaves in most areas, one adult per plant in Mercer County. (W. Va. Ins. Sur.).

A LEAFHOPPER (*Idona minuenda*) - CALIFORNIA - Delimiting survey conducted in Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. Found on Brazil peppertree at Pasadena, Los Angeles County; at La Habra, Orange County; at Corona, Riverside County; and at Chula Vista, San Diego County. Determined by R.F. Wilkey. Orange, Riverside, and San Diego are new county records. Careful search on avocado and grapefruit at Pomona, Pasadena, La Habra, and Corona negative. (Cal. Coop. Rpt.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - IDAHO - Outbreak in home garden at Boise, Ada County, June 16, treated. (Fisher).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moth releases June 18-25. CALIFORNIA - Coachella Valley 3,192,000, total to date 53,684,250; Kern County 1,200,000, total to date 12,371,700. ARIZONA - Redington, Pima County, 22,500; total to date 517,300; total to date in CEIR 20(26):434 should read 494,800. Trapped 6 native moths at Redington; 6 sterile moths caught in release field and 6 in trap lines. Sterile moths caught as far as 30 miles away at Mammoth, Pinal County. During June 11-23, 756 rosetted blooms found in Coachella, double number of previous week. (PPD). Larvae less than 10 per 100 blooms in average fields, 3-4 per 100 blooms in some fields; 25 per 100 blooms in field in Yuma County. Averaged 15 larvae per 100 blooms in 2 fields at Gilbert, Maricopa County. (Ariz. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Hatch incomplete June 22-26. Larvae ranged from recently hatched to second instar. (N.M. Coop. Rpt.).

#### HAWAII INSECT REPORT

Turf, Pasture - Adults of a GRASS WEBWORM (Herpetogramma licarsisalis) moderate to heavy on fairways at golf courses in windward Oahu and mixed grass borders in Hawaiian Memorial Park at Kaneohe, Oahu. Larvae generally light in park; moderate to heavy in spots, larvae averaged 11 per square foot. (Kawamura).

General Vegetables - All stages of SOUTHERN GREEN STINK BUG (Nezara viridula) light in 0.25 acre of snap beans at Haiku, Maui; 16 of 24 adults recovered bore eggs of a TACHINA FLY (Trichopoda sp.). BEAN FLY (Melanagromyza phaseoli) adults and larval mines light in small planting of yardlongbeans and snap beans at Waikapu, Maui; infested less than 10 percent of leaf petioles. (Miyahira). LEAF MINER FLIES (Liriomyza spp.) and BEET ARMYWORM (Spodoptera exigua) damaged half of leaves in 0.75 acre of green onions at Waimanalo, Oahu. (Kawamura).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotés indomita) moderate to heavy under old bark of kiawe trees (Prosopis pallida) at Kawaihae and Kona, Hawaii. Light trap collections on Oahu indicate decline from high in May. Larvae heavy at Kihei, Maui. (Yoshioka et al.). Nymphs and adults of a LEAFHOPPER (Opsius stactogalus) 50-75 per sweep on hedge planting of Tamarix sp. trees at Ewa, Oahu. (Funasaki).

Man and Animals - VEXANS MOSQUITO (Aedes vexans nocturnus) numbered 594 and SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) 1,691 in 56 light traps on Oahu in May. Aedes 294 at Punahoa, Culex up to 255 at Waipahu. (Mosq. Contr. Br., Dept. of Health).

Miscellaneous Insects - An ADELGID (Pineus pini) light to moderate on additional Pinus species: P. taeda, P. patula, and P. pinea at Waikii, Hawaii. (Yoshioka). Adults of a GRASSHOPPER (Oedaleus abruptus) on grassy areas at Ewa Beach Park, Oahu. Previously only at Barbers Point and areas immediately surrounding original point of detection at Hickam Air Force Base, Oahu. (Olson).

#### DETECTION

New State Record - An OLETHREUTID MOTH (Zeiraphera vancouverana) CALIFORNIA - Humboldt County (p. 448).

New County Records - ALFALFA WEEVIL (Hypera postica) NORTH DAKOTA - Bottineau, Rollette; TEXAS - De Witt, Lavaca, Mills (p. 442). BROWN SPIDER BEETLE (Ptinus clavipes) IOWA - Louisa (p. 452). CEREAL LEAF BEETLE (Oulema melanopus) ILLINOIS - Cumberland, Du Page, Jasper; KENTUCKY - Perry (p. 453). FACE FLY (Musca autumnalis) CALIFORNIA - Contra Costa (p. 451). FOREST TENT CATERPILLAR (Malacosoma disstria) WEST VIRGINIA - Monongalia, Monroe, Nicholas (p. 449). JAPANESE BEETLE (Popillia japonica) ALABAMA - Calhoun (p. 454). A JAPANESE WEEVIL (Calomycterus setarius) IOWA - Woodbury (p. 447). A LEAFHOPPER (Idona minuenta) CALIFORNIA - Orange, Riverside, San Diego (p. 454). MEADOW SPITTLEBUG (Philaenus spumarius) MISSOURI - Mississippi (p. 443).

## LIGHT TRAP COLLECTIONS

| State<br>Locality                   | Date  | Time | Temp.<br>Type F. | Humidity<br>% | Wind<br>Type | Direction<br>of<br>Wind | Moon<br>Phase | Phase<br>of<br>Moon | Type of<br>Trap | No. of<br>Traps | Spiders (No.) |           | Tardigrades (No.) |             | Arachnids (No.) |            | Insects (No.) |       | Other<br>(No.) | Total<br>(No.) |       |         |
|-------------------------------------|-------|------|------------------|---------------|--------------|-------------------------|---------------|---------------------|-----------------|-----------------|---------------|-----------|-------------------|-------------|-----------------|------------|---------------|-------|----------------|----------------|-------|---------|
|                                     |       |      |                  |               |              |                         |               |                     |                 |                 | Spiders       | Arachnids | Collembola        | Springtails | Isopods         | Centipedes | Caterpillars  | Moths |                |                | Flies | Beetles |
| FLORIDA<br>Gainesville 6/19-25      |       |      |                  |               |              |                         |               |                     | BL              | 1               | 2             | 10        | 1                 | 9           |                 |            |               |       |                |                |       |         |
| MINNESOTA<br>Crookston 6/17-23      |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Fergus Falls 6/17-23                |       |      |                  |               |              |                         |               |                     | BL              |                 |               | 4         |                   |             |                 |            |               |       |                |                |       |         |
| Shakopee 6/17-23                    |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Worthington 6/17-23                 |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |
| MISSISSIPPI<br>Stoneville 6/19-25   | 89-97 | 0.71 |                  |               |              |                         |               |                     | 2BL             | 2               | 14            | 24        | 3                 | 56          |                 |            |               |       |                |                |       |         |
| MISSOURI (County)<br>Greene 6/18-24 |       |      |                  |               |              |                         |               |                     | BL              | 6               |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Platte 6/22-24                      |       |      |                  |               |              |                         |               |                     | BL              | 12              |               |           |                   |             |                 |            |               |       |                |                |       |         |
| NEBRASKA<br>Lincoln 6/20-26         |       |      |                  |               |              |                         |               |                     | 53              | 5               | 23            |           |                   |             |                 |            |               |       |                |                |       |         |
| NEW HAMPSHIRE<br>Durham 6/23        |       |      |                  |               |              |                         |               |                     | BL              | 1               |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Lee 6/21                            |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |
| NEW JERSEY<br>Cedarville 6/17-23    |       |      |                  |               |              |                         |               |                     | BL              | 7               |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Boro 6/17-25                        |       |      |                  |               |              |                         |               |                     | BL              | 20              |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Plainsboro 6/17-23                  |       |      |                  |               |              |                         |               |                     | BL              | 16              |               |           |                   |             |                 |            |               |       |                |                |       |         |
| NORTH DAKOTA<br>Bottineau 6/17, 22  |       |      |                  |               |              |                         |               |                     | BL              | 18              |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Cavalier 6/22, 24                   |       |      |                  |               |              |                         |               |                     | BL              | 6               |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Fargo 6/23-24                       |       |      |                  |               |              |                         |               |                     | BL              | 6               |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Sentinel Butte 6/20                 |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |
| OHIO<br>Reynoldsburg 6/18-24        |       |      |                  |               |              |                         |               |                     | BL              | 9               |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Wooster 6/18-24                     |       |      |                  |               |              |                         |               |                     | BL              | 16              |               |           |                   |             |                 |            |               |       |                |                |       |         |
| TEXAS<br>Waco 6/19-25               | 74-93 |      |                  |               |              |                         |               |                     | 68              |                 | 72            | 3         | 36                |             |                 |            |               |       |                |                |       |         |
| WISCONSIN<br>Arlington 6/17-22      |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Hancock 6/17-22                     |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |
| Platteville 6/17-22                 |       |      |                  |               |              |                         |               |                     | BL              |                 |               |           |                   |             |                 |            |               |       |                |                |       |         |



1969 CEREAL LEAF BEETLE INFESTATION AND OATS CROP LOSS SURVEY 1/

M. Curtis Wilson 2/, Robert E. Treece 3/

and Richard E. Shade 2/

The cereal leaf beetle (*Oulema melanopus* (L.)) survey, designed to estimate larval populations and loss to the oats crop from foliar feeding damage, was conducted for the third season in 1969. Previous reports have been published by Wilson and Treece (1968), and Wilson, Treece, and Shade (1969). In the last report (CEIR 19(23):409-417, 1969), it was pointed out that the cereal leaf beetle had not only spread rapidly, but was building up populations at a massive rate, particularly in eastern areas 300 to 500 miles distant from the focal point of initial infestation. An expanded survey of 222 counties (Illinois 12, Indiana 59, Michigan 58, Ohio 65, Pennsylvania 16, West Virginia 5, Wisconsin 4, and Ontario 3) confirmed this in 1969.

Data from this survey are tabulated in four tables. Table 1 summarizes losses from the cereal leaf beetle from 1967 through 1969. Table 2 shows a breakdown of losses by State districts. Districting is basically the same as that used by the Statistical Reporting Service. Some districts, however, have been subdivided into A and B areas according to infestation levels. Where counties that occur in the district are not listed, they have been excluded because cereal leaf beetle populations were generally too low to be of economic significance. In Table 3, a comparison of infestation estimates for each of the three years the survey was conducted is tabulated. Some general infestation comparisons based on State averages are shown in Table 4.

Surveys continue to reveal that ecological conditions have been more favorable for cereal leaf beetle buildup from north-central Indiana eastward than they have been in a westward direction from the same point (La Porte County). This is apparent in all tables. Losses occurred in Pennsylvania (Tables 1 and 2) after only two years of known infestation, while after six years in western Indiana and eastern Illinois, there are still no damaging populations.

The comparisons in Table 4 show that population levels east and southeast of La Porte County in north-central Indiana are comparable to the high populations of Michigan, but south and west they appear static at low numbers. On the otherhand, in an eastward direction, five counties in West Virginia attained populations one year after detection equivalent to those found in western Indiana after six years. In western Pennsylvania counties, after two years, populations were threefold those in western Indiana. Comparative infestation levels are shown on the map on page 468.

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1/ The following agencies cooperated to complete this survey: USDA, Plant Protection Division; Indiana State Entomologist's Office, Purdue University; Ohio Department of Agriculture, Ohio Agricultural Research and Development Center; Michigan State University; Pennsylvania Department of Agriculture, Pennsylvania State University; Wisconsin Department of Agriculture; and the University of West Virginia.

Estimates of oats acreage from which losses were calculated were obtained from the USDA Statistical Reporting Services of Indiana, Ohio, Michigan, and Pennsylvania. The value of oats was estimated at 59¢ per bushel by the Statistical Reporting Service Office at Lafayette, Indiana.

2/ Department of Entomology, Purdue University, Lafayette, Indiana. Agricultural Experiment Station paper no. 4074.

3/ Department of Entomology, Ohio Agricultural Research and Development Center, Wooster, Ohio.

With the exception of Indiana, cereal leaf beetle infestations increased and losses were greater in all of the States that had previously suffered losses. In Indiana and Illinois there was a downward trend in populations. In Illinois and parts of western Indiana they were sufficiently low that even traces of damage were not detected by this survey as in previous years.

In contrast, conditions in an eastward direction from Indiana have been so favorable for the cereal leaf beetle that the loss in the oats yield increased 44 percent in 1969 over 1968. All population estimates are calculated from foliar feeding data and are based on consumption of approximately 20 percent of the foliage per larva per stem (Wilson et al, 1969). The index for loss of 3.17 bushels of oats per larva per stem infestation used in the 1968 report was also applied to the 1969 data.

#### Literature Cited

- (1) Wilson, M.C., and Treece, R.E. 1968. 1967 cereal leaf beetle infestation and oats crop loss survey. U.S. Dept. Agr. Coop. Econ. Insect Rpt. 18(17):343-348.
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- (3) Wilson, M.C., Treece, R.E., Shade, R.E., Day, K.M., and Stivers, R.K. 1969. Impact of cereal leaf beetle larvae on yields of oats. J. Econ. Ent. 62(3): 699-702.

Table 1.

Summary of Losses Due to Infestation by the Cereal Leaf Beetle  
from 1967 through 1969

| State        | Yield Loss in Bushels |                |                | Monetary Loss    |                  |                  |
|--------------|-----------------------|----------------|----------------|------------------|------------------|------------------|
|              | 1967                  | 1968           | 1969           | 1967             | 1968             | 1969             |
| Indiana      | 47,061                | 217,699        | 146,278        | \$ 30,588        | \$137,167        | \$ 86,305        |
| Michigan     | 70,072                | 211,022        | 277,204        | 45,548           | 132,944          | 163,550          |
| Ohio         | 0                     | 32,676         | 222,290        | 0                | 20,586           | 131,565          |
| Pennsylvania | 0                     | 0              | 16,434         | 0                | 0                | 9,696            |
| <b>Total</b> | <b>117,133</b>        | <b>461,397</b> | <b>662,904</b> | <b>\$ 76,136</b> | <b>\$290,717</b> | <b>\$391,527</b> |

Table 2.

Estimated 1969 Loss to Oats Due to Infestation by the Cereal Leaf Beetle

INDIANA

| Dis-<br>trict | Counties in District   | Infestation |                         | Losses       |                  |                 |
|---------------|--|-------------|-------------------------|--------------|------------------|-----------------|
|               |  | Percent     | Larvae Per<br>100 Stems | Per<br>Acre  | Total<br>Bushels | Monetary        |
| 1-A           | Lake, Porter, Newton,<br>Jasper, Starke, Pulaski,<br>Benton, White   | 11.9        | 4.7                     | 0.14         | 4,430            | \$ 2,561        |
| 1-B           | La Porte   | 72.0        | 56.0                    | 1.80         | 7,200            | 4,248           |
| 2-A           | St. Joseph, Elkhart<br>Marshall, Kosciusko   | 77.0        | 55.5                    | 1.80         | 39,420           | 23,258          |
| 2-B           | Fulton, Cass, Carroll,<br>Miami, Wabash  | 28.5        | 9.3                     | 0.29         | 7,192            | 4,243           |
| 3             | Lagrange, Steuben, Noble,<br>De Kalb, Whitley, Allen,<br>Huntington, Wells, Adams  | 62.6        | 21.9                    | 0.69         | 60,789           | 35,866          |
| 5-A           | Clinton, Howard, Grant,<br>Tipton, Madison, Hamilton,<br>Boone, Hendricks, Marion,<br>Hancock, Morgan, Johnson,<br>Shelby, Rush, Decatur,<br>Bartholomew | 10.6        | 6.5                     | 0.21         | 10,437           | 6,158           |
| 5-B           | Hendricks  | 40.0        | 32.0                    | 1.01         | 4,444            | 2,622           |
| 6             | Blackford, Jay, Delaware,<br>Randolph, Henry, Wayne,<br>Fayette, Union   | 26.6        | 7.7                     | 0.24         | 12,456           | 7,349           |
|               |  |             |                         | <b>Total</b> | <b>146,278</b>   | <b>\$86,305</b> |

Table 2 (cont.)

| Dis-<br>trict | Counties in District  | MICHIGAN |                         |          |                  |           |
|---------------|---|----------|-------------------------|----------|------------------|-----------|
|               |   | Percent  | Infestation             |          | Losses           |           |
|               |   |          | Larvae Per<br>100 Stems | Per Acre | Bushels<br>Total | Monetary  |
| 4             | Mason, Lake, Oceana,<br>Newaygo, Muskegon   | 77.5     | 12.0                    | 0.38     | 4,560            | \$ 2,690  |
| 5             | Osceola, Clare, Gladwin,<br>Mecosta, Isabella, Midland,<br>Montcalm, Gratiot                                    | 32.9     | 8.9                     | 0.28     | 10,434           | 6,156     |
| 6             | Saginaw   | 70.0     | 21.0                    | 0.67     | 6,660            | 3,929     |
| 7             | Ottawa, Kent, Allegan,<br>Van Buren, Kalamazoo,<br>Berrien, Cass  | 76.9     | 64.7                    | 2.05     | 102,550          | 60,505    |
| 8             | Ionia, Barry, Eaton,<br>Clinton, Shiawassee,<br>Ingham, Calhoun, Jack-<br>son, St. Joseph,<br>Branch, Hillsdale | 96.3     | 43.8                    | 1.39     | 144,352          | 85,168    |
| 9             | Genesee, Livingston,<br>Washtenaw, Lenawee,<br>Monroe   | 41.2     | 5.8                     | 0.18     | 8,648            | 5,102     |
|               |   |          |                         | Total    | 277,204          | \$163,550 |
| OHIO          |   |          |                         |          |                  |           |
| 1             | Williams, Fulton, Lucas<br>Defiance, Henry, Wood,<br>Paulding, Putnam, Han-<br>cock, Van Wert, Allen            | 43.2     | 6.6                     | 0.21     | 24,150           | 14,248    |
| 2             | Ottawa, Sandusky, Erie,<br>Seneca, Huron, Lorain,<br>Wyandot, Crawford, Rich-<br>land, Ashland                  | 61.8     | 13.1                    | 0.41     | 35,383           | 20,876    |
| 4             | Mercer, Auglaize, Darke,<br>Shelby, Miami, Hardin,<br>Logan, Champaign, Clark                                   | 52.7     | 17.8                    | 0.56     | 68,040           | 40,144    |
| 5             | Union, Madison, Fayette,<br>Marion, Delaware, Ross,<br>Franklin, Pickaway, Knox,<br>Morrow, Licking, Fairfield  | 42.7     | 27.1                    | 0.86     | 62,952           | 37,142    |
| 6             | Holmes, Coshocton, Tusca-<br>rawas, Carroll, Harrison,<br>Jefferson, Belmont                                    | 46.9     | 21.0                    | 0.66     | 21,120           | 12,461    |
| 7             | Preble, Montgomery, But-<br>ler, Greene, Warren, Clin-<br>ton, Hamilton, Clermont                               | 32.8     | 7.6                     | 0.24     | 5,280            | 3,115     |
| 8             | Highland  | 35.0     | 5.4                     | 0.17     | 1,445            | 853       |

(Ohio cont.)

Table 2 (cont.)

| Dis-<br>trict | Counties in District   | Infestation |                         | Losses   |         |           |
|---------------|--|-------------|-------------------------|----------|---------|-----------|
|               |  | Percent     | Larvae Per<br>100 Stems | Bushels  |         | Monetary  |
|               |  |             |                         | Per Acre | Total   |           |
| 9             | Perry, Hocking, Vinton,<br>Muskingum, Morgan, Noble,<br>Guernsey, Monroe, Meigs,<br>Athens, Washington | 37.8        | 10.3                    | 0.33     | 4,620   | 2,726     |
|               |  |             |                         | Total    | 222,990 | \$131,565 |

PENNSYLVANIA

|            |      |      |       |        |          |
|------------|------|------|-------|--------|----------|
| Crawford   | 35.0 | 10.9 | 0.35  | 6,055  | \$ 3,572 |
| Warren     | 20.5 | 4.2  | 0.13  | 520    | 307      |
| Beaver     | 87.0 | 61.0 | 1.93  | 6,562  | 3,872    |
| Fayette    | 15.0 | 4.2  | 0.13  | 897    | 529      |
| Washington | 20.5 | 7.7  | 0.24  | 2,400  | 1,416    |
|            |      |      | Total | 16,434 | \$ 9,696 |

Table 3.

Estimated Infestation of Oats by the Cereal Leaf Beetle Based on Larval Feeding Surveys, June 1967, 1968, and 1969

ILLINOIS

| County     | Percent Stems Infested |              |              | Larvae per 100 Stems |              |              |
|------------|------------------------|--------------|--------------|----------------------|--------------|--------------|
|            | Avg.<br>1967           | Avg.<br>1968 | Avg.<br>1969 | Avg.<br>1967         | Avg.<br>1968 | Avg.<br>1969 |
| Clark      | -                      | 0            | 0            | -                    | 0            | 0            |
| Cook       | -                      | 0.3          | -            | -                    | 0.02         | -            |
| De Kalb    | -                      | 0            | 0            | -                    | 0            | 0            |
| Grundy     | -                      | 0            | 0            | -                    | 0            | 0            |
| Iroquois   | 0.5                    | 0.3          | 0            | 0.01                 | 0.02         | 0            |
| Kankakee   | 0                      | 0.3          | 0            | 0                    | 0.02         | 0            |
| Lake       | -                      | 0            | 0            | -                    | 0            | 0            |
| La Salle   | -                      | 0            | -            | 0                    | 0            | -            |
| Livingston | -                      | 0            | 0            | -                    | 0            | 0            |
| McHenry    | -                      | 0            | 0            | -                    | 0            | 0            |
| Vermillion | -                      | 0            | 0            | -                    | 0            | 0            |
| Will       | -                      | -            | 0            | -                    | -            | 0            |

INDIANA

|             |      |      |      |       |       |       |
|-------------|------|------|------|-------|-------|-------|
| Adams       | 5.7  | 19.5 | -    | 0.87  | 15.00 | -     |
| Allen       | 16.0 | 55.5 | 45.0 | 2.05  | 58.00 | 7.35  |
| Bartholomew | -    | 11.0 | -    | -     | 0.20  | -     |
| Benton      | 0.3  | 14.0 | 0.3  | 0.01  | 1.30  | 0.20  |
| Boone       | -    | 1.0  | 21.0 | -     | 1.13  | 4.61  |
| Brown       | -    | 22.5 | 7.3  | -     | 1.25  | 1.13  |
| Carroll     | 0.5  | 1.0  | -    | 0.01  | 0.05  | -     |
| Cass        | -    | -    | 14.3 | -     | -     | 6.15  |
| Dearborn    | -    | 0    | 0    | -     | 0     | 0     |
| De Kalb     | 85.3 | 37.5 | 36.5 | 36.05 | 22.50 | 50.05 |

(Indiana cont.)

Table 3 (cont.)

| County     | Percent Stems Infested |              |              | Larvae per 100 Stems |              |              |
|------------|------------------------|--------------|--------------|----------------------|--------------|--------------|
|            | Avg.<br>1967           | Avg.<br>1968 | Avg.<br>1969 | Avg.<br>1967         | Avg.<br>1968 | Avg.<br>1969 |
| Decatur    | -                      | -            | 0.5          | -                    | -            | 3.78         |
| Delaware   | -                      | -            | 57.0         | -                    | 0            | 7.26         |
| Elkhart    | -                      | 78.5         | 75.5         | -                    | 94.75        | 28.65        |
| Fountain   | -                      | 0            | 0.5          | -                    | 0            | 0.07         |
| Franklin   | -                      | 3.7          | 0.4          | -                    | 0.3          | 0.45         |
| Fulton     | 56.0                   | 27.0         | 21.0         | 6.78                 | 4.02         | 10.20        |
| Grant      | 12.0                   | 2.0          | -            | 1.15                 | 0.20         | -            |
| Hamilton   | -                      | 2.5          | -            | -                    | 0.65         | -            |
| Hancock    | -                      | 39.5         | -            | -                    | 1.00         | -            |
| Hendricks  | -                      | 0            | 40.0         | -                    | 0            | 32.27        |
| Henry      | 16.8                   | 20.5         | 32.5         | 2.58                 | 2.50         | 2.20         |
| Howard     | -                      | 2.5          | 9.5          | -                    | 2.70         | 2.13         |
| Huntington | -                      | 19.0         | 64.5         | -                    | 10.50        | 11.51        |
| Jefferson  | -                      | -            | 0            | -                    | -            | 0            |
| Jackson    | -                      | -            | 0            | -                    | -            | 0            |
| Jasper     | 13.3                   | 8.8          | 0.0          | 1.67                 | 1.72         | 0            |
| Jay        | -                      | 10.5         | 17.5         | -                    | 1.60         | 26.24        |
| Jennings   | -                      | 2.7          | -            | -                    | 0.08         | -            |
| Kosciusko  | 28.6                   | 63.0         | 79.1         | 10.48                | 50.00        | 43.10        |
| Lagrange   | 89.0                   | 78.0         | 71.5         | 36.73                | 71.00        | 7.50         |
| Lake       | 0.5                    | 1.5          | 1.2          | 0.05                 | 0.52         | 0.16         |
| La Porte   | 79.6                   | 82.2         | 72.3         | 84.60                | 59.66        | 55.58        |
| Lawrence   | -                      | 0            | 0            | -                    | 0            | 0            |
| Madison    | -                      | 2.5          | -            | -                    | 1.00         | -            |
| Marshall   | 33.3                   | 63.0         | 62.6         | 7.65                 | 56.00        | 21.17        |
| Miami      | -                      | -            | 53.5         | -                    | -            | 18.10        |
| Monroe     | -                      | -            | 0            | -                    | -            | 0            |
| Montgomery | -                      | 0            | 10.5         | -                    | 0            | 3.2          |
| Newton     | 0.7                    | -            | 10.0         | 1.01                 | -            | 2.9          |
| Noble      | -                      | 74.5         | 71.0         | -                    | 68.75        | 27.01        |
| Owen       | -                      | 10.5         | 0            | -                    | 0.45         | 0            |
| Parke      | -                      | 0            | -            | -                    | 0            | -            |
| Porter     | 13.0                   | 13.0         | 25.7         | 2.07                 | 5.30         | 15.26        |
| Pulaski    | 11.3                   | 17.5         | 15.4         | 0.53                 | 3.27         | 4.49         |
| Putnam     | -                      | 0.5          | 0            | -                    | 0.01         | 0            |
| Ripley     | -                      | 0.7          | 0            | -                    | 0.02         | 0            |
| Randolph   | -                      | -            | 24.0         | -                    | -            | 3.40         |
| St. Joseph | 87.8                   | 84.0         | 91.3         | 104.90               | 142.90       | 128.73       |
| Shelby     | -                      | -            | 10.5         | -                    | -            | 16.41        |
| Starke     | 37.7                   | 34.5         | 33.0         | 5.52                 | 21.50        | 10.95        |
| Steuben    | -                      | 58.0         | 87.5         | -                    | 37.60        | 22.81        |
| Tippecanoe | -                      | 1.0          | 0            | -                    | 0.44         | 0            |
| Union      | 1.0                    | -            | 2.0          | 0.25                 | -            | 0.38         |
| Vermilion  | -                      | -            | 0            | -                    | -            | 0            |
| Wabash     | 28.6                   | 53.0         | 24.5         | 2.98                 | 46.81        | 2.52         |
| Wayne      | 3.0                    | 8.5          | -            | 0.63                 | 1.20         | -            |
| Wells      | -                      | -            | 0            | -                    | -            | 0            |
| White      | -                      | -            | 8.5          | -                    | -            | 3.90         |
| Whitley    | 34.8                   | 78.0         | -            | 11.05                | 58.50        | -            |

Table 3 (cont.)

| County         | MICHIGAN     |              |              | Larvae Per 100 Stems |       |        |
|----------------|--------------|--------------|--------------|----------------------|-------|--------|
|                | Percent      | Stems        | Infested     | Avg.                 | Avg.  | Avg.   |
|                | Avg.<br>1967 | Avg.<br>1968 | Avg.<br>1969 | 1967                 | 1968  | 1969   |
| Alpena         | -            | -            | 7.5          | -                    | -     | 0.86   |
| Alcona         | -            | 0.3          | -            | -                    | 0.04  | -      |
| Allegan        | 73.0         | 6.3          | 67.5         | 24.14                | 19.33 | 70.58  |
| Antrim         | -            | 0            | 2.5          | -                    | 0     | 0.58   |
| Arenac         | -            | 1.0          | 3.0          | -                    | 0.25  | 0.37   |
| Barry          | 85.3         | 72.1         | 84.7         | 16.80                | 34.09 | 11.37  |
| Bay            | -            | 3.5          | 23.0         | -                    | 0.32  | 2.56   |
| Berrien        | 79.2         | 57.1         | 68.9         | 88.60                | 56.73 | 37.37  |
| Branch         | 19.8         | 55.5         | -            | 3.63                 | 15.50 | -      |
| Calhoun        | 72.9         | 92.0         | -            | 49.34                | 82.00 | -      |
| Cass           | 68.2         | 70.5         | 99.4         | 22.68                | 36.87 | 63.25  |
| Cheboygan      | -            | -            | 2.0          | -                    | -     | 0.25   |
| Clare          | -            | 0            | 17.0         | -                    | 0     | 1.54   |
| Clinton        | -            | -            | 78.3         | -                    | -     | 19.90  |
| Eaton          | 36.8         | 81.5         | 100.0        | 4.00                 | 95.50 | 118.22 |
| Emmet          | -            | -            | 2.0          | -                    | -     | 0.73   |
| Genesee        | 30.2         | 37.5         | 64.5         | 5.71                 | 9.00  | 4.68   |
| Gladwin        | -            | 0.5          | 11.0         | -                    | 0.20  | 2.33   |
| Gratiot        | 9.5          | 31.0         | 74.5         | 0.36                 | 8.50  | 19.52  |
| Grand Traverse | -            | -            | 31.5         | -                    | -     | 14.73  |
| Hillsdale      | 84.7         | 18.0         | -            | 12.68                | 7.00  | -      |
| Huron          | -            | 3.5          | 15.0         | -                    | 0.47  | 2.33   |
| Ingham         | 54.3         | 59.2         | 100.0        | 8.85                 | 49.90 | 12.04  |
| Ionia          | 98.0         | 47.5         | 88.6         | 18.73                | 13.50 | 18.16  |
| Iosco          | -            | -            | 18.5         | -                    | -     | 1.35   |
| Isabella       | -            | 22.5         | 16.5         | -                    | 3.00  | 3.38   |
| Jackson        | -            | 45.5         | -            | -                    | 6.50  | -      |
| Kalamazoo      | 82.3         | 76.5         | 98.5         | 17.65                | 40.00 | 134.84 |
| Kalkaska       | -            | 0            | 2.5          | -                    | 0     | 0.53   |
| Kent           | 39.0         | 68.0         | 32.4         | 4.80                 | 23.50 | 5.05   |
| Lapeer         | 5.0          | 8.0          | 24.5         | 0.18                 | 0.60  | 2.45   |
| Lenawee        | 56.3         | 39.5         | -            | 4.68                 | 4.50  | -      |
| Livingston     | -            | 19.5         | 64.5         | -                    | 2.50  | 7.60   |
| Macomb         | -            | 1.0          | -            | -                    | 0.10  | -      |
| Mecosta        | 4.8          | 0            | 28.5         | 0.16                 | 0     | 7.21   |
| Midland        | 1.3          | -            | 11.5         | 0.07                 | -     | 1.12   |
| Missaukee      | -            | 0            | 17.0         | -                    | 0     | 2.82   |
| Montcalm       | 9.3          | 40.0         | 72.0         | 0.49                 | 10.62 | 26.97  |
| Monroe         | -            | 15.5         | 15.2         | -                    | 1.50  | 5.51   |
| Montmorency    | -            | -            | 4.0          | -                    | -     | 0.29   |
| Muskegon       | 31.0         | -            | -            | 3.70                 | -     | -      |
| Newaygo        | 11.5         | 26.5         | 72.6         | 1.03                 | 4.00  | 17.27  |
| Oakland        | -            | 16.5         | 11.0         | -                    | 12.50 | 2.21   |
| Oceana         | 4.5          | -            | 82.0         | 0.50                 | -     | 6.82   |
| Ogemaw         | -            | 8.5          | 3.5          | -                    | 0.50  | 1.30   |

(Michigan cont.)

Table 3 (cont.)

| County     | Percent Stems Infested |              |              | Larvae per 100 Stems |              |              |
|------------|------------------------|--------------|--------------|----------------------|--------------|--------------|
|            | Avg.<br>1967           | Avg.<br>1968 | Avg.<br>1969 | Avg.<br>1967         | Avg.<br>1968 | Avg.<br>1969 |
| Osceola    | -                      | 0            | -            | -                    | 0            | -            |
| Oscoda     | -                      | -            | 1.0          | -                    | -            | 0.03         |
| Otsego     | -                      | 0            | 5.5          | -                    | 0            | 0.81         |
| Ottawa     | 50.5                   | 77.0         | 82.4         | 5.45                 | 24.25        | 22.70        |
| Roscommon  | -                      | -            | 5.5          | -                    | -            | 0.67         |
| St. Joseph | 74.0                   | 55.0         | 100.0        | 12.43                | 18.80        | 34.21        |
| Saginaw    | -                      | 25.0         | 70.0         | -                    | 5.00         | 21.11        |
| Shiawassee | -                      | 70.0         | 93.0         | -                    | 22.00        | 44.18        |
| Sanilac    | -                      | 2.3          | 17.5         | -                    | 0.70         | 1.40         |
| Tuscola    | -                      | -            | 10.5         | -                    | -            | 1.17         |
| Van Buren  | 64.5                   | 53.5         | 90.0         | 12.73                | 23.51        | 118.92       |
| Washtenaw  | -                      | 18.0         | 21.5         | -                    | 2.65         | 4.05         |
| Wexford    | -                      | 0            | 38.7         | -                    | 0            | 9.53         |

## OHIO

|           |      |      |       |       |
|-----------|------|------|-------|-------|
| Adams     | -    | 19.0 | -     | 3.2   |
| Allen     | -    | 48.0 | -     | 12.75 |
| Ashland   | -    | 51.5 | -     | 17.16 |
| Ashtabula | 30.5 | 0    | 1.30  | 0     |
| Auglaize  | 27.5 | 62.0 | 9.30  | 25.35 |
| Brown     | 2.5  | 0    | 0.10  | 0     |
| Butler    | 22.0 | -    | 1.03  | 0     |
| Carroll   | 30.5 | 2.0  | 1.75  | 0.52  |
| Champaign | 7.0  | 73.0 | 1.50  | 27.20 |
| Clinton   | 14.0 | 38.0 | 2.10  | 8.20  |
| Coshocton | -    | 61.1 | -     | 16.74 |
| Darke     | 26.5 | 59.5 | 5.00  | 23.20 |
| Delaware  | -    | 44.0 | -     | 14.59 |
| Fairfield | 12.5 | 62.5 | 1.60  | 77.50 |
| Franklin  | -    | 62.5 | -     | 80.60 |
| Fulton    | -    | 57.5 | -     | 5.80  |
| Gallia    | 1.0  | -    | 0.02  | -     |
| Greene    | 1.5  | 11.5 | 0.06  | 1.25  |
| Guernsey  | 2.5  | 57.5 | 0.40  | 10.88 |
| Hamilton  | 5.0  | -    | 0.30  | -     |
| Hancock   | 24.0 | 52.0 | 4.00  | 11.90 |
| Hardin    | 10.5 | 22.5 | 2.30  | 5.55  |
| Holmes    | -    | 27.7 | -     | 2.01  |
| Henry     | 8.0  | 43.0 | 1.70  | 3.79  |
| Highland  | 5.5  | 35.0 | 0.45  | 5.40  |
| Huron     | 9.5  | 97.5 | 0.55  | 25.35 |
| Knox      | 14.0 | 48.0 | 3.50  | 8.06  |
| Licking   | 57.5 | 38.8 | 42.45 | 21.67 |
| Logan     | 17.5 | 52.5 | 3.55  | 17.67 |
| Lawrence  | 0.0  | 3.5  | 0.0   | 0.95  |
| Lucas     | -    | 56.5 | -     | 4.83  |



(Ohio cont.)

Table 3 (cont.)

| County     | Percent         | Stems Infested  | Larvae per 100 Stems |                 |
|------------|-----------------|-----------------|----------------------|-----------------|
|            | Average<br>1968 | Average<br>1969 | Average<br>1968      | Average<br>1969 |
| Madison    | 5.0             | 13.0            | 0.20                 | 1.54            |
| Mahoning   | 3.5             | 3.0             | 0.10                 | 0.31            |
| Medina     | 32.0            | 6.0             | 1.85                 | 0.73            |
| Meigs      | 1.0             | 16.0            | 0.10                 | 2.65            |
| Miami      | 16.5            | 61.5            | 2.50                 | 17.95           |
| Montgomery | 28.0            | 51.0            | 3.50                 | 15.05           |
| Morrow     | 7.0             | 35.8            | 1.05                 | 94.41           |
| Muskingum  | -               | 67.5            | -                    | 22.64           |
| Noble      | 0               | 2.5             | 0                    | 0.75            |
| Ottawa     | 4.0             | 25.5            | 0.50                 | 3.80            |
| Paulding   | 11.5            | 26.2            | 2.40                 | 3.80            |
| Perry      | -               | 63.1            | -                    | 26.65           |
| Pickaway   | -               | 45.0            | -                    | 9.58            |
| Preble     | 10.5            | 46.5            | 0.75                 | 11.85           |
| Richland   | 18.5            | 21.1            | 7.50                 | 3.31            |
| Ross       | 41.5            | 65.3            | 8.50                 | 9.30            |
| Sandusky   | 17.0            | 79.0            | 1.20                 | 7.17            |
| Seneca     | 2.5             | 97.0            | 0.60                 | 23.75           |
| Shelby     | -               | 38.0            | -                    | 7.65            |
| Stark      | -               | 21.5            | -                    | 2.05            |
| Summit     | -               | 4.0             | -                    | 0.31            |
| Pike       | -               | 13.0            | -                    | 2.63            |
| Portage    | -               | 1.5             | -                    | 0.20            |
| Trumbull   | 3.0             | 2.0             | 0.06                 | 0.18            |
| Tuscarawas | -               | 96.6            | -                    | 64.63           |
| Union      | 11.5            | 12.5            | 2.05                 | 1.02            |
| Van Wert   | 2.5             | 41.0            | 1.15                 | 7.65            |
| Vinton     | -               | 32.0            | -                    | 5.80            |
| Warren     | 3.5             | 17.0            | 0.60                 | 1.58            |
| Washington | 1.0             | 26.0            | 0.20                 | 2.65            |
| Wayne      | 8.5             | 26.0            | 0.73                 | 1.47            |
| Williams   | 44.0            | 50.0            | 9.00                 | 6.77            |
| Wood       | 5.0             | 15.0            | 1.05                 | 2.10            |
| Wyandot    | 28.5            | 61.0            | 9.40                 | 10.70           |

PENNSYLVANIA

|            |      |      |      |       |
|------------|------|------|------|-------|
| Allegheny  | -    | 9.0  | -    | 0.01  |
| Beaver     | 26.0 | 87.0 | 0.03 | 61.00 |
| Butler     | 22.0 | -    | 0.01 | -     |
| Cambria    | -    | 0    | -    | 0     |
| Clarion    | 0    | 4.0  | 0    | 0.10  |
| Clearfield | -    | 0    | -    | 0     |
| Crawford   | 0    | 35.0 | 0    | 10.90 |
| Fayette    | -    | 15.0 | -    | 4.20  |
| Indiana    | -    | 7.5  | -    | 0.80  |
| Jefferson  | -    | 1.5  | -    | 0.08  |

(Pennsylvania cont.)

Table 3 (cont.)

| County     | Percent Stems Infested |                 | Larvae per 100 Stems |                 |
|------------|------------------------|-----------------|----------------------|-----------------|
|            | Average<br>1968        | Average<br>1969 | Average<br>1968      | Average<br>1969 |
| McKean     | -                      | 0               | -                    | 0               |
| Mercer     | 12.0                   | 14.5            | 0.003                | 2.30            |
| Somerset   | -                      | 0               | -                    | 0               |
| Venango    | -                      | 0               | -                    | 0               |
| Warren     | 0                      | 20.5            | 0                    | 4.20            |
| Washington | 0                      | 20.5            | 0                    | 7.70            |

WEST VIRGINIA

|          |   |      |   |       |
|----------|---|------|---|-------|
| Marshall | - | 0    | - | 0     |
| Mason    | - | 32.0 | - | 3.65  |
| Preston  | - | 5.0  | - | 0.27  |
| Ritchie  | - | 29.0 | - | 6.40  |
| Tyler    | - | 51.0 | - | 10.70 |

WISCONSIN

|           |   |   |   |   |
|-----------|---|---|---|---|
| Jefferson | 0 | 0 | 0 | 0 |
| Kenosha   | 0 | 0 | 0 | 0 |
| Rock      | 0 | 0 | 0 | 0 |
| Walworth  | 0 | 0 | 0 | 0 |

ONTARIO, CANADA

|           |   |     |   |       |
|-----------|---|-----|---|-------|
| Middlesex | - | 0.5 | - | 0.058 |
| Essex     | - | 2.3 | - | 0.707 |
| Lambton   | - | 2.8 | - | 0.571 |

See next page for Table 4

Table 4.

1968-1969 State Comparisons of Cereal Leaf Beetle Infestation 1/

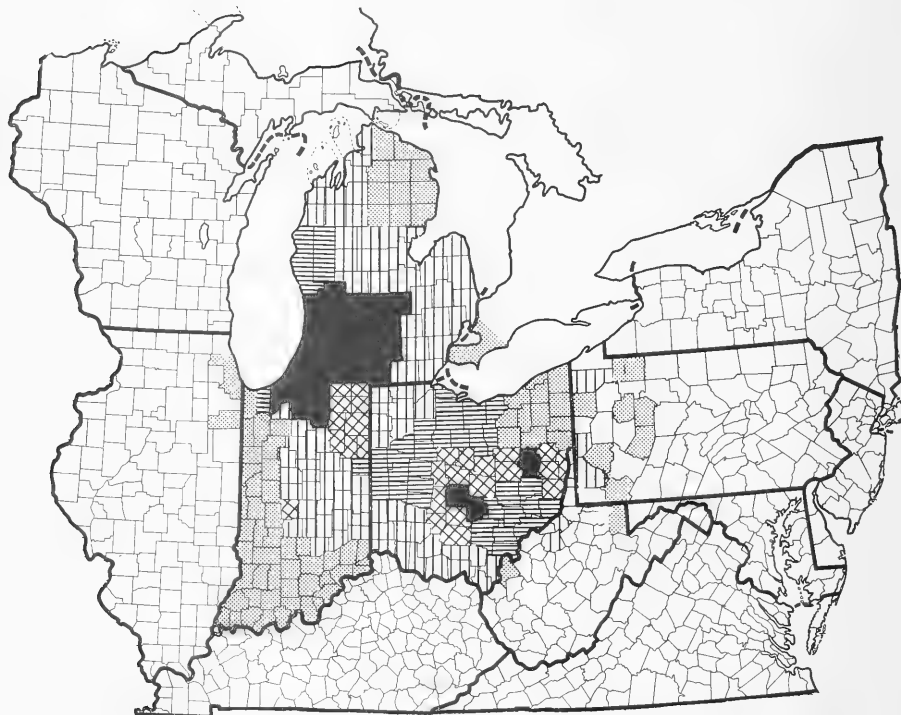
| <u>State</u>      | <u>No. of<br/>Counties<br/>Compared</u> | <u>Percent Oats<br/>Infested</u> |             | <u>Larvae/100<br/>Oats Stems</u> |             |
|-------------------|---|----------------------------------|-------------|----------------------------------|-------------|
|                   |   | <u>1968</u>                      | <u>1969</u> | <u>1968</u>                      | <u>1969</u> |
| Illinois          | 9                                       | Trace                            | 0           | Trace                            | 0           |
| Indiana <u>2/</u> |   |                                  |             |                                  |             |
| W, SW, S          | 14                                      | 13.7                             | 13.6        | 6.9                              | 4.2         |
| E, NE, SE         | 19                                      | 39.1                             | 44.8        | 32.0                             | 23.6        |
| Michigan          | 36                                      | 29.8                             | 48.8        | 14.5                             | 23.0        |
| Ohio              | 43                                      | 14.1                             | 35.9        | 3.2                              | 11.6        |
| Pennsylvania      | 6                                       | 6.3                              | 30.2        | 0.01                             | 14.4        |
| West Virginia     | 5                                       | -                                | 23.4        | -                                | 4.2         |

1/ Data averaged from only those counties included in the survey both years, with the exception of West Virginia where no survey was conducted in 1968.

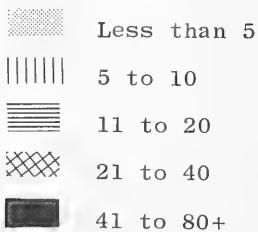
2/ Directional reference from La Porte County.

See next page for map.

CEREAL LEAF BEETLE POPULATION LEVELS  
SHOWN IN FOLIAR FEEDING SURVEY



Number of Cereal Leaf Beetle Larvae per 100 Stems





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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM moths heavy in blacklight traps in Delaware and Virginia, increasing in Michigan, and flights heavy in South Dakota. (p. 471). GREENBUG building up on sorghum in parts of Colorado. (P. 472).

ALFALFA WEEVIL damage heavy to alfalfa in portions of Vermont and Idaho; larvae damaging in Utah. PEA APHID remains heavy on alfalfa in eastern Colorado. (p. 474).

BOLLWORMS biggest problem on cotton in delta counties of Mississippi, many fields above control levels in west Tennessee, and moth flights and eggs heavy in Alabama. (p. 475).

SUGAR-BEET ROOT MAGGOT damaged sugar beets in areas of North Dakota and Idaho. (p. 476).

PINE TUSSOCK MOTH larvae stripped jack pine foliage in northwest area of Wisconsin. SPRUCE BUDWORM defoliation of balsam fir moderate to heavy in Minnesota. (p. 480).

HORN FLY, STABLE FLY, MOSQUITOES, BLACK FLIES, and TABANID FLIES continue troublesome to man and animals in several States. (pp. 481-482).

GRASSHOPPERS damaging several crops in western Oklahoma, outbreak developing in limited area of Utah, some corn and alfalfa damage in Kansas, and building up in several areas of South Dakota. (p. 484).

Detection

New State records include IRIS BORER from California (p. 479) and a WEEVIL from WISCONSIN (p. 483).

For new county records see page 486.

Special Reports

Distribution of Alfalfa Weevil. Map. (p. 488).

Reports in this issue are for week ending July 3 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JULY 6

HIGHLIGHTS: A warming trend occurred over the West and weekend cooling ended the sweltering heat in the East. Moist areas received less than normal precipitation.

PRECIPITATION: Light showers occurred in the Northwest. Strong hot winds raised clouds of dust in parts of Arizona and the central Great Plains and caused further depletion of the soil moisture. Snow fell in parts of the northern Rocky Mountains Tuesday morning accumulating to 2 inches at West Yellowstone, Montana. Violent weather occurred from the central Great Plains to the Atlantic Ocean on Thursday and from southeastern Texas across the Deep South to Georgia on Friday. The violent weather included severe thunderstorms with scattered hail and strong winds, and a few tornadoes. Weekly rainfall totals over the western half of the Nation ranged mostly from none in most of the Southwest to about 0.10 inch in the Northwest. Over the eastern half, weekly totals ranged generally from about 0.25 inch to 1.25 inches. A large area from Missouri to Texas, Alabama, and Mississippi, received no rain or only light sprinkles. A few spots in the East received over 2 inches of rain during the week.

TEMPERATURE: Temperatures averaged below normal in the northern Rocky Mountains and the Great Basin, above normal in the central Rockies and southwestern deserts, and near normal in most other areas. A warming trend occurred in the Northwest with afternoon temperatures increasing from the 60's and 70's on Monday to 100° in desert areas of Washington. Sharp cooling brought subfreezing weather to some areas along the western slopes of the Rocky Mountains on one or two mornings early in the week. West Yellowstone, Montana, registered 28° and Bryce Canyon, Utah, 30° Tuesday morning. The southwestern deserts remained hot throughout the week. Maximum temperatures at Blythe, California, averaged 108°. Sweltering heat covered the northeast quarter of the Nation, from Minnesota and Iowa to the Atlantic Ocean early in the week but much cooler and less humid weather occurred over the weekend. Maximum temperatures reached the 90's over wide areas each afternoon until Thursday but dropped to the 60's and 70's by Saturday. Minneapolis, Minnesota, registered 90° Thursday afternoon but no higher than 71° the following day. A warming trend over the Central and Southeast pushed maximum temperatures above 100° on Thursday and Friday. Temperatures dropped sharply by Saturday. Maximums at Chattanooga, Tennessee, on Friday and Sunday were 102° and 83°, respectively. Minimum temperatures dropped sharply, also, from the 70's Saturday morning to the 50's by early Monday. (Summary supplied by Environmental Data Service, ESSA.) For 30-day forecast see page 487.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - DELAWARE - Moths heavy in blacklight trap collections in all areas. Several reports of heavy losses to small grains. (Burbutis, Kelsey). VIRGINIA - Moth flight heavy in Montgomery County on June 25. Moths collected in 4 blacklight traps as follows in 2 locations: 252, 360, 108, and 62. (MacFarlane). MICHIGAN - Increasing at all blacklight stations as new brood emerges. Generally, wheat past danger. (Newman). MINNESOTA - Damage economic only in Sibley and Brown Counties on rye and in Steele County alfalfa field. Few specimens on corn in some southeast and central counties. Only cutworm damage noted when rumors traced. Most problems in sunflower fields with *Agrotis gladiaria* (clay-backed cutworm) and *A. ipsilon* (black cutworm) found. Armyworm moth flights heavy in this area past weeks. (Minn Pest Rpt.). NORTH DAKOTA - First larvae of season at Bismarck, Burleigh County. Larvae 0.75 to 1.5 inches long. Damaged lawns and flowers within city. Infested flax near Ryder, Ward County. (Brandvik). SOUTH DAKOTA - Moth flights heavy in early June and increased in early July. Economic infestations of early generation larvae observed in 12 counties, mostly in ryefields. Parasitism increased during current warm weather. (Jones).

**ASTER LEAFHOPPER (*Macrostelus fascifrons*)** - NORTH DAKOTA - Increased in southeast counties. Populations 90 percent second-generation nymphs. Counts (average) per 100 sweeps by county: Cass 40-350 (170), Ransom 30-350 (105), La Moure 10-200 (65), McIntosh 0-80 (25), Dickey 20-300 (135), Richland 100-250 (160), and Sargent 50-1,000 (412). Infested flax, barley, oats, and wheat. (Brandvik). MINNESOTA - Adults and nymphs ranged 0-800 per 100 sweeps in all districts surveyed. Aster yellows disease in less than 1 percent of flax in southwest, west-central, and central districts. Fields checked in bloom and damage should not be serious in this area. Later plantings of flax farther north could be seriously infested. (Minn. Pest Rpt.). WISCONSIN - Potential remains high for this pest in lettuce, carrot, and celery. Counts of 1-2 per sweep in oats in Montello, Marquette County, and as grain matures exodus will become more pronounced. (Wis. Ins. Sur.).

**CORN EARWORM (*Heliothis zea*)** - GEORGIA - Larvae heavy on sweet corn in Tift County. (French). MARYLAND - Adult activity appears heaviest in Queen Anne's and Dorchester Counties. Light trap counts 1-4 per night June 25 to July 2. No moths trapped at Worcester and Wicomico County traps. (U. Md., Ent. Dept.). ARIZONA - High of 2 per forage plant in Graham County. (Ariz. Coop. Sur.). UTAH - Larval damage moderate to garden sweet corn in "Dixie" area of Washington County. (Huber).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - ARIZONA - Building up on corn and sorghum in Cochise County. Lady beetles working in whorls more so this year; lacewing and lady beetle larvae present. Many farmers will use lady beetles for controls. (Ariz. Coop. Sur.). OKLAHOMA - Heavy in much southwest area sorghum and light to moderate in many northeast area fields. Heavy in field of irrigated corn in Alfalfa County. Damaged Sunturf Bermuda grass in Tillman County. (Okla. Coop. Sur.). ARKANSAS - Infestations in most fields of knee-high sorghum surveyed. Typically heavy in spots and noneconomic. Predators and, to smaller extent, parasitism noted in infested fields. (Boyer). KANSAS - Counts per sorghum plant ranged 50-100 in Dickinson County and 10-50 in Saline County. Less than 10 per plant found in all sorghum and corn checked in Riley, Geary, Morris, McPherson, Marion, Harvey, Reno, and Sedgwick Counties. (Simpson). NEBRASKA - Infested 60-70 percent of corn plants in Saunders County. (Munson). WISCONSIN - Small colonies appearing on tassels of sweet corn in western Dane County. (Wis. Ins. Sur.). INDIANA - Alates, occasionally with young, in east-central district corn; occasional plants in one field of grain sorghum in same area with heavy infestations of alatae and apterae. (Matthew). MARYLAND - Light, first infestation of season, found in 30 acres of corn near Salem, Dorchester County. (U. Md., Ent. Dept.).

GREENBUG (*Schizaphis graminum*) - ARIZONA - Some spotty buildups in Cochise County. (Ariz. Coop. Sur.). COLORADO - Building up, ranged 0-50 (average 10-15) per sorghum plant in Arkansas Valley. Noneconomic in most fields to June 27 but late-planted fields should be watched. (Burchett). NEBRASKA - Ranged 3-15 per colony on lower leaves of 10-20 percent of plants in Saunders County. (Munson).

POTATO LEAFHOPPER (*Empoasca fabae*) - NEW YORK - Remains at low level in alfalfa throughout State. Controls for other alfalfa pests may have reduced populations. (N.Y. Wkly. Rpt., June 29). OHIO - Building up to about 1 per sweep in alfalfa in Wayne County. (Flessel). ILLINOIS - No serious damage to soybeans. Averages per 100 sweeps by section: West 196 on 11-inch plants, west-southwest 80 on 12-inch, central 55 on 9-inch, and east-southeast 50 on 13-inch. Heaviest, 310 on 12-inch plants, in Fulton County. (Ill. Ins. Rpt.). WISCONSIN - Counts variable, highest generally in alfalfa on sandy land; alfalfa cut very early and now blossoming. (Wis. Ins. Sur.).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Still light, up to 4 per 100 sweeps, on potatoes in east area. (Burchett, Johnson).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - UTAH - Common but light in Washington County. (Huber). ARIZONA - Ranged 300-400 per 100 sweeps in Yuma County. (Ariz. Coop. Sur.). WISCONSIN - Up to 30 per sweep in alfalfa field in Spring Green area, counts generally lower in other fields. (Wis. Ins. Sur.).

TOBACCO HORNWORM (*Manduca sexta*) - MARYLAND - First to fourth instars throughout south area. Averaged less than 1 per 50 tobacco plants in most fields. Heaviest near Newport, Charles County; 20 percent of 3-acre planting showed heavy feeding. Controls needed. (U. Md., Ent. Dept.). WISCONSIN - Adults appearing in Mazomanie, Dane County, blacklight trap. (Wis. Ins. Sur.). DELAWARE - *Manduca* spp. eggs on sweet peppers in Sussex County. (Burbutis, Kelsey).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - In untreated North Star corn practically all emerged tassels infested. Control varied. In earlier plantings most borers second to fourth instars, with some fifth. Moth blacklight trap catches negligible in Hudson Valley areas. (N.Y. Wkly. Rpt., June 29). DELAWARE - First-generation larvae pupating in early planted corn in Sussex County and in potatoes in Kent County June 29. Adult counts 1 or 2 per night in blacklight trap collections in these counties. (Burbutis, Kelsey). MARYLAND - Trap catches light on Eastern Shore. Adult counts 3-4 at Centreville, Queen Annes County, and Hurlock, Dorchester County, light traps. No moth activity at Salisbury, Wicomico and Snow Hill, Worcester County, traps. Eastern Shore larval infestation ranged 30-100 percent in late-whorl to full-silk stage corn. In early whorl to middle whorl ranged 0-10 percent. Pupation increasing on Eastern Shore. Infestations in central areas ranged 0-66 in early whorl stage and 46-90 in mid-whorl stage. First through third instars in most fields in central area. (U. Md., Ent. Dept.). OHIO - Larvae heavy in Delaware County field corn. Infestation 50+ percent in most fields. Larvae about one-third grown; damaged midribs. (Roach). INDIANA - Infestation averaged 29 percent in 30-inch corn in northeast and north-central districts. Averaged one borer per stalk in northeast district, 1.7 in north-central district. Most early instars, occasional whorl penetration. (Meyer). Penetrated whorls in east-central district. Midrib and stalk penetration observed. (Matthew). No moths in blacklight traps. (Huber). MICHIGAN - Blacklight trap collections dropped sharply. Total counts at Lenawee County station 78; at Livingston County station, 64. Egg masses 5 per 25 plants on field corn on June 28 in Lenawee and Monroe Counties. Most in blackhead stage; some emerged. Reduced egg laying for next 14 days and hatch for at least 21 days. (Newman). WISCONSIN - Flight of spring generation ended in southern area, continues in northeast. Injury showing on over 50 percent of corn leaves in Adams County, treatment underway. Most larvae second instar in southern counties, few third appearing. (Wis. Ins. Sur.). MINNESOTA - Adults laying eggs; some hatch. Light except for field in Cottonwood County where 52 percent of plants infested. (Minn. Pest Rpt.). SOUTH DAKOTA - Heavy in corn surveyed from eastern Clay

County to western Yankton County. Fields knee-high to waist-high; minimum infestations of 40 percent up to maximum of 100 percent. Borers still in whorls and not entered stalks. Larvae first to third instar, with majority second instar. Fields treated. (Jones, Kantack). IOWA - European corn borer pupation expected by July 10 at Ankeny, Polk County. (Iowa Ins. Sur.). NEBRASKA - First-brood feeding scars in 30 percent of corn in Jefferson County, up to 80 percent in Stanton County. Treated in both areas. (Engles, Bstandig). KANSAS - Larvae feeding on less than 10 percent of corn checked in Reno, Harvey, Saline, Dickinson, and Morris Counties. (Redding, Iselin). COLORADO - Adults ranged 0-4 per 100 row feet of corn in Kiowa Valley, Weld County. No eggs. (Johnson).

CORN ROOTWORMS (*Diabrotica* spp.) - ILLINOIS - *D. virgifera* (western corn rootworm) emerged in Mercer County. *D. longicornis* (northern corn rootworm) emerged in Ogle County. (Ill. Ins. Rpt.). TENNESSEE - Damaging populations of *D. undecimpunctata howardi* (southern corn rootworm) on sweet corn in middle area. Damage heavy locally. (Gordon). SOUTH CAROLINA - Corn rootworm damage noticed in Hampton County. Many corn plants in field stunted and generally unhealthy. Examination revealed every plant damaged earlier in season. More damage this year than in previous years. (Thomas). MINNESOTA - *Diabrotica* spp. hatch past peak. Corn rootworm larvae not heavy yet. Heavy in few fields in southwest and central districts. Most larvae in first instar. (Minn. Pest Rpt.).

CORNSTALK BORERS (*Diatraea* spp.) - MARYLAND - Larvae of *D. crambidoides* (southern cornstalk borer) damaged 36 percent of 40 acres of corn on Tilghman Island, Talbot County. (U. Md., Ent. Dept.). ALABAMA - Mixed populations of *D. grandiosella* and *Ostrinia nubilalis* (European corn borer) caused widespread damage to most corn in Lauderdale and Morgan Counties. Extremely heavy European corn borer damage in one field in Cherokee County. (Wagnon et al.). ARIZONA - *D. grandiosella* medium on milo at Marana, Pima County. (Ariz. Coop. Sur.).

DUSKY SAP BEETLE (*Carpophilus lugubris*) - MARYLAND - Infestations increasing in corn in Dorchester, Wicomico, Talbot, and Caroline Counties. Heaviest near Cambridge, Dorchester County; 45 percent ear damage. Most fields ranged 0-15 percent infested on Eastern Shore. (U. Md., Ent. Dept.).

SORGHUM MIDGE (*Contarinia sorghicola*) - ARKANSAS - Survey in blooming sorghum negative in White and Mississippi Counties. Found at low levels in blooming sorghum in Cross, Crittenden, and Lee Counties. Highest count, 3 on one head. (Boyer).

SEED-CORN MAGGOT (*Hylemya platura*) - NEW YORK - Adults caught in traps in Geneva area declined over past ten days. Suggests peak emergence and flight of first-generation adults over and second-generation larvae in soil. Emergence of second-generation adults forecast in 10-14 days with peak in about 21 days. (N.Y. Wkly. Rpt., June 29).

#### SMALL GRAINS

WHEAT STEM MAGGOT (*Meromyza americana*) - NORTH DAKOTA - White heads showing up in early wheat in southeast counties. Infested 3-8 percent of stems in several fields in Dickey and Richland Counties. (Brandvik). MINNESOTA - White heads present. Counts usually less than 1 percent, but 2 unusually high counts of 10 percent found in Dodge and Redwood Counties. (Minn. Pest Rpt.).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - MICHIGAN - Reported heavy in wheat and oats around State. Small groups of stem mothers and progeny on leaves of oats not started to head. Most aphids colonizing in heads of grains. Except for few fields no damage reported. (Ruppel, June 29).

GRASSHOPPERS - ILLINOIS - May be major grain insects of 1970. Controls applied in some areas. (Sur. Bull.).

BROWN WHEAT MITE (*Petrobia latens*) - MONTANA - Ranged 1-5 per plant on spring wheat in Chouteau, Pondera, and Liberty Counties. (Pratt). UTAH - Damage light in Washington County. (Huber).

BARLEY THRIPS (*Limothrips denticornis*) - NORTH DAKOTA - Economic in few early seeded barley fields in La Moure and Sargent Counties. Up to 22 adults and young thrips per plant in leaf sheaths. (Brandvik).

#### TURF, PASTURES, RANGELAND

GRASS MOTHS (*Crambus* spp.) - CALIFORNIA - *C. bonifatellus* heavy and damaging lawns in Fremont, Alameda County. (Cal. Coop. Rpt.). COLORADO - *C. leachellus* and *Crambus* sp. ranged 3-5 per square yard in many Fort Collins lawns. Controls not necessary to date but should be closely watched. (Thatcher).

#### FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - VERMONT - Larvae small and less than 1 per sweep on regrowth alfalfa at Newport and Derby Line, Orleans County. No adults. Pupating in Chittenden County. Some damage heavy on first-cutting and on regrowth. Prolonged dry weather evidently permitted weevils to catch up with alfalfa in many areas. Larvae averaging 6-12 per sweep in Shoreham plots, a slight decrease. In untreated field in Hinesburg, 50 sweeps netted 1,253 larvae, 50 adults, and some pupal cocoons. Initial parasite recovery attempts included some *Bathyplectes* spp. and *Tetrastichus* spp. at North Hero, Grande Isle County, and Ferrisburg, Addison County. (Nielsen). OHIO - Larvae still in north area alfalfa. New adults on second growth. (Rose). INDIANA - Larvae ranged up to 5 per sweep in northern district alfalfa; higher number in one field. (Meyer). MICHIGAN - Controls underway in Clare County. (MacQueen). WISCONSIN - Few larvae still in most regrowth alfalfa. Light feeding damage in some fields in Walworth County. (Wis. Ins. Sur.). IOWA - New county records: May 21, Polk by G. Wallerich; May 25, Madison and Union and May 26, Decatur by S. Murdock; May 27, Warren by H. Gunderson, Adams by S. Murdock, Jasper, Poweshiek, and Tama by H.J. Stockdale, and Pottawattamie by J. West; June 3 - Ringold by S. Murdock, and Butler and Grundy by K. Connelly. (PPD). NEBRASKA - Larva collected on alfalfa at Lincoln, Richardson County, May 26 by G.R. Manglitz for new county record. (PPD). ARKANSAS - Adults ranged 8-10 and larvae 10-15 in 100 sweeps in Crittenden County. Nearby field negative. (Boyer). TEXAS - New county records: April 16, Houston and Smith by J.G. Thomas; May 14, Gillespie by D. Menzies; May 19, Wilbarger by E.P. Boring. (PPD). COLORADO - Light on east area alfalfa. Adults 0-50 and larvae 0-100 per 100 sweeps. (Johnson, Burchett). UTAH - Larvae holding back new alfalfa growth in seriously infested fields in central area. Severe to moderate in Sevier County, larvae still causing injury. (Rickenbach, Knowlton). Caused 25 percent average loss of foliage in more severely infested Washington County fields. (Huber). Damage moderate in Uintah County. (Hunsaker). IDAHO - Infested up to 75 percent of tips June 25 at Hollister and Rogerson, Twin Falls County. (Sutherland). Damage extensive countywide on first cutting in Jefferson County, June 22-26. (Gooch).

PEA APHID (*Acyrtosiphon pisum*) - COLORADO - Ranged 50-12,000 per 100 sweeps of alfalfa in east area. Light in Morgan County. Heaviest at Gilcrest, Weld County; ranged 3,000-8,000 per 100 sweeps. (Johnson, Burchett). UTAH - Damaging alfalfa generally in Sevier County and in parts of Sanpete County. (Knowlton, Rickenbach). ARIZONA - Ranged 120-300 per 100 sweeps in Yuma County. Counts of 100 per 100 sweeps of Cochise County alfalfa. (Ariz. Coop. Sur.). NEW MEXICO - Mostly nymphs ranged 247 to over 1,000 per 25 sweeps of San Juan County alfalfa. Heaviest south-east of Bloomfield. (Heninger). WISCONSIN - Little change, counts of 100+ per sweep of alfalfa; counts lower in southwest area. Predators more common and some decrease expected. (Wis. Ins. Sur.). MARYLAND - Light, averaged 6 per sweep of alfalfa throughout State. Heaviest, 60 per sweep, in 30 acres of alfalfa near Militota, Kent County. (U. Md., Ent. Dept.).

NOCTUID MOTHS - ARIZONA - Autographa californica (alfalfa looper) larvae up to 5 per 100 sweeps and Spodoptera exigua (beet armyworm) larvae ranged 10-20 per 100 sweeps in alfalfa field in Yuma Valley, Yuma County; ranged 5-10 per 100 sweeps in other fields. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Up to 10 per 100 sweeps on Yuma Valley alfalfa, Yuma County, and larvae 5 per 100 sweeps of Cochise County alfalfa. (Ariz. Coop. Sur.). NEW MEXICO - Larvae ranged 0-8 per 25 sweeps of San Juan County alfalfa. Few adults. (Heninger).

LYGUS BUGS (Lygus spp.) - COLORADO - Ranged 20-300 per 100 sweeps on east area alfalfa. (Johnson, Burchett). NEW MEXICO - Nymphs and adults 150+ per 25 sweeps in alfalfa field near Carlsbad, Eddy County. Ranged 10-30 per 25 sweeps in most fields. (Mathews). ARIZONA - Lygus sp. counts per 100 sweeps of alfalfa as follows: 300-600 in Yuma and Gila Valleys, 160-200 on Yuma Mesa (1 field); nymphs 66 in Graham County, and 150 in Cochise County. (Ariz. Coop. Sur.).

GRASSHOPPERS - WISCONSIN - Adults of Melanoplus sanguinipes (migratory grasshopper) appearing in central sand area and in sandy areas along Wisconsin River. M. femurrubrum (red-legged grasshopper) in second to fourth instar. Ranged 1 per 10 sweeps to 15 per sweep in regrowth alfalfa. (Wis. Ins. Sur.).

## COTTON

BOLLWORMS (Heliothis spp.) - TEXAS - In McLennan and Falls Counties, eggs averaged 1.4 (maximum 5) and larvae 2.5 (maximum 5.8) per 100 terminals in 24 treated fields, eggs and larvae averaged less than 1 per 100 terminals in 35 untreated fields. Injured squares averaged 4.7 (maximum 13.4) percent in 24 treated fields, averaged 1.5 (maximum 23.5) percent in 34 untreated fields. Collected 114 larvae on cotton and 65 percent identified H. virescens. (Cowan et al.). LOUISIANA - In Madison Parish, damaged squares ranged 1-9 (averaged 4) percent in 48 of 50 fields checked; larvae ranged 1-3 (averaged 1.3) percent in 29 of these fields. Eggs ranged 1-4 (averaged 1.9) percent in 23 of 50 fields. Moths light in blacklight trap; 15 H. zea and 3 H. virescens. (Cleveland et al.). MISSISSIPPI - In delta counties, larvae averaged 0.3 per 100 terminals in 3 of 8 fields checked. Damaged squares averaged 3.77 (maximum 8) percent in 8 of 8 fields. Eggs averaged 2.3 per 100 terminals in 5 of 8 fields. Bollworms biggest problem at present. In one collection 56 percent H. virescens and 44 percent H. zea. (Furr et al.). TENNESSEE - Egg and larval counts still above normal for time of year. Square damage observed in west area. Eggs and larvae ranged 1-11 per 100 terminals. Most eggs still found in terminal buds. Many fields above control levels especially in early rank fields. Surveys in middle area indicate that bollworms at lower level than in west area. (Locke, Gordon). ALABAMA - Moth flights and eggs still heavy throughout State. Larvae not yet developed to economic levels in most fields. Predators and parasites continue to hold down larval numbers in most fields. (McQueen). GEORGIA - Eggs and larvae light to heavy on cotton in south area. (Canderday).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, punctured squares averaged 1.9 (maximum 12) percent in 24 treated fields, averaged 5.5 (maximum 23.5) percent in 34 untreated fields. (Cowan et al.). LOUISIANA - In Madison Parish, 1 weevil collected from 240 wing traps; total to date 1,693. Punctured squares ranged 1-5 (averaged 1.5) percent in 43 of 50 fields checked. (Cleveland et al.). ARKANSAS - Found in many fields, but uniform age of cotton caused wide distribution. Surveyed 5,280 fields, 513 infested and below treatment levels. (Boyer et al.). TENNESSEE - Square counts not feasible due to scarcity of squares. Some punctured squares observed in regularly infested cotton-growing areas. Feeding punctures exceeded egg laying punctures. (Locke). MISSISSIPPI - In delta counties, activity light except near good hibernation sites. Four weevils in 8 fields checked. Punctured squares in 1 of 8 fields. (Furr et al.). ALABAMA - Lighter statewide than during past 6 years. Controls applied in several counties, especially in Escambia, Bullock, Monroe, and Elmore. No damaging populations in north area or any area north of Birmingham. First

"hatch-out" in north appears light and will occur from July 7 to 20. First "hatch-out" now in south and central areas. (McQueen). GEORGIA - Boll weevil punctured squares 10 percent in untreated field in Spalding County. (Beckham).

COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*) - TEXAS - In McLennan and Falls Counties, ranged 7.5-69.5 (averaged 30.6) per 100 terminals in 20 treated fields, ranged 11.7-126 (averaged 63.5) in 35 untreated fields. (Cowan et al.). OKLAHOMA - Averaged 1+ per terminal in fields checked in Jackson County. (Okla. Coop. Sur.).

A LYGUS BUG (*Lygus* sp.) - ARIZONA - Ranged 18-25 per 100 sweeps in Pima County. Very light in most Graham County fields. Light to medium at Marana, Yuma County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - TENNESSEE - Slight increase, some damage to pinhead squares evident in most fields. (Locke). ALABAMA - Still heavy in many fields in north area. Controls applied in few fields in Madison County. (Magnusson).

SPIDER MITES - TENNESSEE - Increasing and weather conditions ideal for buildup. (Locke).

THRIPS - NEW MEXICO - Decreasing at Carlsbad, Eddy County. Injury not nearly so noticeable as 2 weeks ago. (Mathews).

#### TOBACCO

POTATO TUBERWORM (*Phthorimaea operculella*) - MARYLAND - Unusual heavy infestation damaged 50 percent of 1-acre tobacco planting in Anne Arundel County. Replanting required. (U. Md., Ent. Dept.).

GREEN PEACH APHID (*Myzus persicae*) - MARYLAND - First adults of season in early planted tobacco in St. Marys, Charles, and Prince Georges Counties. (U. Md., Ent. Dept.).

#### SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*) - NORTH DAKOTA - Nearly all emerged flies migrated to new fields in Walsh and Pembina Counties. Egg laying continued on lesser scale than last season. Eggs 6-10 per plant on 20 percent of plants at field edges. Maggots ranged 4-35 (averaged 8) per infested plant on 3 out of 25 plants at field edges. New economic infestation near Forest River in north Grand Forks County. Damaged up to 15 percent of plants in localized spots in 2 fields. Maggots 4-30 per plant. (Kaatz). IDAHO - Damage found June 24 in field planted April 15 at American Falls, Power County. (Schow, Sutherland).

BEEF WEBWORM (*Loxostege sticticalis*) - COLORADO - This and *Spodoptera exigua* (beet armyworm) larvae 0-30 per 100 sweeps in east area. Damage light to date. (Johnson, Burchett).

A FLEA BEETLE (*Systema taeniata*) - COLORADO - Up to 60 per 100 sweeps in east area. Damage minor to date. (Johnson, Burchett).

#### MISCELLANEOUS FIELD CROPS

SUNFLOWER BEETLE (*Zygogramma exclamationis*) - COLORADO - Larval defoliation heavy on sunflowers at Nunn and Pierce, Weld County, and at Fort Collins, Larimer County. Larvae 5-10 per bud; eggs and adults present. (Thatcher).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - IDAHO - Egg laying well underway June 24 at Pocatello, Bannock County. (Samson). Eggs and all larval instars at Twin Falls, Twin Falls County, June 25. (Sutherland). UTAH - Larvae required control from Davis County into Cache County, wherever adult control



inadequate. Many adults and larvae reported on certain nightshade weeds, in home gardens, and on farms. (Knowlton, Thornley). COLORADO - Reinfesting potatoes at Fort Lupton, Platteville, and Gilcrest, Weld County. Larvae 0-2 per plant in outer rows of fields checked. (Johnson). NORTH DAKOTA - Larvae, 3-8 per plant, on 40 percent of plants in potato field in Walsh County; adults 5 per 25 plants. Controls started. (Kaatz). MAINE - Hatched on potatoes as far north as Houlton, Aroostook County. Some in last instar in Lincoln, Penobscot County. Much injury on early potatoes. (Boulanger).

GREEN PEACH APHID (Myzus persicae) - MAINE - Spring migrant on one of 1,800 potato plants at Presque Isle, Aroostook County. (Boulanger). DELAWARE - Populations averaging 30 per 100 leaves on peppers in Sussex County. (Burbutis, Kelsey). MICHIGAN - Females and young on potatoes June 15. Problems imminent. (Wells). COLORADO - Appearing in Otero County. Less than 20 per potato plant as of June 27. (Burchett). WASHINGTON - Development slower than usual on potatoes in eastern commercial potato areas. Many volunteer potato plants present, some infested with leafroll virus. (Landis).

BUCKTHORN APHID (Aphis nasturtii) - MAINE - Infested 48 of 1,800 potato plants at Presque Isle, Aroostook County. Colonies of 1-6 nymphs. Many spring migrants still coming. (Boulanger).

POTATO APHID (Macrosiphum euphorbiae) - MAINE - Infested 69 of 1,800 potato plants at Presque Isle, Aroostook County. Colonies of 1-20 nymphs. Winged migrants still present. (Boulanger).

GRASSHOPPERS - TENNESSEE - Nymphs damaged peppers in McNairy County. (Locke).

#### BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - COLORADO - Damaged beans in Larimer, Weld, Boulder, and Morgan Counties. Damage light in most fields but moderate in few. Eggs being laid. No beetles found in Arkansas Valley to June 27. (Johnson, Burchett).

A FLEA BEETLE (Systema taeniata) - COLORADO - On beans throughout Weld, Larimer, Boulder, and Morgan Counties. Damage light to moderate, with most damage at Loveland and Berthoud, Larimer County, and at Longmont, Boulder County. Up to 40 per 100 sweeps in Arkansas Valley. (Johnson, Burchett).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Counts still heavy but declining in peas. (Wis. Ins. Sur.).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - VIRGINIA - Appears ahead of schedule. Could be problem in 1970 on Eastern Shore. (Hofmaster).

#### CUCURBITS

SQUASH BUG (Anasa tristis) - OKLAHOMA - Heavy on squash in Marshall County. Controls necessary. (Okla. Coop. Sur.).

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - COLORADO - Up to 3 per 50 cantaloup plants in Arkansas Valley. (Burchett).

#### GENERAL VEGETABLES

ONION THRIPS (Thrips tabaci) - COLORADO - Increasing, 0-50 (average 10-15) per onion plant in east area. (Burchett, Johnson).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - Pupated at Yakima, Yakima County. (Landis). UTAH - Moderate in Washington County orchards this spring. (Huber). IOWA - Heavy flight June 30 at Morning Sun, Louisa County. (Iowa Ins. Sur.). MICHIGAN - Early hatched larvae left apples to pupate. (Thompson, June 29). NEW YORK - Emergence in cages declined at Geneva, Ontario County. (N.Y. Wkly. Rpt., June 29). MAINE - Hatch began June 23. No apple entries yet. (Boulanger).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - COLORADO - Third-brood adults, 2-56 per trap, peaked June 18-23 at Palisade, Vineland, and Orchard Mesa in Mesa County. Biological controls apparently effective. Flagged tips heavy in some peach orchards. Orchard Mesa infestation generally light. (Sisson, Anderson).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Fruit damage heavy in unsprayed or poorly sprayed peach and apricot orchards at Redlands, Mesa County. (Sisson).

PEACH TREE BORER (Sanninoidea exitiosa) - CONNECTICUT - Sprays will be needed about July 5-15. Damage this year greater than in some years. (Savos, June 30).

SHOT-HOLE BORER (Scolytus rugulosus) - CALIFORNIA - Counts of 50+ per limb on cherry tree at Benicia, Solano County. Unusually bad this spring. (Cal. Coop. Rpt.).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Recent rains helped development. Egg laying starting. (Thompson, June 29). NEW YORK - Emergence in seeded cages well underway at Geneva, Ontario County. Ratio of 4 females to 1 male. (N.Y. Wkly. Rpt., June 29). CONNECTICUT - First catches of year light on false apple lures at Woodstock, Windham County, Glastonbury, Hartford County, Storrs, Tolland County, and New Haven, New Haven County. Catches generally peak from end of first week in July until end of month. (Savos, June 30). MAINE - First fly (female) of season on apple June 29 in cage at Monmouth, Kennebec County. (Boulanger). MASSACHUSETTS - Laying eggs in young apples July 1 in Worcester County. (Fultz).

CHERRY FRUIT FLY (Rhagoletis cingulata) - MICHIGAN - Adult emergence heavy inside and outside of emergence cages in south area. No signs of peak yet. (Thompson, June 29).

APHIDS - CONNECTICUT - Aphis pomi (apple aphid) building up in some localities. (Savos, June 30). MASSACHUSETTS - A. pomi nymphs and adults very numerous on terminal foliage in Hampshire and Worcester Counties. (Jensen). MAINE - Winged A. pomi migrants still arriving but in smaller numbers. (Boulanger). COLORADO - Most Myzus persicae (green peach aphid) migrated from peach to cover crops, especially bindweed, in Mesa County. (Sisson).

PEAR-SLUG (Caliroa cerasi) - OREGON - Severely skeletonized leaves on cherry and pear, mostly cherry, at Eugene, Lane County. Controls will be needed. (Tinker). IDAHO - Violent 1-inch rain June 20 washed economic numbers off leaves of 80-acre pear orchard at Payette, Payette County. Eliminated need for treatment. (Homan).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Still problem on poorly sprayed peach trees. First and second sedentary-stage nymphs of second generation on trees from Gainesville, Alachua County, to Georgia State line. (Whitcomb).

EUROPEAN RED MITE (Panonychus ulmi) - UTAH - Only damaging species in Utah County orchards. (Davis). MICHIGAN - Eggs, immatures, and adults numerous. Immatures in all instars outnumber other forms. Some bronzing of foliage in orchards not treated adequately. (Thompson, June 29). MASSACHUSETTS - Mites 168 per 50 leaves on untreated MacIntosh apple trees and 17 per 50 leaves on trees receiving dormant oil spray in Hampshire County. (Jensen). MAINE - Averaged 4-18 per apple leaf on trees not treated for mites at Monmouth, Kennebec County; eggs about 8-32 per leaf. (Boulanger, July 1).

PECAN NUT CASEBEARER (Acrobasis caryae) - NEW MEXICO - Adults emerging. Homeowners treating at Carlsbad, Eddy County. (Mathews). OKLAHOMA - Damaged 26-40 percent of nuts in unsprayed orchards checked in Tulsa, Okfuskee, and Garvin Counties. Damage moderate in Mayes and Marshall Counties. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Usual drop of pecan nuts reaching 0.75-1 inch long in commercial and home orchards in Lowndes, Lee, and other south and central counties. First-generation larvae caused 80+ percent of light drop of nuts in 3 Lowndes County orchards. (Gerald et al.).

FILBERTWORM (Melissopus latifereanus) - OREGON - First adults of season in blacklight traps June 26 at Eugene, Lane County. (Tinker).

#### CITRUS

A TORTRICID MOTH (Platynota stultana) - ARIZONA - Controls necessary to protect young seedlings in Yuma County. (Ariz. Coop. Sur.).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - In seedbeds in Yuma County. Treated. (Ariz. Coop. Sur.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Heavy on citrus trees at Orangevale and Sacramento, Sacramento County, and on lemon trees at Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - In nurseries in Yuma County. New growth treated. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Few groves treated in Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - More damaging and numerous than for several years in Washington County. (Knowlton, Huber).

BLUEBERRY MAGGOT (Rhagoletis mendax) - MAINE - First emergence (2 females) of season June 26 in cages at Jonesboro, Washington County. (Boulanger).

#### ORNAMENTALS

IRIS BORER (Macronoctua onusta) - CALIFORNIA - Larvae collected from iris at Carmichael, Sacramento County, by L. Carnahan and J. Payne July 1, 1970. Determined by M. Gardner. This is a new State record. Possibly present in 1969 but surveys negative at this location. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - TENNESSEE - Heavy; damage severe to several cedars and arborvitae in Davidson County. (Greene). KANSAS - Damage heavy to evergreens throughout Sedgwick County. (Redding).

HOLLYHOCK WEEVIL (Apion longirostre) - CALIFORNIA - Adults collected at Standish, Lassen County, by J. Payne and B. Adkins week ending July 3. This is a new county record. (Cal. Coop. Rpt.).

SHALLOT APHID (Myzus ascalonicus) - WASHINGTON - Recovered from violet May 10 at Yakima, Yakima County, for a new county record. Determined by L.M. Russell. (Landis).

JUNIPER SCALE (Diaspis carueli) - IDAHO - Heavy on juniper June 25 at Twin Falls, Twin Falls County. (Sutherland, Youtz).

## FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Defoliation moderate to heavy on 12-15 thousand acres of balsam fir and white spruce on Kabetogama Peninsula east of International Falls, Koochiching County. (Minn. Pest Rpt.). OREGON - Adults light to medium in blacklight trap collections at Salem, Marion County, week of June 26. (Goeden).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Surveys indicate high potential for severe defoliation in northwest area in 1971. Declined 50 percent by June 29 in northeast area, many larvae dead or sick and parasite cocoons abundant. Browning jack pine foliage in northeast Juneau County for second year. Moths abundant in Jackson, Adams, and Wood Counties. Defoliated understory reproduction but little defoliation of older trees at Jackson County site. Browning at some sites in Adams and Wood Counties. (Wis. Ins. Sur.).

PINE TUSsock MOTH (Dasychira plagiata) - WISCONSIN - Stripped foliage in 2,000-acre area of jack pines 25-30 feet tall in northwest section by June 20 in Polk and Burnett Counties. Larvae in late instars; migrating to new food sources and annoying residents. Pupation underway June 25. Six or more Meteorus sp. (a braconid) cocoons on almost every tree. (Wis. Ins. Sur.).

PINE SPITTLEBUG (Aphrophora parallela) - MICHIGAN - Spittle masses common on trunks of roadside jack pine in Grand Traverse County. Fifth instars predominated, but no adults June 24. No spittle masses June 29 in 1-acre Scotch pine stand in Ingham County. Adults not well dispersed, 45 in 10 sweeps. (Hanna). OREGON - Adults very numerous on young ponderosa pine on Roxy Ann Butte near Medford, Jackson County, week of June 26. (Westcott, Brown). Spittle masses heavy on lodgepole pine June 22 at north end of Beverly Beach State Park, Lincoln County. (Kokel).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MICHIGAN - Infested 8 acres of Scotch pine in nursery rows in Washtenaw and Wayne Counties. Eggs under female scales, but none hatched. (Hanna, June 29).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - IDAHO - Heavy on pine June 25 at Twin Falls, Twin Falls County. (Sutherland, Youtz).

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - In last instars. Causing some problems in white spruce plantations in north area. (Minn. Pest Rpt.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - WEST VIRGINIA - Defoliated 0-5 percent of Virginia pine in Hardy County June 22. This is a new county record. (W. Va. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Larvae reported at Alexandria, Douglas County, 35 miles from infestation at Clitherall, Otter Tail County. Aerial surveys in progress in this area and at International Falls, Koochiching County. (Minn. Pest Rpt.). MONTANA - Infestation center around Townsend, Broadwater County, and Fort Benton, Chouteau County, on green ash. Also over most of State on chokecherry. (Pratt, June 26).

NOTODONTID MOTHS (Heterocampa spp.) - ARKANSAS - H. mantee (variable oak leaf caterpillar) heavy and caused much foliar loss in recreational areas near Heber Springs, Cleburne County. Heavy infestations not previously this early. (Warren). NEW HAMPSHIRE - Trapped 236 adults of H. guttivitta (saddled prominent) June 21-25 in blacklight trap at Ossipee, Carroll County. Also trapped 638 adults of the parasite Cratichneumon sublatius (an ichneumon wasp) June 23-25. H. guttivitta laying eggs. (Blickle).

SATIN MOTH (Stilpnotia salicis) - CALIFORNIA - Larvae collected at Madeline, Lassen County, by J. Payne and B. Adkins week ending July 3. This is a new county record. (Cal. Coop. Rpt.). OREGON - Light to medium in blacklight trap collections at Salem, Marion County, week of June 26. (Goeden).

TORTRICID MOTHS - PENNSYLVANIA - About 4,800 Croesia semipurpurana moths trapped night of June 22 in Schuylkill County light trap. (Quinter). OREGON - Cnephasia longana (omnivorous leaf tier) light to medium in blacklight trap collections at Salem, Marion County, week of June 26. (Goeden).

BOXELDER LEAF ROLLER (Gracillaria negundella) - UTAH - Damage continues in much of Salt Lake County, (Birmingham), parts of Utah County (Barlow), and in Weber County (Rogers). Damage more general than normal. (Knowlton).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Mating in Washington County at end of June. Egg laying expected by this time, two weeks later than normal. (Warren).

ELM SPANWORM (Ennomos subsignarius) - CONNECTICUT - Adults still heavy in south-central and southwest areas. (Savos, July 1). MASSACHUSETTS - Adult flights heavy in Worcester, Hampshire, and Hampden Counties. (Jensen).

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - ALABAMA - Few adults collected in Covington County for a new county record. Determined by J.P. Cunningham. (Pike).

ELM LEAF BEETLE (Pyrrhalta luteola) - CALIFORNIA - Severely damaged elms in parts of Sacramento, Sacramento County. (Cal. Coop. Rpt.). NEVADA - Larvae and damage light to date at Orovada and Winnemucca, Humboldt County. (Lundahl, Peters). Damage noticeable in southern Washoe County. (Nev. Coop. Rpt.). UTAH - Adults becoming more common on central area elms. Damage conspicuous at St. George, Washington County. (Knowlton). NEW MEXICO - Heavy and damaging Siberian elm foliage at Farmington and Aztec, San Juan County. (Heninger). OKLAHOMA - Small second-generation larvae feeding in Payne County. Heavy in Mayes County. Light to moderate in Marshall County. (Okla. Coop. Sur.). WEST VIRGINIA - Heavy on several Kanawha County elms. Heavily damaged a Siberian elm in Marion County. (W. Va. Ins. Sur.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - TENNESSEE - Major outbreak, damage very severe to locust in central area. (Jennings).

BIRCH LEAF MINER (Fenusa pusilla) - IDAHO - First-generation larvae defoliated 90 percent of cutleaf birch at Lewiston, Nez Perce County. (Kambitsch). MAINE - Damage much more evident than week ago from mid-State northward. (Boulanger).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 12 cases reported in U.S. June 28 to July 4 as follows: TEXAS - Brewster 2, Medina 1, Pecos 5, Terrell 2; ARIZONA - Pima 1, Yavapai 1. Total of 34 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 20, Chihuahua 9, Coahuila 2, Nuevo Leon 3. Total of 7 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 49,098,000; New Mexico 1,760,000; Arizona 13,920,000; California 360,000; Mexico 90,850,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - UTAH - Very common and troublesome to cattle throughout Sevier County and in Box Elder and Weber Counties. (Knowlton, Rickenbach). OKLAHOMA - Heavy on cattle in Marshall and Mayes Counties. (Okla. Coop. Sur.). SOUTH DAKOTA - Ranged 20-500 (averaged 175) per side on beef cows in herd in northern Moody County. (Balsbaugh). IOWA - Averaged 15 per head on

beef cattle in Story County, 10 in Jones County, 8 in Adair County, and 300 per animal at pasture in Keokuk County. (Iowa Ins. Sur.). WISCONSIN - Plentiful in Bayfield County. (Wis. Ins. Sur.). ALABAMA - This and Tabanus sp. (a horse fly) and Chrysops spp. (deer flies) heavy on cattle throughout Bibb County. Horn flies continue heavy on cattle in Wilcox County. (Odom, Farquhar, June 25). VERMONT - Haematobia irritans decreased somewhat during dry period. (Nielsen, July 1).

FACE FLY (Musca autumnalis) - UTAH - Becoming more annoying, especially to horses, in Cache, Weber, and Box Elder Counties. (Knowlton). SOUTH DAKOTA - Increased to average of 8 per face. Ranged 1-17 per face on cows and 2-14 per face on calves. (Balsbaugh). IOWA - Averaged 15 per head on beef cattle in Story, Jones, and Keokuk Counties and 8 in Adair County. (Iowa Ins. Sur.). NEW JERSEY - Very heavy in Hunterdon and Somerset Counties. (Ins.-Dis. Newsltr.). VERMONT - Moderate, mostly on head, but annoying during hot, dry weather. (Nielsen, July 1).

STABLE FLY (Stomoxys calcitrans) - GEORGIA - Irritating beef cattle so severely in Mitchell County that some brood cows will not let calves feed. (Lee). WISCONSIN - Increasing. Plentiful in Bayfield County. (Wis. Ins. Sur.).

MOSQUITOES - UTAH - Numerous and troublesome in range areas from Corinne to Kelton in Box Elder County. (Knowlton, Judd). KANSAS - Much annoyance in north-west and west-central districts. (Gates). MINNESOTA - Aedes vexans 89 percent of 9,439 females in light traps at Minneapolis and St. Paul week ending June 26. Coquillettidia perturbans 4 percent of total. A. vexans in 19 and Culex tarsalis in 4 of 26 larval collections. A. vexans 299 of 346 mosquitoes in 28 evening bite collections. A. vexans 2,478 of 3,694 mosquitoes in daytime bite collections. A. trivittatus in about 10 percent of day and evening bite collections. Mosquitoes declined through June 27 in all light traps. Greatly increased following heavy southerly winds. Some areas treated and cleared of adults, mostly A. vexans, reinvaded in one day's time; counts higher than pretreatment levels in many cases. Most Coquillettidia already emerged from cattail swamp habitat. (Minn. Pest Rpt.) WISCONSIN - Biting heavy in nearly all counties. Principal biter A. vexans but A. sticticus bad in shaded areas along streams and rivers. (Wis. Ins. Sur.). OHIO - Ranged 3-330 per light trap per night in Franklin County. A. trivittatus and A. vexans most numerous. Averaged 200 per trap in Ashland County previous week. (Ohio Dept. of Health). VERMONT - Commonly biting cattle, especially in evening. (Nielsen, July 1). MAINE - Woodland Aedes heavy in many areas. At least 10 species present. (Boulanger).

BLACK FLIES - UTAH - Simulium argus collected April 28 and October 12, 1969, at Snowville, Box Elder County. Determined by B.V. Peterson. This is a new county record. S. vittatum commonest species in Deep Creek area from Snowville south, and at Hardup, Cedar Creek, and Kelton in Box Elder County. (Knowlton). WISCONSIN - Black flies, mainly S. venustum, still troublesome although biting subsided. (Wis. Ins. Sur.). MAINE - Black Flies moderate in many central and north areas. Some highly productive sites of S. corbis and S. venustum at Jackman, Somerset County. (Boulanger).

TABANID FLIES - UTAH - Hybomitra sonomensis active at Public Grove, Cache County, at 6,300 feet elevation. (Knowlton, Davis). MINNESOTA - Deer flies heavy in north area. Extremely annoying in Winona and Houston Counties. (Minn. Pest Rpt.). WISCONSIN - Deer and horse flies plentiful in Bayfield County. (Wis. Ins. Sur.). GEORGIA - Horse flies annoying horses and beef cattle in north area. (Nolan). VERMONT - Horse flies declined from 20-25 to 0-1 per head past 2 weeks on pastured cattle. (Nielsen, July 1).

TICK SURVEILLANCE - Survey throughout U.S. is to show seasonal distribution of potential vectors and hosts of livestock diseases, and to detect exotic species. Some of the more interesting determinations for June were as follows: Amblyomma americanum (lone star tick) MISSOURI - dog, cow; ARKANSAS - cattle; NEBRASKA - cattle; TEXAS - cattle, horse; Dermacentor variabilis (American dog tick)

MISSOURI - cattle; INDIANA - sheep; MASSACHUSETTS - dog; NORTH CAROLINA - man; TEXAS - horse, cattle; KANSAS - man; MARYLAND - man; WASHINGTON - dog; Rhipicephalus sanguineus (brown dog tick) OKLAHOMA - dog; TEXAS - horse; Otobius megnini (ear tick) OREGON - cattle; COLORADO - dog; Boophilus microplus (southern cattle tick) TEXAS - cattle, mule; Haemaphysalis leporispalustris (rabbit tick) MARYLAND - rabbit. (Anim. Health Div.).

CHIGGER MITES (Eutrombicula spp.) - OKLAHOMA - Heavy, annoying in Mayes and Marshall Counties. (Okla. Coop. Sur.).

#### HOUSEHOLDS AND STRUCTURES

A WEEVIL (Trachyploeus bifoveolatus) - WISCONSIN - Adults collected entering house at Mattoon, Shawano County, by M.S. Conrad June 9, 1970. Determined by R.E. Warner. This is a new State record. (Wis. Ins. Sur.).

#### STORED PRODUCTS

A DARKLING BEETLE (Tribolium audax) - NORTH DAKOTA - Adult collected at Dickinson, Stark County, by D. McBride April 13. This is a new county record. (PPD).

#### BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Counts of 30 per 100 sweeps on Cochise County alfalfa. Hippodamia convergens (convergent lady beetle) heavy on Graham County alfalfa. (Ariz. Coop. Sur.). ARKANSAS - H. convergens and Coleomegilla maculata fuscilabris built up in sorghum infested by corn leaf aphid. (Boyer).

LACEWINGS - ARIZONA - Heavy on Graham County alfalfa. (Ariz. Coop. Sur.). WASHINGTON - Chrysopa californica preying on aphids and pear psylla eggs on pear at Pomona, Yakima County. (Gregorich).

FLOWER BUGS (Orius spp.) - ARIZONA - Counts per 100 sweeps in alfalfa by county: Graham 506 and Cochise 200. (Ariz. Coop. Sur.). ARKANSAS - O. insidiosus building up in blooming sorghum. Light in fields in prebloom and postbloom stages. (Boyer).

DAMSEL BUGS (Nabis spp.) - ARIZONA - Counts per 100 sweeps of alfalfa by county: Cochise 75, Graham 34. (Ariz. Coop. Sur.). WASHINGTON - N. ferus feeding on apple aphid on apple at Cowiche, Yakima County. (Gregorich).

BIG-EYED BUGS - ARIZONA - Five per 100 sweeps of Graham County alfalfa. (Ariz. Coop. Sur.). ARKANSAS - Geocoris punctipes most abundant predator in northeast and east-central area cotton. (Boyer).

HONEY BEE (Apis mellifera) - MINNESOTA - Heavy June rains followed by warm weather produced abundant nectar. Yields of two or more supers of honey past 2 weeks in many areas. Daily gains of 10 pounds or more per day in colonies at Minneapolis and St. Paul. Alfalfa and yellow sweetclover major sources of nectar. Basswood blooming in south area and expected to bloom in Twin City area by weekend of July 4. July major month for honey production in State. (Minn. Pest Rpt.).

ALFALFA LEAFCUTTER BEE (Megachile rotundata) - IDAHO - First emerged under natural conditions June 23 at Jerome, Jerome County. (Priest). Nests placed June 25 at Hollister and Rogerson, Twin Falls County, alfalfa seed fields. (Sutherland).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Following new county records determined by R.E. White. Adults light on oats on farm in Menard County; collected by K. Kreis June 22. Larvae light on oats on farm in southeast Kendall County; collected by H. Palmer June 26. (PPD). INDIANA - Larvae almost gone from fields at New Carlisle, St. Joseph County. Adult emergence about one-third completed. (Shade). MICHIGAN - Controls underway in Huron and Clare Counties (Warschefsky, MacQueen). Controls completed with good results in more southern counties. Adults common but not damaging in St. Claire County. (Thompson, June 29). OHIO - Damage in Licking County severe to 26 acres of field corn, adjacent to wheat previously heavily infested. (Lyon). Adults and larvae in large stand of field corn in Delaware County. Larvae fed on most plants; extensively damaged some. (Roach).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Adults flying. Appear to be heavier in Wayne County near Newark than in recent years. (N.Y. Wkly. Rpt., June 29).

A GRASS BUG (Irbisia pacifica) - UTAH - Light in grassy meadows in mountains north of Liberty, and in Cache County at 6,300 feet elevation. (Knowlton).

GRASSHOPPERS - NEVADA - Melanoplus sanguinipes spotted, localized, and heavy on 200-300 acres of abandoned weedy grain fields in Diamond Valley, Eureka County. Plants drying and grasshoppers beginning to move into cultivated areas. (DuBois). Mostly M. sanguinipes and Oedaleonotus enigma mixed with localized populations of Camnula pellucida generally infested 20,000 acres of rangeland on eastern side of Shoshone Range in Lander County. Ranged 10-20 per square yard. Adults on lower slopes and first and second instars prevalent at higher elevations. (Burnett). M. rugglesi, 0-3 per square yard, localized in Rocky Canyon area, Seven Troughs Range, Pershing County, for second consecutive year. Few adults mating. Occasional specimen near Humboldt Canyon, Humboldt Range, Pershing County. (Bechtel, Martinelli). UTAH - Grasshopper outbreak on 320 acres developing on Iron Mountain, Iron County. First instars 25 per square foot. (Judd). OKLAHOMA - Counts on rangeland during June: Ranged 3-25 per square yard in northwest and panhandle areas; eight and above per square yard on about 300,000 acres scattered in Beaver, Cimarron, Dewey, Ellis, Harper, Major, Roger Mills, Texas, Woodward, and Woods Counties. Ranged 4-15 per square yard in west-central and southwest areas. Heavier on about 80,000 acres in Beckham, Caddo, Comanche, Custer, Greer, Kiowa, Tillman, and Washita Counties. Light in south-central and southeast areas. Few scattered threatening populations current in alfalfa margins along creeks and weedy areas. Phliobostroma quadrimaculatum, Ageneotettix deorum, Metator pardalinus, Aulocara eliotti, and Amphitornus coloradus dominant on range. (PPD). Damaged rangeland, cotton, sorghum, peanuts, and gardens in several western counties. (Okla. Coop. Sur.). KANSAS - Damage moderate on corn and alfalfa in Harvey County. (Iselin). Early instars light in all alfalfa checked in northeast district. Third and fourth instars 10 per square yard of alfalfa in Comanche County and similarly in adjoining counties. (Gates). NEBRASKA - Melanoplus spp. 25-40 per square yard in southeast area. (Roselle). SOUTH DAKOTA - Building up in Sanborn, Douglas, and Charles Mix Counties. Counts per square yard 7 in alfalfa and 10-30 (average 15) in margins near Corsica, Douglas County, and near Fort Randall, Charles Mix County. M. femurrubrum, mostly first and second instars, and M. sanguinipes in second to fifth instar in Charles Mix County. Counts of 4 per square yard in margins north of Woonsocket, Sanborn County, and 20 (up to 50) per square yard in weedy sweet-clover east of Woonsocket. M. bivittatus and M. differentialis also present. (Zimmerman). NORTH DAKOTA - Up to 9 per square yard in margins and 7 per square yard in some alfalfa in Morton, Grant, Burleigh, and Emmons Counties. Averaged less than 1 per square yard in all counties. M. bivittatus, M. sanguinipes, M. differentialis, and M. femurrubrum dominant. (Grasser). MINNESOTA - M. femurrubrum hatched statewide. Only economic in Sherburne County. Ranged 10-36 per



square yard in alfalfa and grass fields. Some early movement into adjacent rye and soybean fields. M. femurrubrum in first to third instar. M. bivittatus nymphs in fourth instar. Few M. packardii adults, species not common this year. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - Damage heavy in Jefferson, Randolph, and Morris Townships. (Ins.-Dis. Newsltr.). RHODE ISLAND - Defoliated residential and forest areas of Kent County. (Relli). VERMONT - Larvae in Chittenden County much more numerous than past 4-5 years. (Nielsen, July 1). NEW HAMPSHIRE - Pupated July 1 in Strafford County. Wilt disease and tachanid and chalcid parasites present. (Conklin, Morse).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ARKANSAS - Adults on roadside at Vick, Bradley County, for a new county record. Collected by A. Beavers June 25. Determined by V.H. Owens; confirmed by D.R. Smith. (PPD).

JAPANESE BEETLE (Popillia japonica) - Following new county records determined by V.H. Owens; confirmed by J.M. Kingsolver. GEORGIA - Adult trapped on highway right-of-way at Covington, Newton County. Collected by J. Hardin June 25. NORTH CAROLINA - Adults light on soybeans on farm at Vale, Lincoln County. Collected by J. Savage June 25. (PPD). TENNESSEE - Extensions to known infestations in Campbell, Carter, Hawkins, Jefferson, Loudon, Sevier, Sullivan and Unicoi Counties. (PPD). VIRGINIA - Light locally on shade tree and fruit foliage in Waynesboro, Augusta County. (Innes). Heavy on grapes and Virginia creeper in Montgomery County. (Allen). First adult in Fluvanna County June 24 on grapevines. (Watts). MARYLAND - Adults active in many cornfields throughout Eastern Shore and south area. Damage heaviest near Cambridge, Dorchester County; adults caused moderate leaf damage to 50 percent of plants in 20-acre cornfield. Numbers heaviest of past 3 years in lower Charles and St. Marys Counties. Damage heavy on roadside grape and sassafras in many areas of these counties. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - IDAHO - Chemical treatment of infested gardens within Boise, Ada County, city limits reached 800, over 250 more gardens than in 1969. Numbers per garden on July 1 lighter than last year. (Fisher). Infested 3 gardens at Rupert, Minidoka County, compared with 22 last year. (Butcher).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released June 26 to July 1. CALIFORNIA - Coachella Valley 4,354,750, total to date 58,039,000; Bakersfield 1,000,000, total to date 13,371,700. ARIZONA - Redington, Pima County, 45,000; total to date 562,300. At Redington release site, 15 sterile moths caught in field and 7 native moths in trapline to south. Infested 10-15 percent of cotton in Salt River Valley and Yuma areas. Rosetted blooms on 1,186 acres in Coachella Valley. Larvae heavy on Imperial Valley cotton; some growers spraying. Application of insecticides much earlier than in any previous year. (PPD). ARIZONA - Continued to increase in Yuma County. Larvae in Yuma Valley from 50 in 650 blooms up to 25 percent in 100 blooms; averaged 3-5 percent per 100 blooms. Two in 100 blooms at Bermuda City, Mohave County. One in 200 blooms at Wellton, Yuma County. First larvae in blooms in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Eleven adults collected in 10 hexalure traps June 15-22. (Mathews).

RANGE CATERPILLAR (Hemileuca oliviae) - COLORADO - Larvae light, 6-7 per square yard, on 60,000 acres of range in Las Animas County. (Watson).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ARKANSAS - Cysts collected for new county records in Franklin County June 29 and in Pulaski County June 30 by B.F. Goolsby. Determined by V.H. Owens; confirmed by A.M. Golden. (PPD). TENNESSEE - Local spread in Chester and Hardin Counties on soybeans. (Gordon).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - New infestation at Clovis, Fresno County, partly delimited. Square-mile area south of old Clovis quarantine zone containing 13 new infestations completely surveyed. Infested blocks treated once and infested properties 2-3 times. Found few live larvae in late instar following first treatment; immediate redusting necessary. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - TENNESSEE - Found on Milan Arsenal for a local spread in Gibson County. (Gordon). VIRGINIA - Heavy larval numbers feeding on grass roots at Hampton. First 4 G. leucoloma striatus adults of season recovered while digging for larvae. All stages in soil. (Smith).

#### DETECTION

New State Records - IRIS BORER (Macronoctua onusta) CALIFORNIA - Sacramento County (p. 479). A WEEVIL (Trachyphloeus bifoveolatus) WISCONSIN - Shawano County (p. 483).

New County Records - ALFALFA WEEVIL (Hypera postica) IOWA - Adams, Butler, Decatur, Grundy, Jasper, Madison, Polk, Poweshiek, Pottawattamie, Ringgold, Tama, Union, Warren; NEBRASKA - Richardson; TEXAS - Gillespie, Houston, Smith, Wilbarger (p. 474). ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) ALABAMA - Covington (p. 481). A BLACK FLY (Simulium argus) UTAH - Box Elder (p. 482). CEREAL LEAF BEETLE (Oulema melanopus) ILLINOIS - Kendall, Menard (p. 484). A DARKLING BEETLE (Tribolium audax) NORTH DAKOTA - Stark (p. 483). EUROPEAN PINE SAWFLY (Neodiprion sertifer) WEST VIRGINIA - Hardy (p. 480). HOLLYHOCK WEEVIL (Apion longirostre) CALIFORNIA - Lassen (p. 479). IMPORTED FIRE ANT (Solenopsis saevissima richteri) ARKANSAS - Bradley (p. 485). JAPANESE BEETLE (Popillia japonica) GEORGIA - Newton; NORTH CAROLINA - Lincoln (p. 485). SATIN MOTH (Stilpnotia salicis) CALIFORNIA - Lassen (p. 481). SHALLOT APHID (Myzus ascalonicus) WASHINGTON - Yakima (p. 479). SOYBEAN CYST NEMATODE (Heterodera glycines) ARKANSAS - Franklin, Pulaski (p. 485).

#### HAWAII INSECT REPORT

Turf, Pasture - A GRASS WEBWORM (Herpetogramma licarsisalis) still light and spotty in Kikuyu grass (Pennisetum clandestinum) pastures at Haiku, Waihee, and Ulupalakua, Maui. Larvae about 1 per 10 square feet. Adults light in mixed stand of grass at Mililani Memorial Park, Oahu; larvae nil. (Miyahira, Kawamura).

General Vegetables - All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy in 0.75 acre of bitter melon (Momordica charantia) at Pupukea, Oahu; sooty mold heavy on older leaves. All stages trace in cucumber fields in same area and at Halawa, Oahu. CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate in 0.25 acre of see-qua (Luffa acutangula) at Pupukea. Moderate on snap beans in old 0.25-acre planting at Waimanalo, Oahu; light in adjacent 0.25 acre. BEAN FLY (Melanagromyza phaseoli) still light in most commercial snap bean and yardlong-bean plantings at Waimanalo and Waianae, Oahu. (Kawamura).

Fruits and Nuts - ORIENTAL FRUIT FLY (Dacus dorsalis) oviposition causing shriveling and premature fruit drop of backyard passionfruit at Aina Haina, Oahu (elevation sea level); damaged 80 percent of mature green fruits. (Kawamura). An ARMORED SCALE (Phenacaspis cockerelli) moderate, averaged 20 per leaflet, on 50 coconut trees at Kihei, Maui; light on 100 trees at Kahului, Maui. FLORIDA RED SCALE (Chrysomphalus aonidum) generally moderate, averaged 17 per leaflet, on 100 coconut trees at Kahului. Heavy, as many as 500, on some leaflets. An aphelinid parasite moderate on heavily infested leaflets. (Miyahira).

Shade Trees - MONKEYPOD MOTH (Polydesma umbricola) larvae almost completely denuded canopies on about 30 percent of 24 monkeypod (Samanea saman) trees at Mililani Memorial Park. (Kawamura).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) heavy (mostly 2-3 inches long) in shrubbery around nursing home at Honolulu, Oahu. (Olson).

LIGHT TRAP COLLECTIONS

| State         | County | Locality     | Date     | Precip-<br>itation,<br>inches | Type of<br>light | No. of<br>traps | No. of<br>insects | Cotton   |         | Cotton   |         | Cotton   |         | Cotton   |         | Cotton   |         | Cotton   |         | Cotton   |         | Cotton |  | Cotton |  |
|---------------|--------|--------------|----------|-------------------------------|------------------|-----------------|-------------------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|--------|--|--------|--|
|               |        |              |          |                               |                  |                 |                   | 100% (4) | 50% (4) | 100% (4) | 50% (4) | 100% (4) | 50% (4) | 100% (4) | 50% (4) | 100% (4) | 50% (4) | 100% (4) | 50% (4) | 100% (4) | 50% (4) |        |  |        |  |
| FLORIDA       |        | Gainesville  | 6/26-7/1 |                               | BL               | 2               |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| KANSAS        |        | Great Bend   | 6/24-30  |                               | BL               | 1               |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| MARYLAND      |        | Centreville  | 6/26-7/2 |                               | BL               |                 |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
|               |        | Hurlock      | 6/25-7/1 |                               | BL               |                 |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
|               |        | Salisbury    | 6/26-7/1 |                               | BL               | 7               |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| MINNESOTA     |        | Crookston    | 6/23-30  |                               | BL               |                 |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
|               |        | Fergus Falls | 6/23-30  |                               | BL               |                 |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
|               |        | Worthington  | 6/23-30  |                               | BL               |                 |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| MISSISSIPPI   |        | Stoneville   | 6/26-7/2 | 66-98                         | 2BL              | 9               |                   | 11       | 27      | 4        | 46      |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| NEBRASKA      |        | Lincoln      | 6/27-7/2 |                               |                  | 150             |                   | 10       | 26      |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| NEW HAMPSHIRE |        | Durham       | 6/29     |                               | BL               |                 |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
|               |        | Lee          | 6/29     |                               | BL               | 3               |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| NEW JERSEY    |        | Cedarville   | 6/26-30  |                               | BL               | 18              |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
|               |        | Essexboro    | 6/26-30  |                               | BL               | 11              |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
|               |        | Plainboro    | 6/26-30  |                               | BL               | 17              |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| OHIO          |        | Reynoldsburg | 6/25-30  |                               | BL               | 26              |                   |          | 7       |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| TEXAS         |        | Waco         | 6/26-7/2 | 76-96                         | None             | 39              |                   |          | 65      | 5        | 57      |          |         |          |         |          |         |          |         |          |         |        |  |        |  |
| WEST VIRGINIA |        | Monroe       | 6/27     | 60                            |                  |                 |                   |          |         |          |         |          |         |          |         |          |         |          |         |          |         |        |  |        |  |

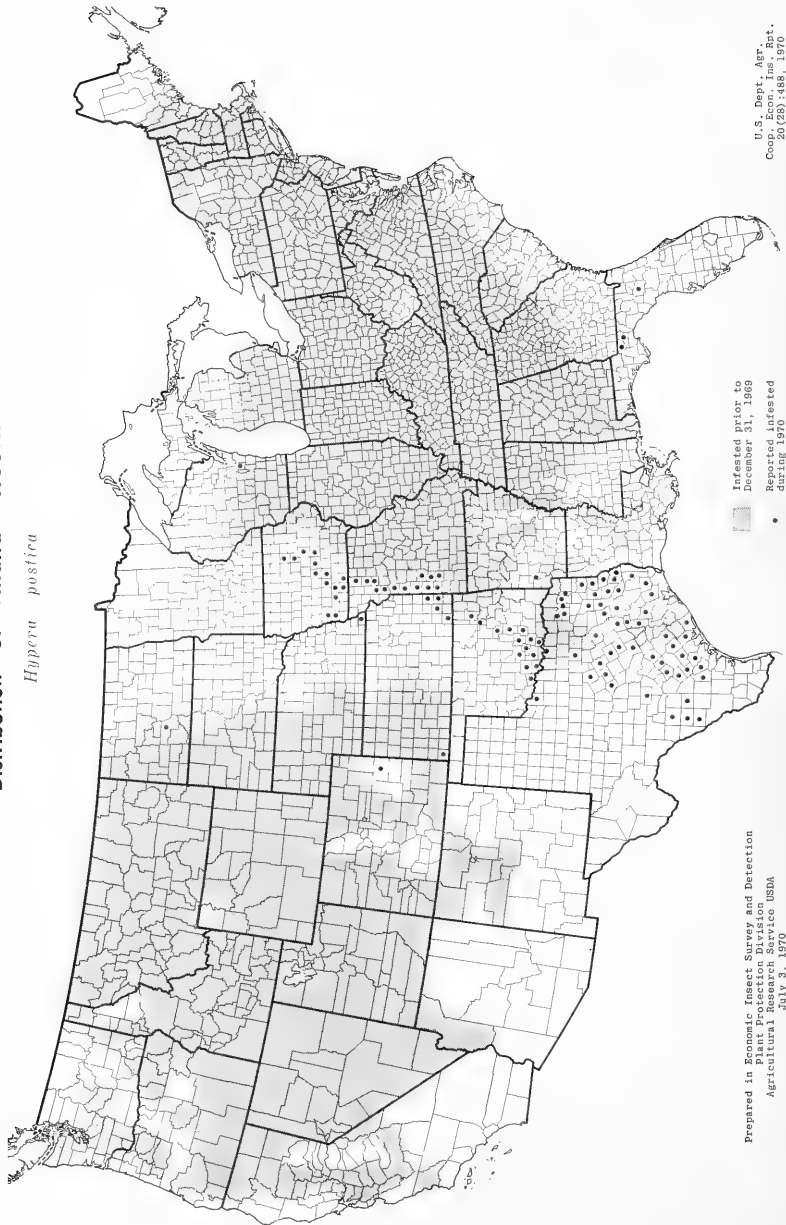
WEATHER BUREAU'S 30-DAY OUTLOOK  
JULY 1970

Weather continued from page 470.

The weather Bureau's 30-day outlook for July is for temperatures to average above seasonal normals from the Plateau region to the Mississippi Valley. Below averages are expected along the Pacific coast as well as in the south Atlantic Coast States. Elsewhere near normal temperatures are in prospect. Precipitation is expected normal over the south Atlantic Coast States, the Ohio and middle Mississippi Valleys, the southern Plateau, and the north Pacific coast. Subnormal totals are indicated for the northern and southern Plains and New England. 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.

**Distribution of Alfalfa Weevil**  
*Hypera postica*





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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

ARMYWORM light trap counts high in Maryland, Nebraska, Ohio, and Wisconsin. (p. 507). ASTER LEAFHOPPER populations heavy and conditions present for aster yellows outbreak in Michigan. CORN EARWORM heavy on ensilage in parts of New Mexico, and heavy on peanuts in limited area of Alabama. (p. 491).

EUROPEAN CORN BORER larval damage severe in Sussex and Prince Edward Counties and peak moth emergence expected about mid-August on Eastern Shore of Virginia. Damage more severe this year than 1969 in Ohio. (p. 492). CORN ROOTWORMS damaged corn in portions of South Dakota and Minnesota. (p. 493).

ALFALFA WEEVIL damage severe on alfalfa in Bingham County, Idaho, and heavy on second-crop alfalfa in New Mexico. Controls applied in Wyoming. (p. 494).

BOLL WEEVIL conditions ideal for buildup in west Tennessee. Damaging numbers developed in south and central Alabama, and counts increased in south Georgia. (p. 495).

TORTRICID MOTHS heavily damaged 750,000 acres of forest trees in north-central Pennsylvania and FOREST TENT CATERPILLAR damaged about 156,000 acres of timber in southwest part of State. (p. 500). GYPSY MOTH defoliated about 8,000 acres of timber in eastern Pennsylvania. (p. 504).

Detection

For new county records see page 506.

Special Reports

Distribution of Alfalfa Weevil. Corrected and Revised Map. (p. 508).

Reports in this issue are for week ending July 10 unless otherwise indicated.

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### WEATHER OF THE WEEK ENDING JULY 13

**HIGHLIGHTS:** Typical summer heat prevailed over much of the Nation. Scattered thundershowers, some locally heavy, occurred from the Rocky Mountains to the Atlantic Ocean.

**PRECIPITATION:** High pressure and mostly clear rainless skies prevailed over most of the Nation early in the week. Scattered thundershowers, some accompanied by hail and high winds, occurred across mid-America early Wednesday. At midweek nighttime and early morning showers fell across the warm, humid Southland and from the eastern Great Lakes to the Middle Atlantic States. Locally heavy showers occurred Thursday afternoon along the gulf and Atlantic coasts. Washington, D.C., National Airport received 4.69 inches Thursday afternoon and evening, flooding some roads and underpasses. Rainfall totals west of the Rocky Mountains were generally only a small fraction of an inch and many far-western stations received no rain. Heavier rains fell over the Great Plains with weekly totals mostly from 0.10 to 0.75 inch. The heaviest showers fell in southern Pennsylvania and nearby parts of Maryland and West Virginia with a number of locations receiving several inches of rain Thursday afternoon and evening and early Friday.

**TEMPERATURE:** High pressure brought mostly fair weather last week. Early morning temperatures ranged mostly from the 50's across the Northern States to the 70's across the South. Ocean breezes cooled the Pacific coast but hot afternoons, typical for this time of year, were general over inland portions of the Nation from the Canadian to the Mexican border. Temperatures reached 100° or higher in eleven States on Wednesday afternoon. Temperatures averaged slightly below normal along the Pacific coast, but several degrees above normal from southeastern Washington to the southwestern deserts. Near-normal weekly average temperatures occurred from the Great Basin to the middle Mississippi River. Most of the East averaged slightly cooler than normal. (Summary supplied by Environmental Data Service, ESSA.)

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - SOUTH DAKOTA - Most early generation larvae pupated. Moth flights heavy during late June and early July. If second-generation problems develop, they should occur in late July. Larval parasitism evident in numerous infested fields. (Jones).

**ASTER LEAFHOPPER (*Macrosteles fascifrons*)** - NEW YORK - Adults 154 per 400 sweeps in field of muckland carrots near Gorham, Ontario County, on July 2. Few nymphs collected; indicates eggs deposited and hatched on carrots. Controls applied before sweeps taken. (N.Y. Wkly. Rpt., July 6). MICHIGAN - Specimens collected on June 10 had aster yellows disease infectivity of 5-6 percent. Crop protection necessary this season. All ingredients for severe aster yellows outbreak present. Leafhopper population heavy. (Bath, July 6).

**CORN EARWORM (*Heliothis zea*)** - NEW MEXICO - Heavy on ensilage and home gardens in Eddy and Chaves Counties. (N.M. Coop. Rpt.). Ensilage corn in Union County shows heavy damage. Controls planned. (Zimmerman). TEXAS - Light on grain sorghum in most south-central counties. (Green). OKLAHOMA - Larvae ranged 0-4 per ear in 125 sweet corn ears in Mayes County. All ears showed present or past damage. Light damage to young ears of field corn noted in Nowata County. Moderate in corn in Craig County and light in Choctaw County. Occasional larva in sorghum in Craig and Mayes Counties and in soybeans in Tulsa and Craig Counties. (Okla. Coop. Sur.). KANSAS - Moths and larvae abundant, sweet corn needs watching. (Gates, July 7). ARKANSAS - *H. zea*, *Spodoptera frugiperda* (fall armyworm), and *Prodenia ornithogalli* (yellow-striped armyworm) destroyed terminals of small soybeans in Lonoke, Prairie, and Arkansas Counties. (Barnes). MISSOURI - *H. zea* damage showing on 22 to 68 percent of ears in 4 fields of early planted corn in southwest area. Larvae full grown with some pupation noted. (Munson). ALABAMA - Late instars very heavy on most peanut plants in large field in Crenshaw County. Regular control efforts failed but were to continue with change of insecticides. (Smith, Bond). MICHIGAN - First adult for season collected June 26 at Van Buren County station. About 2 months ahead of heavy dispersal flight. (Newman, July 6).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - UTAH - Very light on north area field corn. (Knowlton). COLORADO - Ranged 0-300 per sorghum plant in Cheyenne, Kit Carson, and Yuma Counties. Noneconomic. (Johnson). NEW MEXICO - Generally moderate to heavy on grain sorghum in south area. Some controls applied on older grain sorghum. (N.M. Coop. Rpt.). TEXAS - Light to heavy in grain-producing areas throughout State, but limited economic damage anticipated. (Daniels et al.). OKLAHOMA - Ranged 0-150 per plant in most sorghum checked in northeast area. Ranged up to 700 per plant in few fields. (Okla. Coop. Sur.). MISSOURI - Light on small grain sorghum in southwest area. Ranged 5-20 per plant in infested fields. (Munson, July 4). INDIANA - Infested one-third of corn sampled in southern quarter of State. Four to 20 percent of plants had colonies ranging from 25 or less to heavy tassel and whorl coverage. (Meyer). WISCONSIN - Small colonies in many southern cornfields. Lady beetles preying on aphids. (Wis. Ins. Sur.). MARYLAND - Heaviest near Tolchester, Kent County; one field 5 percent infested. (U. Md., Ent. Dept.).

**GREENBUG (*Schizaphis graminum*)** - TEXAS - Light to moderate in south-central, blackland, panhandle, and Trans-Pecos regions. Light in Grimes, Lee, Comal, Bastrop, Guadalupe, Denton, Collins, El Paso, Hudspeth, Reeves, and Pecos Counties. Colonies ranged 5-500 aphids on grain sorghum in Randall, Deaf Smith, Castro, Parmer, Bailey, Cochran, Yoakum, Gaines, Dawson, Terry, Hockley, Lamb, Oldham, Potter, Swisher, Hale, Lubbock, Lynn, Crosby, Floyd, and Briscoe Counties. (Cole et al.). OKLAHOMA - Counts vary considerably in grain sorghum in northeast area. Ranged 150-600 on most heavily infested leaves; most plants infested to some extent in some fields. Other fields ranged almost zero to 30 per leaf with only occasional plants infested. Ranged up to 300 per plant in few fields in Payne County. (Okla. Coop. Sur.). NEW MEXICO - Most grain sorghum fields show very light populations with heavier populations in isolated areas. (N.M. Coop. Rpt.). COLORADO - Ranged 0-150 per sorghum plant in Cheyenne, Kit Carson, and Yuma Counties. Damage very light. (Johnson).

POTATO LEAFHOPPER (*Empoasca fabae*) - MISSOURI - Ranged 40-300 per 10 sweeps in alfalfa in west-central and southwest areas. Yellowing of alfalfa due to feeding and dry weather noted throughout these areas. (Munson). WISCONSIN - Ranged 1-4 per linear foot of beans and potatoes. Averaged 1-2 per sweep of alfalfa. (Wis. Ins. Sur.). MARYLAND - Heaviest, 2-11 per sweep in 11-acre alfalfa field, near Frederick, Frederick County. Up to 5 per sweep in clover and alfalfa statewide. (U. Md., Ent. Dept.).

HORNWORMS (*Manduca* spp.) - OKLAHOMA - *M. sexta* (tobacco hornworm) mostly last instars, causing moderate damage to commercial tomatoes checked in Tulsa County. (Okla. Coop. Sur.). TENNESSEE - *M. sexta* larvae caused light damage to tobacco in most areas. Controls effective when applied in time. (Gordon). MICHIGAN - First collections of *M. quinquemaculata* (tomato hornworm) and *M. sexta* for season on June 20 at Van Buren County Station. Collected 10 specimens past week. Dispersal and egg laying will begin July 2. (Newman).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW HAMPSHIRE - First-generation adults still laying eggs, probably due to cool nights, at Durham, Strafford County. (Conklin). VIRGINIA - Larval damage severe in Sussex and Prince Edward Counties, and light in Carroll County. Damage varies throughout State. (Allen). Moth emergence on Eastern Shore heavy but tapered off from peak about July 4. Next peak should occur about mid-August. (Hofmaster). OHIO - Damage more severe than in 1969. Estimated 50-75 percent of early planted field and sweet corn needed treatment. Weather good for larval development and survival. (Musick). MICHIGAN - Adult emergence continues at all blacklight stations. Counts by county for week ending June 29: Lenawee 46, Livingston 37, Van Buren 36, Montcalm 38. Continued emergence pattern will extend egg laying to end of July. Surveys indicate much boring in sweet and field corn. Second-brood populations will be near or slightly above levels of 1969. (Newman, July 5). INDIANA - Range per 100 corn plants by district: South-southcentral 0-240 (averaged 57) larvae on 0-84 (averaged 28) percent of corn plants, south-southwest 0-80 (averaged 9.6) on 0-80 (averaged 14) percent, and south-southeast 0-2 (averaged 1) on 0-4 (averaged 2) percent. Corn conditions, with appropriate weather, favor heavy second generation. (Meyer). ILLINOIS - Percent pupation by district: Southwest 37, southeast 35, and west-southwest 14. Emergence 4 percent in Gallatin County. (Ill. Ins. Rpt.). WISCONSIN - Second and third instars in most fields of sweet corn. Feeding injury light generally, but 25 percent or more injury in several fields of sweet corn in south-central counties. Treatment of sweet corn underway at several sites. (Wis. Ins. Sur.). MINNESOTA - Egg masses still found in southwest, southeast, south-central, and west-central districts. (Minn. Pest Rpt.). SOUTH DAKOTA - Infestations averaged 80 percent in corn checked in Union County and southern Lincoln County; ranged 50-60 percent in northern Lincoln County and southern Minnehaha County. Ranged 30-40 percent in one field near Brookings, Brookings County. Eggs on 2 percent of corn plants near Garden City, Clark County. (Fransen et al.). IOWA - Larvae 96 per 100 tasseled corn plants in 54 percent of plants surveyed July 7 between Storm Lake, Buena Vista County, and Ames, Story County. (Iowa Ins. Sur.). MISSOURI - Infestations ranged 20-100 percent on silking corn, 1-4.5 borers per plant, in southwest area. Larvae mostly full grown and very high percentage in stalks as of July 4. Currently, pupation 48 percent in 4 fields of early planted corn in southwest area. Few second-generation moths noted in grass around these fields. (Munson).

SUGARCANE BORER (*Diatraea saccharalis*) - TEXAS - Heavy in corn in Brazoria County. Up to 30 percent of stalks lodged on one farm. (Green).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - Adults ranged 1-15 per corn plant in one area of Jasper County; only infestation noted in southwest area. Larval damage very light throughout area. (Munson). SOUTH DAKOTA - Adults observed for first time this season near Oral, Fall River County, on July 1. (Jones). WYOMING - Larvae ranged 0-16 (averaged 6) per corn plant in Goshen County field. Mainly second instar with few third. Corn wilting where infestation heaviest. (Parshall, July 3).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - OHIO - First adults of season observed in Fayette County July 2. (Musick). INDIANA - Pair mating, only adults so far, in Orange County cornfield July 7. Corn in green silk. (Meyer).

CORN ROOTWORMS (Diabrotica spp.) - WASHINGTON - Larvae infested 50 acres of forage corn at Montesano, Grays Harbor County. (Moulton, Pennell). SOUTH DAKOTA - Extensive damage to corn reported in untreated fields near Vermillion, Clay County, and near Flandreau, Moody County. One field near Flandreau treated with unrecommended material at planting time and extensively damaged. Emergency treatments applied to some fields. (Kantack). MINNESOTA - Root damage more evident in fields scattered throughout southwest, south-central, and central districts. In one Wright County field, stunted corn plants seen. Over 30 larvae per plant in individual plants in this field. Larval count per plant: Martin County, 2 fields 3-8; Watonwan, 2 fields 2-5; Rock, 3 fields 5-9; Pipestone, 1 field 4; Jackson, 1 field 3-8; Murray, 2 fields 1-6; Wright, 4 fields 4-30. Instars first to third in areas surveyed. (Minn. Pest Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Adults continue active statewide. Numbers and damage heaviest in Frederick, Carroll, and Howard Counties. Heaviest in 18 acres of field corn near Mt. Airy, Frederick County. (U. Md., Ent. Dept.).

DUSKY SAP BEETLE (Carpophilus lugubris) - MARYLAND - Continues to increase. Infested up to 50 percent of sweet corn ears in field near Cordova, Kent County. (U. Md., Ent. Dept.).

SORGHUM MIDGE (Contarinia sorghicola) - ARKANSAS - Averaged 2 per sorghum plant, heaviest 7 per head, in Lee County field. Field treated. (Kimbrough). TEXAS - Heavy in late-planted grain sorghum in Jackson County near Edna. Generally very light from other grain-producing areas. (Thomas et al.).

FALSE CHINCH BUG (Nysius ericae) - TEXAS - Heavy on sorghum in Bee, Gonzales, Gualupe, Hays, Victoria, and Wilson Counties. (Cole). Scattered in grain sorghum throughout north-central areas. (Turney).

SLUGS - NEW HAMPSHIRE - Ragged leaves in 5-acre cornfield on upland area at Landaff, Grafton County. Slugs forming complete mat in some places. Numbers probably due to plowing under of sod and grass food source of slugs. Calosoma calidum (fiery hunter) very numerous and feeding on slugs. (Conklin).

WIREWORMS (Limoniuss spp.) - NEW HAMPSHIRE - Larvae 3-20 per plant in field of silage corn in Grafton County; stand very uneven. (Conklin).

#### TURF, PASTURES, RANGELAND

GRASSHOPPERS - ILLINOIS - Nymphs heavy on roadside grass in all counties surveyed. Range (and average) per 100 sweeps by district: West-southwest 100-3,000 (1,350), east-southeast 300-1,300 (750), southeast 100-1,800 (750), and southwest 50-1,500 (560). (Ill. Ins. Rpt.). FLORIDA - Schistocerca obscura moderate on grasses and weeds at Belle Glade, Palm Beach County; less numerous than in 1969. (Genung).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - IDAHO - Estimated 15-150 per sweep in alfalfa field west of Springfield, Bingham County. Damage severe, almost frosty. (Carpenter). UTAH - Larval damage to second crop decreased, but untreated alfalfa held back. (Knowlton). Adults numerous at Blanding, Wayne County. (Roberts). NEW MEXICO - Heavy on second-crop alfalfa in Bernalillo and Santa Fe Counties. (Heninger, Chaves). WYOMING - Still up to 72 larvae per sweep. Many prepupae. Averaged 9-11 larvae per sweep in 3 fields in Goshen and Platte Counties. (Burkhardt). Ranged 2-50 per 10 sweeps of second-cutting alfalfa in Weston, Crook, Campbell, Johnson, and Sheridan Counties. Many fields treated, especially in Crook and Sheridan Counties. (Parshall). SOUTH DAKOTA - Up to 146 larvae and 4 adults per 100 sweeps in second-growth alfalfa near Spearfish, Lawrence County. (Jones). MINNESOTA - Found in Fillmore and Wabasha Counties for new county records by E.B. Radcliffe. (Minn. Pest Rpt.). MISSOURI - Adults collected in Platte County on June 24 by L.P. Burgess. This is a new county record. (Munson). MASSACHUSETTS - Adults 5 and larvae 6 per 100 sweeps of alfalfa in Hampshire County field July 6. (Miller). VERMONT - Larvae and damage declining. Most pupating. Parasite recovery and emergence still very low in areas sampled. Generally less than 1-2 percent total parasitism by *Bathyplectes curculionis* (an ichneumon wasp), *B. anura*, and *Tetrastichus* sp. (a eulophid wasp). (Nielsen).

PEA APHID (*Acyrtosiphon pisum*) - NEVADA - Ranged 35-50 per sweep in alfalfa hayfields in Diamond Valley, Eureka County. (Martinelli). NEW MEXICO - Heavy on alfalfa in Bernalillo and Valencia Counties. (Heninger). WYOMING - Counts declined, ranged 30-45 per sweep on July 3, in Big Horn Basin. Ranged 50-200 (averaged 100) per sweep in Goshen County field. (Burkhardt). Ranged 10-260 per 10 sweeps of alfalfa in Crook, Weston, Campbell, Johnson, and Sheridan Counties. (Parshall). WISCONSIN - Still heavy, 100 per sweep of alfalfa common, except in southwest counties where numbers lighter. (Wis. Ins. Sur.). MASSACHUSETTS - Adults 925 per 100 sweeps of alfalfa in Hampshire County field. (Miller). MARYLAND - Remained light statewide. Up to 200 per sweep in 40-acre alfalfa field near Chestertown, Kent County. (U. Md., Ent. Dept.).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - MASSACHUSETTS - Adults 84 per 100 sweeps of alfalfa in Hampshire County field. (Miller). WYOMING - Adults and nymphs ranged 0-17 per 10 sweeps of alfalfa in Crook, Johnson, Weston, Campbell, and Sheridan Counties. (Parshall).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Up to 8 nymphs and 4 adults per sweep in untreated alfalfa seed fields and fields treated with one organic phosphate in Reese River Valley, Lander County. Another organic phosphate keeping populations below economic levels. (Hilbig). UTAH - Controls applied to many alfalfa seed fields in Uintah and Millard Counties. (Knowlton). Numerous on alfalfa at Hanksville, Wayne County. (Roberts). WYOMING - *Lygus* sp. ranged 9-11 per sweep of alfalfa in Big Horn Basin July 3. (Burkhardt). Ranged 5-30 per 10 sweeps of alfalfa in Crook, Weston, Campbell, Johnson, and Sheridan Counties. (Parshall). MASSACHUSETTS - Adults of *L. lineolaris* (tarnished plant bug) 122 per 100 sweeps of alfalfa in Hampshire County. (Miller).

GARDEN FLEAHOPPER (*Halticus bracteatus*) - MARYLAND - Adults and nymphs on alfalfa and red clover statewide. Damage extensive to 45 acres of red clover at Galena, Kent County, and Bloomingdale, Queen Annes County. Ranged 100-200 per sweep. (U. Md., Ent. Dept.).

SPIDER MITES (*Tetranychus* spp.) - NEVADA - Heavy; damage ranged 30-40 percent on 2,000 acres of alfalfa hay at Lovelock, Pershing County. Severely damaged lower third of plants and harvesting equipment covered with mites and webbing. (Martinelli).

LEAF MINER FLIES (*Agromyza* spp.) - MASSACHUSETTS - Adults 2,909 per 100 sweeps of alfalfa in Hampshire County field. (Miller).

#### SOYBEANS

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ALABAMA - Larvae in many young soybeans in Excel area of Monroe County. About 15 percent of stand lost in one 80-acre field. (Lemons).

WEBWORMS (*Loxostege* spp.) - OKLAHOMA - Damaged young soybean plants in southern Tulsa County. Feeding at or below ground level, mostly on stems. Ranged up to 1 per 2 plants in heaviest spots. Light damage also seen in southern Mayes County. (Okla. Coop. Sur.).

#### PEANUTS

BET ARMYWORM (*Spodoptera exigua*) - ALABAMA - Larvae very heavy, ranged 15-20 per plant, in large peanut field in Coffee County. Controls impossible. (Presley, Bond).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Moderate in Okmulgee County peanuts. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - OKLAHOMA - Moderate in many peanut fields in Bryan County. (Okla. Coop. Sur.).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - NEW MEXICO - Surveys of wing traps in Lea County negative. (Bauer). TEXAS - In McLennan and Falls Counties, weevils remain light, except in some fields due to "hatch out" of new generation. Punctured squares averaged 3.1 (maximum 21) percent in 21 treated fields; averaged 5.9 (maximum 35) percent in 46 untreated fields. (Cowan et al.). LOUISIANA - In Madison Parish, 6 weevils collected from 146 wing traps, total to date 1,699. Punctured squares ranged 1-15 (averaged 4.1) percent in 50 of 66 fields. (Cleveland et al.). Expect emergence from squares on ground July 20-24. (Tynes). ARKANSAS - Light in most fields. Infested 1,574 out of 6,241 fields checked. Most below 10 percent punctured squares and 10 fields need treatment. As weevil emergence increases more fields expected to need controls. Collections on 10 pheromone-baited wing traps in Conway County total 228 as of July 2. (Boyer, Barnes, et al.). TENNESSEE - Conditions ideal for weevil buildup in west area. Averaged 3 percent punctured squares for fields found infested. Some dead larvae found, probably due to hot, dry weather. First-generation "hatch out" should begin within 14 days. (Locke). MISSISSIPPI - No weevils found in delta counties. Punctured squares in 3 of 12 fields checked. (Pfrimmer et al.). ALABAMA - Damaging numbers developed in most cotton fields in south and most of central areas. (McQueen). GEORGIA - Increasing over south area, first-generation weevils puncturing squares. (Womack). For Boll Weevil on High Plains see page 504.

BOLLWORMS (*Heliothis* spp.) - TEXAS - In McLennan and Falls Counties, averaged 2.8 eggs and 1.1 larvae per 100 terminals (maximum 44 eggs and 18 larvae) in 21 treated fields. Averaged 1.4 eggs and 0.2 larva per 100 terminals in 47 untreated fields. Injured squares averaged 1.6 (maximum 6) percent in 21 treated fields, averaged 0.9 (maximum 3.5) percent in 47 untreated fields. Injured bolls averaged 1.3 (maximum 2.9) percent in 12 treated fields, averaged 0.4 (maximum 1.8) percent in 36 untreated fields. Total of 218 larvae collected on cotton; 85 percent identified *H. virescens*. (Cowan et al.). LOUISIANA - In Madison Parish, damaged squares ranged 1-9 (averaged 3.8) percent in 62 of 74 fields. Blacklight trap collections include 12 *H. zea* but no *H. virescens*. (Cleveland et al.). MISSISSIPPI - In delta counties, no larvae found in terminals of 12 fields checked. Eggs in 2 fields, 2.7 per 100 terminals in 1 field, and 1.3 in other. Injured squares averaged 4.9 (maximum 12.7) percent in 10 of 12 fields. (Pfrimmer et al.). TENNESSEE - Few eggs found. Larvae up to one-half inch long numerous

throughout west area. Majority of fields infested above control levels. Larvae ranged 1-16 (average 3) per 100 terminals. Considerable damage expected where controls not applied or where applied late. (Locke). ALABAMA - Moth flights and egg laying lowest of season throughout State. Larval problems and economic numbers reported on few farms in south areas after first and second applications of insecticides to control boll weevil. Egg laying had been heavy in central and north areas, predator and parasitic insects maintained low larval counts, and no damaging infestations reported. (McQueen). GEORGIA - Egg and larval infestations heavy (up to 120 eggs and 28 larvae per 100 terminals) over south areas, most larvae H. virescens. (Womack).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - Small numbers in squaring cotton; however, no significant buildups noted. Insecticidal control should be based on numbers and damage determined by excessive loss of small squares. (Clymer, Rummel).

#### TOBACCO

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Increased in Charles, St. Marys, Calvert, and Prince Georges Counties. Infested 1-10 plants per 50 plants checked. (U. Md., Ent. Dept.).

#### POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Building up on peppers in Dorchester and Somerset Counties. Infested 2-6 plants per 50 plants. (U. Md., Ent. Dept.). WASHINGTON - Nymphs and winged adults in 13 of 24 potato seed fields at Lynden, Custer, and Bellingham in Whatcom County. (Holmes).

BUCKTHORN APHID (Aphis nasturtii) - MAINE - Colonies range 1-77 on 94 potato plants out of 1,550 untreated plants at Presque Isle, Aroostook County. (Boulanger).

POTATO APHID (Macrosiphum euphorbiae) - MAINE - Colonies ranged 1-10 on 208 potato plants out of 1,500 untreated plants in Aroostook County. Of 537 aphids, 12 parasitized. (Boulanger).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Continues to damage potato, and sometimes tomato foliage, throughout Davis, Weber, Box Elder, and Cache County fields and home gardens. (Knowlton).

#### BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - TENNESSEE - Adults heavy on beans and peas in Johnson County. Eggs very heavy. Damage light at this time, increase expected unless controls applied. (Gordon). WYOMING - Averaging 1 per linear foot of Goshen County beans. (Burkhardt). UTAH - Lighter than in 1969 in Cache County home gardens. (Knowlton).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Counts on peas ranged 5-75 (averaged about 20) per sweep. (Wis. Ins. Sur.).

#### GENERAL VEGETABLES

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Adults light. Root injury by second-generation larvae evident at Salisbury, Wicomico County. Controls planned. (U. Md., Ent. Dept.).



## DECIDUOUS FRUITS AND NUTS

ORIENTAL FRUIT MOTH (Grapholitha molesta) - UTAH - Two moths per night in traps in Utah County. (Davis). COLORADO - Adults (split July brood) peaked in early July, ranged 1-36 in traps at Vineland and Palisade in Mesa County. Biological and spray controls effective in most peach orchards. (Sisson, Anderson). NEW JERSEY - Four adults in baited jar in Gloucester County June 30 to July 6. (Ins.-Dis. Newsltr.).

CODLING MOTH (Laspeyresia pomonella) - UTAH - Moderate in Washington County orchards. (Huber). NEW YORK - Fruit injury in several commercial orchards in Monroe and Orleans Counties. (N.Y. Wkly. Rpt., July 6).

APPLE-AND-THORN SKELETONIZER (Anthophila pariana) - OREGON - Adults emerged week of July 3 from pupae collected June 28 on untreated apple at south Salem, Marion County. (Westcott).

TORTRICID MOTHS - PENNSYLVANIA - Catch of 2,315 Archips argyrospilus (fruit-tree leaf roller) moths June 24 in 317-watt blacklight trap in Schuylkill County. Catch of 210 June 29 in 15-watt blacklight trap in Dauphin County; also collected 752 A. semiferranus. (Quinter, Simons). NEW YORK - Argyrotaenia velutinana (red-banded leaf roller) flying in west area apple orchards. (N.Y. Wkly. Rpt., July 6).

APPLE MAGGOT (Rhagoletis pomonella) - NEW JERSEY - Two adults on 2 sticky boards in Gloucester County June 30 to July 6. (Ins.-Dis. Newsltr.). CONNECTICUT - Adults increased from 13 last week to 163 this week. Count should increase greatly next 14 days. Most females captured at New Haven, New Haven County, contained fully developed eggs. (Savos, July 7). NEW YORK - Emergence increased steadily past 14 days in Monroe and Orleans Counties. (N.Y. Wkly. Rpt., July 6). MICHIGAN - Increased in unsprayed orchards. (Thompson, July 6). WISCONSIN - Heaviest adult catch (65) June 25 to July 3 at Madison, Dane County. (Wis. Ins. Sur.). MINNESOTA - First adults July 3 at Rochester, Olmsted County, and July 9 at North Saint Paul, Ramsey County. (Minn. Pest Rpt.).

CHERRY FRUIT FLY (Rhagoletis cingulata) - MICHIGAN - Adults still abundant. Egg laying heavy and will be throughout harvesting period. First-harvested orchards likely to shift fly migrations into unpicked cherries. (Thompson, July 6).

PEAR-SLUG (Caliroa cerasi) - COLORADO - Damage heavy in young, poorly sprayed pear orchards in Mesa County and beginning in unsprayed sweet cherries at Glenwood Springs, Garfield County. Foliar loss 10-25 percent. (Sisson).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - CALIFORNIA - About 500 per Prunus spp. limb at Chico, Butte County. (Cal. Coop. Rpt.). UTAH - Damaged several small peach and apple orchards in Weber and Salt Lake Counties. (Knowlton).

APPLE APHID (Aphis pomi) - CONNECTICUT - Building up at Storrs, Tolland County, but under control in most spots. (Savos, July 7). NEW YORK - Very abundant. Peach X-disease evident where aphids present in Ulster, Dutchess, and Orange Counties. (N.Y. Wkly. Rpt., July 6). MICHIGAN - Numerous colonies on water sprouts and new terminal growth of apples. (Thompson, July 6).

WOOLLY PEAR APHID (Eriosoma pyricola) - OREGON - Alate migration nearly completed in pear orchards at Medford, Jackson County. (Swenson).

SPIDER MITES - OREGON - Tetranychus urticae (two-spotted spider mite), Eotetranychus carpini, and Panonychus ulmi (European red mite) building up to epidemic proportions due to prolonged hot weather in Jackson County pear orchards. (Berry). UTAH - P. ulmi only damaging species in Utah County orchards. (Davis).

MICHIGAN - Panonychus ulmi heavy in many locations surveyed. Deposited another generation of eggs. Extreme temperatures of last few days shortened life cycle. (Thompson, July 6). OHIO - P. ulmi heavy on apple leaves in Hamilton County orchards. (Roach). CONNECTICUT - P. ulmi still heavy at New Haven, New Haven County. Need attention at East Lyme, New London County. (Savos, July 7). MASSACHUSETTS - P. ulmi counts per 50 apple leaves in Hampshire County: 169 on Delicious and 57 $\frac{1}{2}$  on McIntosh with no dormant oil or treatment, and 87 on Delicious and 276 on McIntosh with dormant oil but no treatment. (Jensen).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Second-generation adults emerging in south-central and central areas. Peak emergence expected July 13-22. (Green). OKLAHOMA - Second generation heavy on pecans in Bryan County. First-generation pupae and newly emerged adults noted in Tulsa County. (Okla. Coop. Sur.). NEW MEXICO - Damaged home-planted pecans and some commercial orchards at Artesia, Eddy County. (Campbell).

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Moderate to heavy on pecans in Cleveland, Marshall, and Bryan Counties. Light to moderate in Tulsa, Rogers, Osage, and Pawnee Counties. (Okla. Coop. Sur.). NEW MEXICO - Webs appearing on Dona Ana County pecans. (Campbell).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Adults began emerging in mid-June and now increasing. Treatment will probably begin next 14 days, but timing may be critical. (Cal. Coop. Rpt.).

#### CITRUS

Citrus Insect Situation in Florida - End of June - CITRUS RUST MITE (Phyllocoptura oleivora) infested 70 (norm 51) percent of groves; economic in 44 (norm 29) percent. Will continue at above normal level through July. Highest districts west, central, east, and south. CITRUS RED MITE (Panonychus citri) in 75 (norm 68) percent of groves; economic in 49 (norm 43) percent. In high range but will start downward trend in mid-July. All districts high. TEXAS CITRUS MITE (Eutetranychus banksi) in 56 (norm 77) percent of groves; economic in 36 (norm 56) percent. Rapidly entering high range and will continue through July, then diminish by month's end. Highest districts south, east, and central. GLOVER SCALE (Lepidosaphes gloverii) in 91 (norm 86) percent of groves; economic in 18 (norm 32) percent. Remains near normal; will show decrease at end of July. Highest district south. PURPLE SCALE (L. beckii) in 69 (norm 80) percent of groves; economic in 7 (norm 13) percent. YELLOW SCALE (Aonidiella citrina) in 62 (norm 70) percent of groves; economic in 7 (norm 12) percent. CHAFF SCALE (Parlatoria pergandii) in 49 (norm 72) percent of groves; economic in 1 (norm 17) percent. These 3 scales remain close to moderate level. Slight decrease expected. BLACK SCALE (Saissetia oleae) in 68 (norm 83) percent of groves; economic in 46 (norm 62) percent. Increased rapidly but still below normal high level for this date. Further increase expected. Highest districts east, south, west, and central. North district continues low. An ARMORED SCALE (Unaspis citri) in 26 percent of groves; moderate or heavy in 16 percent. Increase expected. WHITEFLIES in 89 percent of groves; economic in 53 percent. Larval and adult forms above 18-year record high. All forms will continue high through July. All districts high. MEALYBUGS in 76 percent of groves; economic in 38 percent. Recent rapid increase brought population above normal; further increase anticipated until mid-July. Highest districts east, south, west, and central. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

GLOVER SCALE (Lepidosaphes gloverii) - FLORIDA - Found on sweet orange at Ft. Lauderdale, Broward County, by G.T. Smith and W.S. Shirley June 23. This is a new county record. (Fla. Coop. Sur.).

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Found on sweet orange at Ft. Lauderdale, Broward County, by G.T. Smith and W.S. Shirley June 23. This is a new county record. (Fla. Coop. Sur.).

**YELLOW SCALE (*Aonidiella citrina*)** - FLORIDA - Adults light on sweet orange at Royal Palm Beach, Palm Beach County. Collected by L.J. Chambliss and J.B. Venable July 2. This is a new county record. (Fla. Coop. Sur.).

**CITRUS FLAT MITE (*Brevipalpus lewisi*)** - ARIZONA - Ranged 100-150 per lemon fruit, 5-6 per orange, and 10-12 per Minneola tangelo fruit at Tacna, Yuma County. Predacious tydeid mites present. (Ariz. Coop. Sur.).

#### SMALL FRUITS

**STRAWBERRY CROWN MOTH (*Ramosia bibionipennis*)** - CALIFORNIA - Larvae 1 per crown in scattered raspberry plants in planting at Lodi, San Joaquin County. (Cal. Coop. Rpt.).

**CRANBERRY FRUITWORM (*Acrobasis vaccinii*)** - NEW JERSEY - Eggs on early drawn cranberry bogs. (Ins.-Dis. Newsltr.).

**BLUEBERRY MAGGOT (*Rhagoletis mendax*)** - MAINE - Adult emergence from cages July 4-7, respectively 6, 10, 37, and 51, at Jonesboro, Washington County. (Boulanger).

#### ORNAMENTALS

**BAGWORM (*Thyridopteryx ephemeraeformis*)** - TEXAS - Heavy on juniper and cedar trees in Brazos, Washington, and Lee Counties. (Green).

**ROSE CHAFER (*Macroductylus subspinosus*)** - WISCONSIN - Damaging ornamental plants in Wood, Adams, and Chippewa Counties. (Wis. Ins. Sur.).

**WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*)** - OREGON - Adults severely damaged zinnia in field at Central Point, Jackson County. Plants in early bloom week of July 3. (Berry).

**HOLLYHOCK WEEVIL (*Apion longirostre*)** - VIRGINIA - Adults collected on hollyhock in Sussex County by H.H. Wright July 3. Determined by W.A. Allen. This is a new county record. (Allen).

**A JAPANESE WEEVIL (*Pseudocneorhinus bifasciatus*)** - MARYLAND - Adults active in Montgomery, Howard, Baltimore, and Prince Georges Counties. Adult injury light to moderate on 60 feet of privet hedge at Greenbelt, Prince Georges County. (U. Md., Ent. Dept.).

**WHITE PEACH SCALE (*Pseudaulacaspis pentagona*)** - ALABAMA - Very heavy on most rain-trees on Dauphin Island in Mobile County. Entire trunk of some trees white with scales. Many small trees dying. (Seibels).

**FLETCHER SCALE (*Lecanium fletcheri*)** - RHODE ISLAND - Heavy in many nurseries statewide. (Relli). WISCONSIN - All eggs hatched; crawlers settled on arborvitae in Dane County. (Wis. Ins. Sur.).

**FOUR-LINED PLANT BUG (*Poecilocapsus lineatus*)** - NEW JERSEY - Building up on coleus, snapdragons, forsythia, English ivy, geranium, and gladiolus at Plainfield and Springfield, Union County. (Ins.-Dis. Newsltr.).

**SPRUCE SPIDER MITE (*Oligonychus ununguis*)** - OHIO - Populations exploded past 10 days, much heavier this year than in previous 2 years. Also earlier this year and reported statewide on Norway, white, Engelmann, and Colorado spruce. (Balderston).

#### FOREST AND SHADE TREES

**DOUGLAS-FIR BEETLE (*Dendroctonus pseudotsugae*)** - OREGON - Beginning to infest Douglas-firs damaged during winters of 1968 and 1969 in Hood River Valley. Strong potential for future outbreak. (Orr).

WHITE-PINE WEEVIL (Pissodes strobi) - NEW JERSEY - Increase of problems on white pine and Norway spruce trees. (Ins.-Dis. Newsltr.) - CONNECTICUT - Injury becoming noticeable on white pine and Norway spruce. (Savos, July 8). RHODE ISLAND - Extensive damage to Norway spruce. (Field). VERMONT - Damage very conspicuous on ornamentals. (Nielsen, July 8).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - In fifth and sixth instars in east-central area. Defoliation lighter than expected, but some defoliation will be apparent in tops of jack pines in scattered locations in north Pine County. (Minn. Pest Rpt.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - VERMONT - Adults still emerging at Burlington, Chittenden County. (Nielsen, July 8).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MINNESOTA - Fourth and fifth instars heavy on jack pine plantation in east Washington County. (Minn. Pest Rpt.).

TORTRICID MOTHS - WYOMING - Archips argyrospilus (fruit-tree leaf roller) larvae heavy on chokecherry at Sheridan, Sheridan County; Buffalo, Johnson County; and Newcastle, Weston County. (Parshall). PENNSYLVANIA - Outbreak of mostly Archips semiferanus heavily to completely stripped oak foliage on about 750,000 acres in north-central counties. Damage most severe in west Lycoming, Clinton, south Potter, south Elk, north Clearfield, and west Centre Counties. First year Potter County infested; 50,000 acres of red oak defoliated. Defoliated nearly all oaks at higher elevations in Clinton County north of Lock Haven. (Nichols, Quimby, June 30). Caught 6,477 Croesia semipurpurana (oak leaf tier) moths in 317-watt blacklight trap June 24 in Schuylkill County and 514 in 15-watt blacklight trap in Dauphin County June 29. (Quinter, Simons).

FOREST TENT CATERPILLAR (Malacosoma disstria) - PENNSYLVANIA - Numbers 10 times higher than in 1969. Moderately to completely defoliated about 100,000 acres. Damage apparent on oak and sugar maple over wide areas of Somerset, Indiana, and Cambria Counties and smaller areas in Westmoreland, Clearfield, and Bedford Counties. Defoliated 46,000 acres in Indiana County and 10,000 acres for second year in south Somerset County. (Nichols, Quimby, June 30). MINNESOTA - Defoliation of aspens ranged 60-100 percent in large northeast area of Koochiching County, 40-90 percent of mixed hardwoods, mostly basswood, on about 100 acres adjacent to Battle Lake and Clitherall Lake in Otter Tail County, and averaged 70 percent, mostly on elm, on about 100 acres adjacent to Lobster Lake in Douglas County. Mainly Sarcophaga aldrichi (a flesh fly) parasitized 59.6 percent of 408 cocoons collected near International Falls, Koochiching County. (Minn. Pest Rpt.).

NOTODONTID MOTHS (Heterocampa spp.) - ARKANSAS - H. manteo (variable oak leaf caterpillar) infestations in Pulaski, Faulkner, Cleburne, Craighead, Poinsett, and Phillips Counties. (Warren). MICHIGAN - Most H. guttivitta (saddled prominent) larvae in second instar with several in third in Manistee County. Serious larval damage will be visible in 7-10 days. (Wallner, July 6).

MIMOSA WEBWORM (Homadaula anisocentra) - ALABAMA - Larvae increased on Dauphin Island, Mobile County. Defoliated 75 percent of most trees by July 4. Will probably defoliate all within 2 weeks. Only destroyed 5-10 percent of leaves on scattered trees farther north in Bibb, Montgomery, Autauga, Shelby, Talladega, and Tallapoosa Counties. (Seibels et al.).

OAK SKELETONIZER (Bucculatrix ainliella) - MASSACHUSETTS - Larval damage evident in many areas of Suffolk, Middlesex, Hampshire, and Hampden Counties. (Garland, Jensen).

ELM LEAF BEETLE (Pyrrhalta luteola) - UTAH - Injury increasing in Emery County and becoming conspicuous in parts of Salt Lake and Weber Counties. (Knowlton). COLORADO - Larvae heavy throughout Delta County. Up to 50 percent defoliation in some cases. (Sisson). NEW MEXICO - Heavy on Siberian elms in Bernalillo and Valencia Counties. (Heninger). TEXAS - Larvae damaged Chinese elms in Hardin County. (Coster). ALABAMA - Second-generation larvae half to three-fourths grown. Defoliated many ornamental elms in Dallas, Lee, Montgomery, Bibb, and other central counties. (Hines et al.).

CHRYSOMELID BEETLES - TENNESSEE - Xenochalepus dorsalis (locust leaf miner) damage to locust continues heavy in central area. Damage in east increasing and expected to increase for some time. (Gordon). NEW JERSEY - Plagioderia versicolora (imported willow leaf beetle) adults common on weeping willow in central counties. (Ins.-Dis. Newsltr.). NEW HAMPSHIRE - P. versicolora adults and larvae severely damaged ornamental weeping willow at Concord, Merrimack County. (Mason, Hutchins).

CERAMBYCID BEETLES - MASSACHUSETTS - Complaints of Elaphidionoides villosus (twig pruner) larval damage numerous in Suffolk and Middlesex Counties. (Garland). WISCONSIN - Megacyllene robiniae (locust borer) heavy on black locust in Kenosha County. (Wis. Ins. Sur.).

POPLAR-AND-WILLOW BORER (Cryptorhynchus lapathi) - OREGON - Larval damage on pussy willow July 8 at south Salem, Marion County. Earlier instars predominate. Small larvae just beneath bark in galleries about 6 inches apart. Few fully grown larvae in heartwood. Dead, wilting, and broken branches apparent in several areas. (Penrose).

BIRCH LEAF MINER (Fenusa pusilla) - WISCONSIN - Damage increasingly apparent on ornamental birch in Chippewa, Dodge, Eau Claire, Kewaunee, Juneau, Walworth, Dane, Winnebago, Iowa, and Price Counties. Some treatment underway. (Wis. Ins. Sur.).

WOOLLY ALDER APHID (Prociphilus tessellatus) - MASSACHUSETTS - Nymphs and adults severe on Hampshire County maple. (Jensen). NEW HAMPSHIRE - Very numerous on silver maple at Exeter, Rockingham County. (Conklin).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Adults averaged 10 per elm stem in Trowbridge, Sutter County, and on Sacramento County elms. Crawlers emerging. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 17 cases reported in U.S. July 5-11 as follows: TEXAS - Brewster 4, Medina 1, Pecos 2, Presidio 1, Terrell 6, Uvalde 1, Irion 1. ARIZONA - Santa Cruz 1. Total of 56 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 1, Sonora 28, Chihuahua 19, Coahuila 2, Nuevo Leon 5, Tamaulipas 1. Total of 23 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 53,168,000; New Mexico 1,760,000; Arizona 15,395,000; California 360,000; Mexico 86,455,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - UTAH - Increasingly numerous on Box Elder and Weber County cattle. Lighter than at this time in 1969. (Knowlton). IDAHO - Counts per side ranged from few to herd averages of 150 or more statewide. Averages July 1 less than 10 per side on treated herds and up to 135 per side on untreated herds at Moscow and Potlatch, Latah County. (O'Keefe). WYOMING - Increasing, 20-130 per head on 3 cattle herds in Goshen and Platte Counties week of July 3. Currently annoying, averaged 110 per head on 4 cattle herds in Sheridan, Weston, and Crook Counties. (Parshall). OKLAHOMA - Heavy in Cotton and Craig Counties. Moderate in Mayes, Cleveland, and Okmulgee Counties. Light in Ottawa County.

(Okla. Coop. Sur.). WISCONSIN - Annoyance to cattle generally moderate; severe on some farms in Clark County. (Wis. Ins. Sur.). MARYLAND - Heaviest counts averaged 34 per head on 131 Holsteins near Frederick, Frederick County. (U. Md., Ent. Dept.). VERMONT - Numbers lighter than before prolonged dry weather. (Nielsen, July 8).

FACE FLY (Musca autumnalis) - IDAHO - Annoyed pasture cattle in Latah County and surrounding area. Ranged from few to 40 per face. (O'Keefe). TENNESSEE - Heavy, up to 20+ per animal checked in Johnson County. (Gordon). WISCONSIN - Annoyance to cattle generally light, but moderate to severe in Price and Clark Counties. (Wis. Ins. Sur.). VERMONT - Increasing but still not high. (Nielsen, July 8).

HOUSE FLY (Musca domestica) - WISCONSIN - Very numerous and troublesome near exposed food, garbage, or manure. Generally heavy in and around cattle barns statewide. Treatment underway on most cattle farms. (Wis. Ins. Sur.).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Annoyance to cattle generally moderate, but ranged from very light in Outagamie County to severe in Clark and Calumet Counties. Dusted Herefords in south Dane County averaged about 10 per leg with only slight annoyance at 70° F. Increased in Walworth County. (Wis. Ins. Sur.). VERMONT - Increasing, especially where manure stockpiled to avoid spring nitrogen runoff as an antipollution practice. (Nielsen, July 8).

TABANID FLIES - UTAH - Tabanus punctifer and Chrysops fulvaster annoying horses at Logan and elsewhere in Cache, Box Elder, and Weber Counties. (Knowlton). WYOMING - Tabanus spp. 1-8 per head on cattle and horses in Sheridan, Weston, and Crook Counties. (Parshall). OKLAHOMA - Tabanus spp. averaged 10 per head on horses checked in Lincoln County. (Okla. Coop. Sur.). WISCONSIN - Horse flies and deer flies numerous statewide, especially near water. Annoyance to humans severe in some areas. (Wis. Ins. Sur.). INDIANA - T. atratus (black horse fly) and Tabanus sp. about 6 per cattle head in Pike County. (Meyer).

MOSQUITOES - UTAH - Numerous and very annoying in Morgan City and several Morgan, Cache, Piute, Box Elder, and Utah County communities. (Knowlton et al.). Very troublesome at Pelican Lake, Uintah County. (Petty). Extremely troublesome at Manti, Sanpete County. Aerial sprays effective at Price and Wellington, Carbon County, but only fair at Moab, Grand County. (Roberts). ARKANSAS - Mostly Psorophora confinnis heavy; annoying in local areas of Lonoke County. As high as 26,000 per night in light trap catches. Anopheles spp. and Culex spp. as high as 1,000 and 84 respectively per night. (Meisch). MINNESOTA - Aedes vexans 92 percent of 33,000+ females in light traps at Minneapolis and St. Paul week ending July 3. Coquilleltidia perturbans 4 percent of total and 86 Culex tarsalis taken. A. vexans 85-90 percent of total in daytime and evening bite collections. In daytime collections A. trivittatus totaled 159 specimens and Coquilleltidia 12. Adults should decline significantly with continued warm weather. (Minn. Pest Rpt.). WISCONSIN - Biting still bothersome statewide. Definite decrease apparent at most sites in south half of State. Biting very heavy at several sites in extreme north area; discouraged fishermen in some areas of Vilas County. A. vexans main biter in south area. A. sticticus, A. trivittatus, and occasionally A. cinereus common locally. Absence of appreciable rainfall past 3 weeks dried most breeding pools. Severely annoyed cattle in most counties. (Wis. Ins. Sur.). OHIO - Aedes sollicitans serious around Mentor, Lake County, and Rittman, Wayne County. First case of California encephalitis for 1970 in central area. (Ohio Dept. of Health). Mosquitoes 5-93 (averaged 41) per trap per night in Franklin County July 6-7. (Roach et al.). RHODE ISLAND - Aedes spp. and Culex sp. annoying statewide. (Field).

A BITING MIDGE (Leptoconops kerteszi) - UTAH - Still annoying on Antelope Island, Davis County, and around Great Salt Lake. Much more troublesome earlier this spring. (Knowlton, Davis). Annoying in many localities. (Petty).

AN EPHYDRID FLY (Ephydra gracilis) - UTAH - This and Ephydra spp. only 10 percent as numerous as at this time in 1969 on shores of Antelope Island, Davis County. Determined by W.J. Hanson. (Davis, Knowlton).

BUCK MOTH (Hemileuca maia) - MARYLAND - First injury of season from handling of larvae reported in Charles County. (U. Md., Ent. Dept.).

HOG LOUSE (Haematopinus suis) - CALIFORNIA - Infested swine on ranch at Chino, San Bernardino County. (Cal. Coop. Rpt.).

MITES - OHIO - Found 7 species in nursing home in north-central area. Those causing dermatitis in man: Psoroptes equi (scab mite), Ornithonyssus sylviarum (northern fowl mite), and Dermanyssus gallinae (chicken mite). (Roach et al.).

#### HOUSEHOLDS AND STRUCTURES

A STINK BUG (Corimelaena pulicaria) - SOUTH CAROLINA - Thousands migrating out of grain fields into adjacent homes. First report of this abundance in Greenwood County. (Bryson, Nettles).

#### BENEFICIAL INSECTS

LADY BEETLES - TEXAS - Hippodamia convergens (convergent lady beetle) adults averaged 2 per 100 sweeps on early peaches in Erath County. (Morrison). OKLAHOMA - H. convergens moderate on aphid-infested sorghum in northeast area and in Payne County. Scymnus sp. moderate on sorghum in Payne County and light in northeast counties. (Okla. Coop. Sur.). COLORADO - Adults and immatures of H. convergens and other species active statewide. Adults and larvae 50-150 per 100 sweeps of alfalfa (0-3 per plant on corn, sorghum, beets, beans, and potatoes) in northeast area. Feeding heavily on aphids in Arkansas Valley and in orchard cover crops of Mesa County. (Burchett et al.). WYOMING - Lady beetle adults and larvae 2-12 (averaged 4) per 10 sweeps of alfalfa in Goshen, Laramie, and Platte Counties week of July 3. Adults and larvae currently 0-12 per 10 sweeps of alfalfa in Crook, Weston, Campbell, Sheridan, and Johnson Counties. (Parshall).

A WEEVIL (Gymnaetron teter) - OREGON - Common on mullein throughout south Jackson County, from Medford to California State line. (Westcott).

A CHRYSOMELID BEETLE (Chrysolina sp.) - OREGON - Locally abundant on goatweed in Benton and Jackson Counties with particularly large numbers in vicinity of Siskiyou, Jackson County. (Westcott, Penrose).

GREEN LACEWINGS (Chrysopa spp.) - TEXAS - Adults averaged 25 per 100 sweeps in early peaches. (Morrison). COLORADO - Chrysopa spp., various reduviids, and other predators very active statewide. Ranged 10-50 per 100 sweeps of alfalfa; variable on other crops. (Johnson, Burchett).

DAMSEL BUGS (Nabis spp.) - TEXAS - Nabis sp. adults averaged 1 per 100 sweeps of peaches in Erath County. (Morrison). COLORADO - N. fesus and other species 50-100 per 100 sweeps of northeast area alfalfa. Damsel bugs and lady beetles keeping aphid populations in check in Cheyenne, Kit Carson, Yuma, Phillips, Sedgwick, and Logan Counties. (Johnson). WYOMING - Nabis sp. adults and nymphs averaged 4 per 10 sweeps of alfalfa in Crook, Weston, Campbell, Sheridan, and Johnson Counties. (Parshall).

BIG-EYED BUGS (Geocoris spp.) - OKLAHOMA - Adults common on northeast area soybeans although very few harmful insects present. (Okla. Coop. Sur.).

A BRACONID (Lysiphlebus testaceipes) - OKLAHOMA - Greenbug mummies light on Ottawa County sorghum. Not seen in other northeast counties. Increasing on Payne County sorghums. (Okla. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Catches on wing traps decreased past 2 weeks. Very light square damage in older plots below Caprock. (Clymer, Rummel). For Boll Weevil in other areas see page 495.

CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Adults light on oats on farm in Fayette County for a new county record. Collected by A. Sanders June 2. Determined by R.E. White. (PPD). INDIANA - Adult emergence past peak at New Carlisle, St. Joseph County. (Shade). MICHIGAN - Controls for season ended in State. (Ruppel, July 6). NEW YORK - Damage in every oatfield inspected in west counties. (N.Y. Wkly. Rpt., July 6).

GRASSHOPPERS - NEVADA - Mostly adults of Aulocara elliotti and Oedaleonotus enigma 8-15 per square yard on localized, scattered areas of rangeland and wheat-grass seedings south of Orovada, Humboldt County. (Lundahl, Peters). Mostly Melanoplus sanguinipes nymphs moving into alfalfa hay from abandoned farmland in Diamond Valley, Eureka County. Counts on edges up to 50+ per square yard and on margins 12-15 per square yard. (Hampton, Martinelli). UTAH - Few in Cache County small grains generally. (Knowlton). Moderately numerous at Hanksville, Wayne County. (Roberts). Nymphs spottedly numerous on Antelope Island, Davis County. (Knowlton, Davis). Light in Uintah, Duchesne, and Dagget Counties. (Petty). NEW MEXICO - Heavy on turnrows and outer edges of alfalfa fields in Bernalillo and Valencia Counties. Some damage in alfalfa. (Heningler). COLORADO - M. bivittatus, M. femurrubrum, and other species vary considerably throughout State. Ranged 0-10 per square yard in cropland margins in northeast area. In some cases moved into adjacent crops, damage ranged trace to very light. First and second instars heavy in cropland margins in Mesa County following hot weather in June. (Johnson, Sisson). WYOMING - A 95-percent kill obtained with an organic phosphate applied to 10,392 acres in Goshen County and 840 acres in Converse County July 2-3. Aulocara elliotti, Amphitornus coloradus, Cordillacris occipitalis, and Ageneotettix deorum dominant. (Daiss). IOWA - M. differentialis 5-10 per square yard in roadsides in western half of State. Heavy, 100+ per square yard in spots. Some farmers treating. (Iowa Ins. Sur.). MINNESOTA - M. femurrubrum hatch past peak in south half of State. Nymphs in first to third instars, mostly second. Warm, dry weather favored nymphal survival. Eight or more per square yard in Otter Tail, Rock, and Carver Counties. Margin counts of 10-27 per square yard in widely scattered locations. Moving from hatching areas into corn, soybeans, and small grain. Margin damage in some soybean fields in Wright and Carver Counties noticeable but not economic. M. bivittatus third instar to adult. Fungus disease in 2 fields in Carver and Wright Counties killed several M. bivittatus; no effect on other species. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Heavily to completely defoliated 7,000-8,000 acres in Monroe County this year; 800 acres untreated at this location in 1969. Feeding on oak, yellow-poplar, ash, wild flowers, grass, and plastic flagging used to mark study plots. Completely stripped oaks, maples, sassafras, black gum, pines, and hemlock in study plots. Estimated 1 million acres in State supporting very light to moderate populations. (Nichols, Quimby, June 30). NEW HAMPSHIRE - Pupation July 8 in Carroll, Rockingham, and Strafford Counties. (Mason, Conklin).



JAPANESE BEETLE (*Popillia japonica*) - TENNESSEE - Emergence throughout known infested area. Damage very heavy in localized areas of Johnson and Sullivan Counties. (Hammett). VIRGINIA - Adult damage less severe in 1970 than in previous 2 years in most areas. (Allen). INDIANA - First adults in traps July 1 at Fort Wayne, Allen County. Previously noticeable only in east half of Logansport, Cass County, adults now occupy entire city, and in larger numbers than usual. (Lehker). OHIO - Heavy on wild grape, trees, and shrubs in west Washington County. Heavy numbers feeding on heads in oatfields in north Lawrence County. (Roach et al.). NEW JERSEY - Feeding on several ornamental plants in central counties. Heavy at Hightstown, Mercer County. (Ins.-Dis. Newsltr.). CONNECTICUT - Feeding on variety of plants. (Savos, July 8) RHODE ISLAND - First adults in Kent County July 5 (Reilli), and in Washington County July 8 (Mathewson). NEW HAMPSHIRE - Adults active at Concord, Merrimack County. (Mason, Hutchins).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Sterile moth releases July 2-9: Coachella Valley 6,944,250, total to date 64,983,250; Bakersfield 1,400,000, total to date 14,771,700. ARIZONA - Sterile moths released at Redington, Yuma County, 112,500; total to date 674,800. (PPD). Larvae 0-4 per 100 blooms at Safford, Graham County. Fourth instars averaged 1-2 per 100 plants with rosetted blooms at Marana, Pima County. Infestations 5-8 percent at Yuma, Yuma County. (Ariz. Coop. Sur.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - VIRGINIA - *G. leucoloma fecundus* adults light on tobacco at Chestnut Level, Pittsylvania County, for a new county record. Collected by H.S. Miller and W. Brown July 8. Determined by R.E. Warner. (PPD). MISSOURI - First adults of *G. leucoloma striatus* emerged June 18. Counts June 23 averaged 2 per plant on 2 acres of wild aster at Cardwell, Dunklin County. (Maddox).

#### CORRECTIONS

CEIR 20(24):390 - PERIODICAL CICADAS (*Magicicada* spp.) - PENNSYLVANIA - *Magicicada* sp. heavily damaged forest trees May 26 . . . should be *Magicicada* sp. adults heavy on forest trees May 26 . . . (Sleesman, Simons).

CEIR 20(27):440 - POTATO PSYLLID (*Paratrioza cockerelli*) - TENNESSEE - Delete entire note.

CEIR 20(27):440 - EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MARYLAND - . . . as high as 10 percent . . . should read . . . as high as 100 percent . . .

CEIR 20(27):442 - ALFALFA WEEVIL (*Hypera postica*) - NEW HAMPSHIRE should read MASSACHUSETTS.

CEIR 20(27):443 - MEADOW SPITTLEBUG (*Philaenus spumarius*) - NEW HAMPSHIRE should read MASSACHUSETTS.

CEIR 20(28):480 - PINE SPITTLEBUG (*Aphrophora parallela*) - OREGON - Should read A SPITTLEBUG (A. permutata). Determined by P. Oman. (Penrose).

CEIR 20(28):488 - Alfalfa weevil map in error. For corrected map see CEIR 20(29):508.

HAWAII INSECT REPORT

Corn - CORN EARWORM (Heliothis zea) damaged 90 percent of ears in one acre of sweet corn at Lihue, Kauai. (Sugawa).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) colonies light to moderate on older leaves of about 60 percent of 0.5 acre of banana plants at Waimanalo, Oahu. Predators nil. Light, spotty colonies on 1-4 leaves of every plant in 0.5 acre of old papaya trees at Hakipuu, Oahu; only on some trees, 2 months ago. Apparently spreading in both fields. (Au, Kawamura). FULLER ROSE WEEVIL (Pantomorus cervinus) adults light to moderate on 5 percent of 5-foot macadamia plants in 100 acres at Pahala, Hawaii; as many as 6 beetles on few terminals. Trace in 100 acres of 2-year-old citrus plants at Puueo, South Point, Hawaii. Heavy on roadside koa-haole (Leucaena leucocephala) at Pahala; as many as 13 adults per terminal caused severe defoliation of some plants. THREE-LINED POTATO BEETLE (Lema trilineata) adults light to moderate, averaged 9 per plant, in 100-square foot planting of poaha (Physalis peruviana) at Puueo, South Point; eggs trace. (Matayoshi).

Ornamentals - SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults trace to light on flowers and buds in 0.25 acre of Vanda joaquim at Waimanalo, Oahu; 3 of 6 bugs bore eggs of a TACHINA FLY (Trichopoda sp.). All stages light in one acre of sweet corn and yardlongbeans at Lihue. (Sugawa, Kawamura).

Beneficial Insects - Parasitism by a BRACONID (Opius sp.) of BEAN FLY (Melanogromyza phaseoli) infesting cowpeas on Kauai: 23 percent at Kapaa, 69 percent at Mana, and 42 percent at Kaumakani. (Sugawa). Activity of a PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) in 100 Tribulus terrestris internodes on Maui: 98 percent at Waikapu, 16 percent at Puunene, and nil at Lahaina. No activity in similar samplings of T. cistoides at Waikapu, Kihei, and Lahaina. (Miyahira).

Miscellaneous Pests - CLUSTER FLY (Pollenia rudis) buildup continued at Kahua Ranch, Hawaii. Adults noticeable on several species of flowering trees and in pastures. (Yoshioka).

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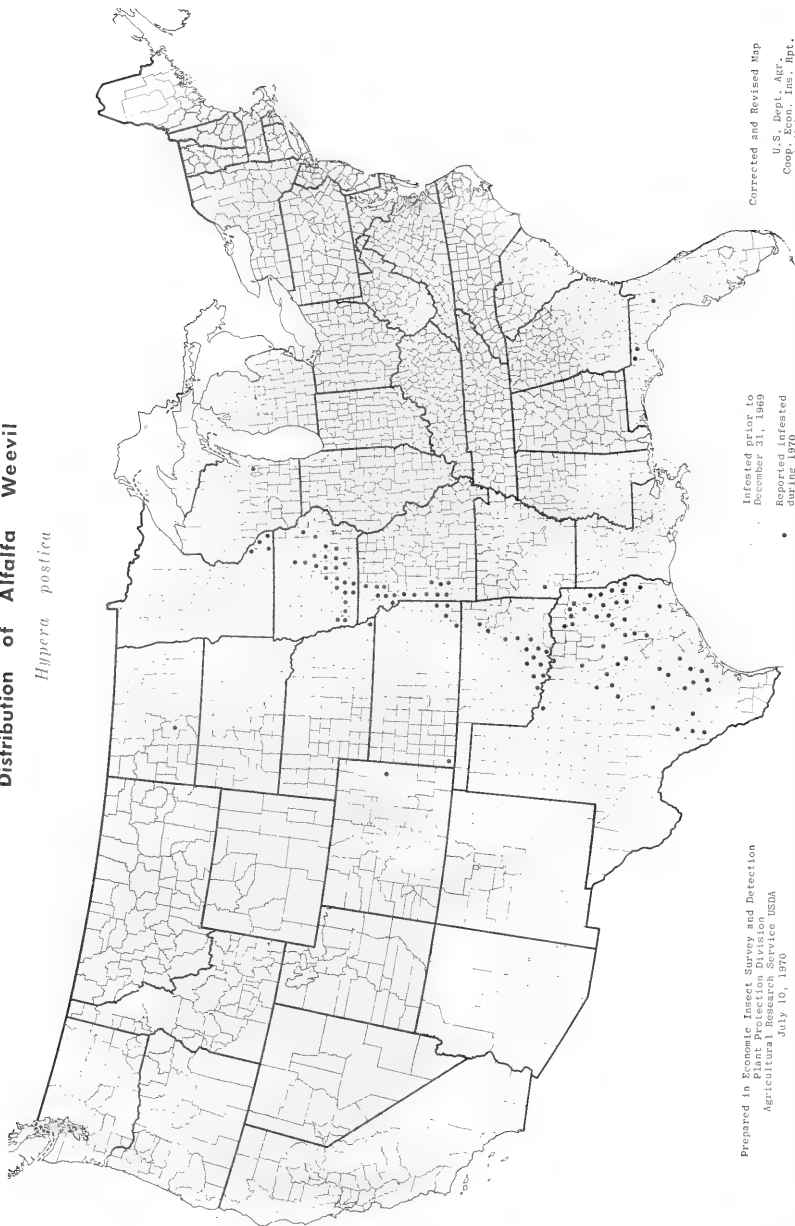
**DETECTION**

New County Records - ALFALFA WEEVIL (Hypera postica) MINNESOTA - Fillmore, Wabasha; MISSOURI - Platte (p. 494). CEREAL LEAF BEETLE (Oulema melanopus) ILLINOIS - Fayette (p. 504). GLOVER SCALE (Lepidosaphes gloverii) FLORIDA - Broward (p. 498). HOLLYHOCK WEEVIL (Apion longirostre) VIRGINIA - Sussex (p. 499). PURPLE SCALE (Lepidosaphes beckii) FLORIDA - Broward (p. 498). A WHITE-FRINGED BEETLE (Graphognathus leucoloma fecundus) VIRGINIA - Pittsylvania (p. 505). YELLOW SCALE (Aonidiella citrina) FLORIDA - Palm Beach (p. 499).



# Distribution of Alfalfa Weevil

*Hypera postica*



Prepared in Economic Insect Survey and Detection  
Plant Protection Division,  
Agriculture Service USDA  
July 10, 1970

Corrected and Revised Map  
U.S. Dept. Agr.  
Cooperation: Iowa Agr.  
Stat. Serv. Station: 504, 1970



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**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

ASTER LEAFHOPPER increasing on small grains in eastern North Dakota. CORN LEAF APHID heavy on sorghum in Oklahoma, Kansas, and Missouri; increasing on corn in Wisconsin; surveys indicate possibility of serious problems in Illinois. (p. 511). GREENBUG increasing on sorghum in Colorado, Texas, Oklahoma, and parts of Nebraska. (p. 512).

EUROPEAN CORN BORER could be severe on late corn in southern Illinois, infestations heavy in Maryland and New York; blacklight trap moth catches increased in Delaware. (p. 513). WESTERN BEAN CUTWORM moths appearing in light traps in Nebraska, Idaho, and Colorado. (p. 514).

ALFALFA WEEVIL damaging in Utah and larvae heavy on alfalfa in Montana. (p. 515).

BOLLWORM moth catches and egg laying increased in Texas; moth activity increasing in Oklahoma and flights of concern in southeast Arkansas; light trap catches increased in delta counties of Mississippi. (p. 516).

COLORADO POTATO BEETLE remains serious on potatoes in northern Utah and damaging in Maine. (p. 518).

HORN FLY, STABLE FLY, TABANID FLIES, and MOSQUITOES continue to annoy man and livestock in several States. (pp. 521-522).

GRASSHOPPERS heavy on rangeland and potentially damaging to fall wheat in Washington; numerous in Utah and Nevada, and increasing on alfalfa in South Dakota. (p. 523).

Detection

New State records include BIRCH TUBE MAKER (p. 520) and a BRACONID (p. 523) from Pennsylvania; an ENCYRTID WASP and a SPHECID WASP from Hawaii (p. 525); a SPIDER MITE from New Hampshire (p. 520).

For new county records see page 525.

Special Reports

Survey Methods. Selected References - 1942. Part XXX. (pp. 527-528).

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WEATHER OF THE WEEK ENDING JULY 20

**HIGHLIGHTS:** Temperatures ranged widely soaring to over 100° at some localities in over a dozen Western and Central States to a few degrees above freezing in the central Rockies. Spotty showers dotted much of the Nation being heavier over the eastern half.

**PRECIPITATION:** Most areas in the western half of the United States received no rain or only light sprinkles. The main exceptions included the Idaho Panhandle, western Montana, and some mountain localities in Arizona and New Mexico where a few weekly totals exceeded 1 inch. Showers were more generous over the eastern half of the Nation with many small areas receiving 1 to 2 inches of rain. Hail and high winds accompanied some of the heavier showers. Some spots in the East missed by the rains need moisture badly.

**TEMPERATURE:** Ocean breezes cooled the Pacific coast last week but the heat intensified over the western interior with the mercury reaching 100° or higher over much of the West. Maximum temperatures Wednesday afternoon included: Ephrata, Washington, 100°; Portland, Oregon, 102°; Boise, Idaho, 100°; Winnemucca, Nevada, 102°; Grand Junction, Colorado, 100°; Needles, California, 117°; Prescott and Winslow, Arizona, 100° and 103°, respectively. A warm humid airmass lay over the eastern half of the Nation through most of the week. Sharp cooling dropped maximums near the Great Lakes late in the week. Green Bay, Wisconsin, registered 89° Friday afternoon but no higher than 74° Saturday. Greater contrasts occurred the following day in the northern and central Great Plains. Norfolk, Nebraska, recorded 98° Saturday but the highest temperature Sunday was 68°. Minimum temperatures from the Dakotas were about 15° to 20° colder Sunday morning than 24 hours earlier, dropping from the 60's Saturday to the 40's on Sunday. The Saturday and Sunday minimum temperatures at Sioux Falls, South Dakota, were 63° and 45°, respectively. Weekly temperatures averaged slightly below normal from the northern Great Plains to the Atlantic Ocean and from southern Texas to the Florida Panhandle and above normal over most other parts of the Nation. Parts of the southwestern deserts averaged 6° to 10° above normal. (Summary supplied by Environmental Data Service, ESSA.)

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - NEBRASKA - Moth catches increased at Lincoln, Lancaster County, and Concord, Dixon County, week ending July 10. Collected 428 moths at Lincoln July 7. (Berogan). SOUTH DAKOTA - Larval damage heavy in one field of second-growth alfalfa east of Spearfish, Lawrence County. Full-grown larvae per square foot ranged 10-15 in protected locations and 3-5 in exposed areas. Controls applied. (Jones). WISCONSIN - Light damage in Marathon County cornfield near Wausau. Light in sweet corn in most localities from Illinois border north to Jackson, Pepin, and Marathon Counties. (Wis. Ins. Sur.). MICHIGAN - Larvae heavy in field of no-till corn in Osceola County. Controls warranted. (Ruppel, July 13). INDIANA - Blacklight trap catches July 5-11 by district: Northwest 1,325, east-central 612, central 223, southwest 201, south-central 152, and west-central 87. (Huber).

**ASTER LEAFHOPPER (*Macrosteles fascifrons*)** - NORTH DAKOTA - Continues to increase, adults and nymphs up to 2,000 per 100 sweeps in some small grain fields in eastern counties. Range per 100 sweeps: 40-2,000 (average 645) in Cass County, 50-2,000 (averaged 475) in Traill County, and 20-400 (averaged 142) in Richland County. Some controls applied; results poor. (Brandvik).

**CORN EARWORM (*Heliothis zea*)** - TENNESSEE - Damage moderate to heavy to whorls of late-planted corn throughout State. Damage light to moderate to early planted corn. (Gordon). ARKANSAS - Larvae 1 on 5-10 row feet of early blooming sorghum in Pope County. Moths above average in cotton fields in all counties visited in upper Arkansas River Valley. (Boyer). OKLAHOMA - Heavy in corn and sorghum in Craig County, moderate in corn in Cleveland County, and light in corn in Choctaw County and on peanuts in Caddo County. (Okla. Coop. Sur.). NEBRASKA - Moth catches light at Lincoln, Lancaster County, and Concord, Dixon County. (Roselle). UTAH - Larvae moderate in Washington County; moths in early silked corn in northern counties. (Knowlton).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - UTAH - Very light on field corn in Utah and Cache Counties. (Davis, Knowlton). Conspicuous in many barley fields in Iron County; 500 acres sprayed. (Sjoblom). Conspicuous in some Millard, Beaver, and Cache County barley. (Knowlton). NEW MEXICO - Generally medium to heavy in most grain sorghum-growing areas. Many growers treating. (N.M. Coop. Rpt.). TEXAS - Infestations in High Plains still widespread on sorghum but declined in most headed sorghum fields. Little evidence of injury observed in fields heavily infested prior to heading. (Rummel, Clymer). OKLAHOMA - Very heavy in many sorghum fields in southwest area. Light to heavy in Texas and Cimarron Counties. (Okla. Coop. Sur.). KANSAS - Reported heavy in sorghum whorls from most areas of State. (Gates). MISSOURI - Heavy in whorls of sorghum not headed in southwest area. Declining on headed sorghum. Counts of 25-300 per plant also reported from few spots in southeast area. (Munson). NEBRASKA - Moderate to heavy in whorls of grain sorghum in southeast. Upper leaf turning red, but most damage primarily due to lack of moisture. Counts of 125-1,500 per whorl on most plants in 2 Seward County fields. (Roselle, Keith). Found on most corn plants in 6 Lincoln County fields. (Campbell). ILLINOIS - Corn leaf aphid numerous in some fields; may seem to "explode" within next 14 days. Limited surveys indicate possibility of serious problems. Predator numbers low, but disease killing some aphids, and high temperatures slowed reproduction. Corn in late-whorl and early tassel stages appears to have most aphids. Early fields in which pollination already occurring should escape damage. (Sur. Bull.).

WISCONSIN - Corn leaf aphid increasing, and large colonies evident on individual corn plants. In fields surveyed, fewer than 10 percent of plants infested and colonies generally comprised of less than 300 aphids. Heavier in few fields and surveys in some negative. (Wis. Ins. Sur.). INDIANA - Infestations generally light, ranged 4-12 percent, in 7 of 36 cornfields in central districts. (Meyer). MICHIGAN - Currently light on corn but should increase as tassels emerge. Lady beetles and flower bugs (*Orius* spp.) numerous in fields examined. (Ruppel, July 13). OHIO - Abundant on developing tassels of field corn in Fairfield County.

Infested about 75 percent of plants. (Roach). NEW YORK - Corn leaf aphid colonies gradually increased and honeydew with sooty mold appearing by July 9 on Hudson Valley sweet corn. (N.Y. Wkly. Rpt.).

GREENBUG (*Schizaphis graminum*) - COLORADO - Continues to increase in eastern area sorghum. Ranged 0-350 per plant, with up to 1,500 found, in Arkansas Valley. Heavy damage in spotted areas. Populations vary in northeast area, controls used in some fields in Joes area, Yuma County. (Burchett, Pilcher). ARIZONA - Averaged 30 per 3-inch leaf on 40 rows of slow starting sorghum in field of mixed corn and sorghum. Light on earlier planted corn and sorghum at Safford, Graham County. (Ariz. Coop. Sur.). TEXAS - Populations in grain sorghum continued to increase in High Plains counties. In some fields in Crosby and Lubbock Counties, increased 5 to 10-fold past 14 days. Varied greatly between fields; generally increased in number and became more widely distributed. Ranged from less than 1 to average of 500 per plant. Remained light over most of Rolling Plains area; some buildup reported in Cottle County. Continued to infest grain sorghum throughout Blacklands area, light to medium in some fields. (Rummel et al.). OKLAHOMA - Increased, ranged up to 1,000 per leaf in some older grain sorghum in Jackson County. Ranged 400-500 per sorghum plant in Terral area of Jefferson County, and 5-50 per plant in scattered areas in Texas and Cimarron Counties. (Okla. Coop. Sur.). KANSAS - Developing in widely scattered areas of State. Winged forms present and colonies developing on underside of lower leaves in Wabaunsee County. Some in Doniphan and Thomas Counties. Up to 100 per leaf from one field in Finney County. (Gates). NEBRASKA - Increasing in 7 fields near North Platte, Lincoln County. Light to moderate in all fields in area; occasional fields lost 2-3 lower leaves. (Campbell). Controls needed in 2 fields in east district. Ranged 0-1,000, averaged about 200, on each of 4 lower leaves in 25 fields surveyed in Lancaster, Saunders, Cass, Seward, and York Counties. Heaviest average 1,000 on each of 4 lower leaves. (Keith et al.). Predators increasing; lady beetle adults and larvae averaged 2 per plant and egg masses common in fields surveyed. A braconid (*Lysiphlebus testaceipes*) very light, less than 1 percent of greenbugs parasitized. If drought conditions continue and predators do not increase rapidly, serious problem may develop. (Keith). SOUTH DAKOTA - Several thousand per plant in 50 acres of grain sorghum near Meckling, Clay County. Sorghum expected to head out in 10 days. Treatments to be applied. Other infested fields required treatment in northern Clay County. Trace on sorghum sampled near Mitchell, Davison County, and near Brookings, Brookings County. (Berndt et al.).

POTATO LEAFHOPPER (*Empoasca fabae*) - NEW YORK - Increased in alfalfa in Hudson Valley area. (N.Y. Wkly. Rpt., July 13). MARYLAND - Heaviest counts remain about 2-5 per sweep of alfalfa throughout State. Population levels normal for time of year. (U. Md., Ent. Dept.). OHIO - Severely stunted spring-seeded alfalfa field in Wayne County. (Glass). WISCONSIN - Averaged 4 per linear foot on untreated potatoes in Dane County. "Hopper burn" light, affecting 1 percent of plants at sites surveyed. Populations in untreated snap beans slightly higher. Populations in second-growth alfalfa average about 3-4 per sweep. Some damage in margins of many fields and some spraying in Columbia County. (Wis. Ins. Sur.). MISSOURI - Yellowing alfalfa throughout west-central and southwest areas. Ranged 20-500 per 10 sweeps. Many fields being harvested. (Munson).

POTATO PSYLLID (*Paratrioza cockerelli*) - WYOMING - Adults ranged 0-11 per 100 sweeps of potatoes in Goshen and Laramie Counties. Averaged less than 1 per 100 sweeps in most fields. Heaviest, averaged 8, in field near La Grange, Goshen County. Some controls applied. (Parshall). COLORADO - Adults continue to increase in Arkansas Valley; range 0-8 per 100 sweeps of potatoes. Remain light in Weld and Morgan Counties. (Burchett, Johnson).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WASHINGTON - One winged adult collected in trap at Othello, Adams County. (Powell). ARIZONA - Ranged 80-120 per 100 sweeps of alfalfa on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 21-37+ per 25 sweeps of alfalfa in Corrales area, Sandoval County. (Heninger).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - Moth catches negligible in Hudson Valley light traps. Larvae very heavy in field and grain corn in Hudson Valley and less common in west area. Borers particularly heavy in fields of no-till corn following corn or sod. (N.Y. Wkly. Rpt., July 13). DELAWARE - Adults increased, averaged 23 per night in blacklight trap collections in western Sussex County. (Burbutis). MARYLAND - Moth flights expected to increase rapidly next 7 days throughout Eastern Shore. Most fields infested with third to fifth instars. Borers in central counties mostly second to third instar. Infestations statewide heavy in early planted corn. Late-planted corn expected to be heavily infested with second-generation borers. (U. Md., Ent. Dept.).

INDIANA - European corn borer infested 4-72 (average 17) percent of corn in 18 of 36 fields in central district. Larvae did not exceed 12 per 100 plants in all areas. Larvae 120 per 100 plants in east-central area field, 180 in another field. Most corn in or past tassel-in-whorl stage. (Meyer). MICHIGAN - Larval activity will necessitate controls on specific crops well into late July. Light in unsprayed sweet corn ears. (Newman). Few cornfields show damage. Fields examined in Berrien County ranged clean to one field 100 percent infested. Larvae averaged 3 or more per plant in few Branch County fields. (Thompson). Infestations light in Clinton, Ingham, and Tuscola Counties. (Ruppel, July 13). WISCONSIN - Larvae more evident and heavy in many fields. Early, fresh market sweet corn in southern counties severely infested at some sites, with larvae in 100 percent of ears surveyed. Leaf feeding on canning sweet corn heavy at some sites and some control attempted. Third instars predominated in fields surveyed, but second, fourth, and fifth instars also common. Some pupae found; moths again appearing in blacklight traps. No egg masses detected. (Wis. Ins. Sur.). ILLINOIS - Infestations of second-generation borers on late-maturing corn could be severe in south area. Moth emergence underway; peak egg laying expected about July 25 in south area. Some borers in most early planted corn; emerging moths will move to late-maturing fields. First-generation borers pupating in central section; occasional second-generation moth emerged. Pupation just underway in northern section. (Sur. Bull.). IOWA - Percent development July 17 at Ankeny, Polk County: Larvae 68, pupae 30, adults 2. In Boone County, larvae 3,271 per acre compared with 4,083 in 1969. First egg mass of second brood noted at Ankeny. (Iowa Ins. Sur.).

SOUTH DAKOTA - European corn borer in fourth instar on corn near Yankton County. (Jones). NEBRASKA - Ranged 15-35 percent of plants infested with first-generation borers in 5 fields checked in Lancaster, Seward, and York Counties. (Keith, Dickason). Summer-generation moths emerging and building up at Lincoln, Lancaster County. (Keith). MISSOURI - Second-generation egg masses ranged 0-8 per 100 plants on corn in Jasper and Lawrence Counties. (Munson). KANSAS - Infestations light in all counties surveyed in southeast. Some pupae in Montgomery County. (Gates). COLORADO - Adults in fields in Roggen area, Weld County. (Rothman).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - MISSOURI - Adults ranged 1-20 per corn or sorghum plant in infested area of Jasper and Barton Counties. Adults collected in Lawrence and Dade Counties for new county records. (Munson). NEBRASKA - Light in most corn examined. Heaviest, 5-6 per plant, in 5 fields examined in Lancaster, Seward, and York Counties. (Keith, Dickason). COLORADO - Adults emerging in northeast area. Adults heavy and feeding on corn in few fields. Larvae causing lodging in some fields. (Rothman, Johnson).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - PENNSYLVANIA - First adults of season in Northumberland County corn July 13; about 60 percent pupated. All larvae in last instar in Northampton County. Earliest emergence date recorded for State. (Gesell). INDIANA - Adults noted in central and north-central districts. Adults on 24 percent of corn, up to 7 per plant, in north-central district field. Infested fields uncommon in any district. (Meyer). WISCONSIN - Damage in Buffalo County cornfield. Field not treated for several years. (Wis. Ins. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - OHIO - Light on silks, no damage, of ripened sweet corn in Franklin County. Adult emergence just begun. (Roach).

CORN ROOTWORMS (Diabrotica spp.) - IOWA - Lodging present in 2 of 22 fields observed July 14-15, and one northern corn rootworm (D. longicornis) adult in southeast area. (Iowa Ins. Sur.). SOUTH DAKOTA - Adults expected to increase. Controls failed in several fields treated at planting, partly due to excessive larval numbers. Heavy damage to corn near Mitchell, Davison County; Plankinton, Aurora County; Brookings, Brookings County; and in northern Moody County. D. virgifera (western corn rootworm) adults 3-4 per stalk in Moody County cornfield. Adults emerging as far north as Brookings County. (Kantack). KANSAS - Adult emergence started week of July 10; should continue and peak by July 17. In northern part of State emergence may be later and peak populations may not be reached for another 7 days. (Gates).

DUSKY SAP BEETLE (Carpophilus lugubris) - MARYLAND - Infested corn ears ranged 0-44 percent in Kent, Talbot, Caroline, Queen Annes, and Dorchester Counties. Sweet corn infestation levels expected to increase with expected increase in Heliothis zea injury. (U. Md., Ent. Dept.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - NEBRASKA - First moths of season caught at Concord July 7 and at Lincoln July 10. First egg masses observed in York County on July 16. (Berogan et al.). COLORADO - Adults appearing in northeast area. Adults in light traps in Windsor area. (Johnson). IDAHO - First moth collected in blacklight trap at Rupert, Minidoka County, on June 30 and at Twin Falls, Twin Falls County, July 4-5. Few collected July 9. (Peay, Light).

SORGHUM WEBWORM (Celama sorghiella) - TEXAS - Heavy in grain sorghum in Brazos, Burleson, and Jackson Counties. (Randolph, Cole). ARKANSAS - Occasional specimen in sorghum which just completed blooming in upper Arkansas River Valley. (Boyer).

SORGHUM MIDGE (Contarinia sorghicola) - ARKANSAS - Single specimen found in 1 of 2 blooming sorghum fields in Crawford County. (Boyer). Increasing in Lee County; 3 fields treated. (Kimbrough). Increasing in Jackson County; some fields treated. (Barnes). TEXAS - Infesting late sorghum in Jackson County. Other areas of State report very little activity. (Cole et al.).

BANKS GRASS MITE (Oligonychus pratensis) - COLORADO - Increasing on corn in Arkansas Valley. Damage ranges from lower to middle leaves. If hot, dry weather continues, controls will be necessary. (Burchett).

#### SMALL GRAINS

WHEAT STEM MAGGOT (Meromyza americana) - NORTH DAKOTA - White heads averaged 3 and 4 percent in several wheatfields in southern Cass County. (Brandvik).

RICE STINK BUG (Oebalus pugnax) - TEXAS - Infestations locally heavy on rice in Jackson County. (Cole).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Larvae heavy, damaged millet at Quincy, Gadsden County. (Greene).

BROWN WHEAT MITE (Petrobia latens) - MONTANA - Ranged 3-10 per sweep of spring wheat in large area covering parts of Chouteau, Cascade, Teton, Pondera, and Liberty Counties. (Pratt, July 10).

BARLEY THRIPS (Limothrips denticornis) - MONTANA - Damage apparent in spots 20-30 feet across in barley fields scattered over grain-growing area of Phillips and portion of Valley Counties. (Pratt).

## TURF, PASTURES, RANGELAND

A CRANE FLY (Tipula sp.) - OHIO - Several hundred larvae of undetermined species damaged a lawn in Jefferson County. First occurrence of damage in State. Additional surveys for specimens to be conducted. Determined by B. Foote. (Miller, Roach, May 28).

SOUTHERN CHINCH BUG (Blissus insularis) - TEXAS - Heavy in Jackson County. Heavy throughout Brazos County on St. Augustine grass lawns. (Cole, Clark).

MEADOW PLANT BUG (Leptopterna dolabrata) - UTAH - This species and L. ferrugata caused spotted injury to range grasses in Cache and Tooele Counties. Discolored some crested wheatgrasses and other grasses east of Monticello, San Juan County. (Roberts, Knowlton).

## FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - NEVADA - Economic numbers treated in most alfalfa seed fields at Lovelock, Pershing County. (Lauderdale). UTAH - Generally light to moderate on western Millard County alfalfa; however, averaged one cup in 10 sweeps in one field, about 300 per 10 sweeps in another. Predators numerous in west Millard County alfalfa. Collops spp. 2-10 per 10 sweeps, Geocoris spp. 1 per 10 sweeps. Lady beetles and larvae numerous. Predators adequate in most fields. (Davis). WYOMING - A. pisum ranged 3-500 per 10 sweeps of alfalfa in Goshen, Platte, Laramie, Converse, and Niobrara Counties. Heaviest in Platte County. (Parshall). COLORADO - Ranged 10-600 per 100 sweeps (average 150) of alfalfa in eastern Arkansas Valley. Ranged 100-5,000 per 100 sweeps in northeast area. (Burchett, Johnson). NEW MEXICO - Light to heavy in alfalfa at Corrales, Sandoval County. (Heninger). MARYLAND - Heaviest in 22 acres of alfalfa near Thurmont, Frederick County; ranged 50-200 per sweep. Light throughout State but generally above 1969 levels at this time. (U. Md., Ent. Dept.). WISCONSIN - Generally less than 20 per sweep in southwestern alfalfa fields. (Wis. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - MONTANA - Larval counts 11 per sweep of alfalfa in Bozeman area, Gallatin County; 20 per sweep at Ekalaka, Carter County; and 1 cup per 12 sweeps at Twin Bridges, Madison County. (Pratt, July 10). WYOMING - Larvae ranged 0-18 per 10 sweeps of second-cutting alfalfa in Goshen, Laramie, Niobrara, Converse, and Platte Counties. Most last instar; few adults. (Parshall). UTAH - Generally damaging in Iron County; 3,000 acres sprayed (Sjoblom); 12,000 acres sprayed in Beaver County, most serious outbreak ever (Esplin). NEW MEXICO - Adults ranged 0-6 per 25 sweeps, larvae up to 36 per 25 sweeps of alfalfa at Corrales, Sandoval County. (Heninger). MISSOURI - Last instars ranged 0-8 (averaged 4) per 10 sweeps of uncut alfalfa in southeast area. Larvae ranged 0-2 per 10 sweeps on new growth following second cutting. Few adults observed. (Hanning). RHODE ISLAND - Light on Washington County alfalfa. (Field). VERMONT - Pupating and new adults emerging. (Nielsen).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WYOMING - Adults ranged 0-8 per 10 sweeps of alfalfa in Goshen, Platte, Laramie, Niobrara, and Converse Counties. (Parshall). WISCONSIN - Averaged 4-5 per sweep in second-growth alfalfa in some Grant County fields. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - WYOMING - Adults ranged 8-30 per 10 sweeps of alfalfa in Goshen, Platte, Converse, Niobrara, and Laramie Counties. (Parshall). UTAH - Generally under control in alfalfa seed fields of Delta area of west Millard County. Nymphs 4-5 in 10 sweeps, but in one treated field nymphs 20 and adults 10 in 10 sweeps. (Davis). COLORADO - Increasing, ranged 0-500 per 100 sweeps in Arkansas Valley. (Burchett). ARIZONA - Averages per 100 sweeps of alfalfa in Yuma County as follows: 150 on Yuma Mesa, and 740 in Yuma Valley. (Ariz. Coop. Sur.). NEVADA - Economic numbers treated in most alfalfa seed fields at Lovelock, Pershing County. (Lauderdale).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Averaged 90 per 100 sweeps of alfalfa on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MASSACHUSETTS - Adults 72 per 100 sweeps of alfalfa in Berkshire County field. (Jensen).

GARDEN FLEAHOPPER (Halticus bracteatus) - MARYLAND - Heaviest averaged 57 per sweep in alfalfa near Buckeystown, Frederick County. Heaviest in red clover in Galena, Kent County, and American Corner, Caroline County; averaged 50 per sweep. (U. Md., Ent. Dept.).

GRASSHOPPERS - OHIO - Defoliating alfalfa fields in Williams County. Controls needed in some cases. (Roach). INDIANA - Mostly early instars of short-horned species on second-growth alfalfa averaged 40 per sweep in west-central district field and 25 per sweep in central district field. (Meyer). WISCONSIN - Various nymphal instars of Melanopus femurrubrum (red-legged grasshopper) in southern alfalfa fields indicating prolonged hatch. Populations over 15 per sweep in few fields. Feeding by undetermined species in some corn in Dunn County. If hot, dry weather occurs again, some light damage may occur in fields where plant growth poor, particularly in sandy areas. (Wis. Ins. Sur.).

LEAF MINER FLIES (Agromyza spp.) - MASSACHUSETTS - Adults 1,911 per 100 sweeps of alfalfa in Berkshire County field. (Jensen).

#### PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Caused much damage to 2 large fields in Covington County. (Linder).

#### COTTON

BOLLWORMS (Heliothis spp.) - TEXAS - In McLennan and Falls Counties, moth catches and egg laying increased. Eggs averaged 19.7 and larvae 1.2 per 100 terminals in 11 treated fields. Eggs averaged 17.7 and larvae 3.3 per 100 terminals in 52 untreated fields. Injured squares averaged 1.5 (maximum 6.5) percent in 11 treated fields; averaged 1.4 (maximum 3.5) percent in 51 untreated fields. Injured bolls averaged 0.6 (maximum 1.8) percent in 11 treated fields; averaged 0.4 (maximum 2.5) percent in 51 untreated fields. Of 51 larvae collected on cotton, 69 percent identified H. virescens. (Cowan et al.). OKLAHOMA - Light counts (1 or 2 per 100 terminals) common in most older fields in southwest area, many newly laid eggs found; indicates moth activity increasing. One field in Greer County treated. Larvae averaged 3 percent and eggs 10 percent in Grady County. (Okla. Coop. Sur.). LOUISIANA - Egg laying underway. Eggs easily found on cotton in Lafayette Parish July 13. Expected to increase. (Tynes). In Madison Parish, damaged squares averaged 2.5 percent in 53 of 84 fields and plots examined. Eggs averaged 2.9 and larvae 0.4 per 100 terminals. (Cleveland et al.). ARKANSAS - Many moths observed in fields. Egg laying just beginning as many moths apparently in preovipositing state. Catch on sugar line in southeast area heaviest ever. Magnitude of this flight caused much concern. (Barnes et al.). H. zea moth flight very heavy in southeast area. (Barnes, Wall). MISSISSIPPI - Larval infestations in Washington, Sharkey, and Attala Counties averaged 5.95 percent in 47 fields checked. (Sartor). In delta counties, light trap moth catches increased. Eggs averaged 0.6 (maximum 4) per 100 terminals in 11 of 28 fields checked. No larvae found in terminals. Injured squares averaged 0.9 (maximum 4) percent in 13 of 28 fields. Hot dry weather continues in area. (Pfrimmer et al.). TENNESSEE - Egg and larval counts decreased in west area. Average of 2 larvae or eggs per 100 terminals observed for those fields infested. Control measures started in most heavily infested fields. (Locke). ALABAMA - H. zea moth flight and egg laying still very light statewide. (McQueen). SOUTH CAROLINA - In Florence County, recovered 25 H. zea and 26 H. virescens moths in light trap. Drought conditions exist in area. (Taft et al.).



**BOLL WEEVIL (*Anthonomus grandis*) - TEXAS** - Remains light in McLennan and Falls Counties. Punctured squares averaged 4.5 (maximum 9.9) percent in 11 treated fields. Averaged 8.2 (maximum 31.5) percent in 51 untreated fields. (Cowan et al.).

**LOUISIANA** - Punctured squares up to 60 percent in some "hot spots" week ending July 10. Most counts generally less, many fields with no damage. Weevils emerging from squares on ground and spreading throughout fields causing punctured square counts to increase. (Tynes). In Madison Parish, one weevil from 89 wing traps, total to date 1,700. Punctured squares in 82 of 83 fields and plots checked. (Cleveland et al.).

**ARKANSAS** - First-generation emergence underway and, except for isolated situations, fields not up to treatment levels yet. Some "hot spots" in southwest and upper Arkansas River area. (Barnes et al.).

**MISSISSIPPI** - Infestations in 5 counties averaged 15 percent in 91 fields. (Sartor). In delta counties, one weevil in 1 field. Punctured squares in 2 of 28 fields checked ranged up to 9.5 percent. (Pfrimmer et al.).

**TENNESSEE** - First-generation weevils appearing in older cotton in west area. Some dead larvae found in nonrank fields; probably due to dry weather. Infestations remain mostly spotted within fields. Average percent punctured squares for infested fields 6. Expected to increase sharply by July 24. (Locke).

**ALABAMA** - Punctured 10-50 percent of squares in many poorly treated fields in southern area except where good controls applied. Controls in progress in most central and southern area fields. Still light in northern area. "Hatchout" begun in northern counties in older cotton. Only occasional weevil occurring; population increase will be light next 3 weeks in north area. (McQueen).

**SOUTH CAROLINA** - In Florence County, recovered 10 weevils on 16 wing traps, total to date 1,897. (Taft et al.).

**COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*) - ARKANSAS** - Above average in some fields in Conway and Pope Counties. Ranged 40-50 per 100 terminals in Pope County field. (Boyer).

**OKLAHOMA** - Adults and nymphs moderate to very heavy in most southwest and west-central counties. Dry weather caused native hosts to become unattractive and fleahoppers migrating into cotton fields. Many fields being treated. Ranged 20-35 per 100 terminals in Grady County. Moderate in Jefferson County and light in Marshall County. (Okla. Coop. Sur.).

**SPIDER MITES - TENNESSEE** - Continue to increase and cause much damage. Infestations becoming more general within infested fields. Conditions ideal for further increase in west area. (Locke).

**ALABAMA** - *Tetranychus urticae* (two-spotted spider mite) generally not much of a problem. Damaging in large treated field in Colbert County. (McQueen).

#### **TOBACCO**

**STALK BORER (*Papaipema nebris*) - MASSACHUSETTS** - Heavily mined 75+ percent of stalks of young shade tobacco in Hampshire County. (Jensen).

**WISCONSIN** - Damaged tobacco plants in 3 fields near Stoughton, Dane County. (Wis. Ins. Sur.).

#### **SUGAR BEETS**

**BEEBEE WEBWORM (*Loxostege sticticalis*) - WYOMING** - Damage completed in Platte County. About 1,200 acres treated. Heavily damaged some fields. Light in Laramie and Goshen Counties. (Parshall).

**SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*) - WYOMING** - Larvae ranged 0-51 (averaged 18) per plant in 3 Park County fields. Adults still active. In one treated field, 9-10 percent of plants dead or dying. Most fields showing damage. (Burkhardt).

**GREEN PEACH APHID (*Myzus persicae*) - WASHINGTON** - Increasing on sugar beets in eastern area. (Landis).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MONTANA - Larvae 40 per plant in 40 acres of potatoes in Big Timber area, Sweet Grass County. (Pratt). IDAHO - Controls needed on some potatoes in Fremont, Madison, Jefferson, Bonneville, and Bingham Counties. Pupating in Jefferson County, mating in Bingham County July 11-12. (Garner, Portman). UTAH - Still most serious potato problem in northern area. Commercial and home plantings required 2-4 sprayings. (Knowlton). WISCONSIN - Some damage to potatoes in Columbia and Buffalo Counties. Populations in Columbia County appear heavier than in past few years. (Wis. Ins. Sur.). MAINE - Causing damage as far north as Mars Hill, Aroostook County. Spraying general. (Boulanger).

Aphids on Potatoes in Maine - Plants now too large to examine completely at Presque Isle, Aroostook County. Counts based on examination of 3 leaves per plant. BUCKTHORN APHID (Aphis nasturii) colonies range 1-25 per plant with 4.6 percent of aphids parasitized. POTATO APHID (Macrosiphum euphorbiae) colonies range 1-15 per plant with 5.5 percent of aphids parasitized; 2 percent killed by fungus. No colonies of GREEN PEACH APHID (Myzus persicae) or FOXGLOVE APHID (Acyrtosiphon solani) on plants examined. One early planted plot at Lincoln, Penobscot County, heavily infested with buckthorn, green peach, and potato aphids. Later planted plots still generally free of aphids. (Boulanger).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Winged forms increasing in trap pans in potatoes near Othello, Grant County, and in Adams County. (Powell). COLORADO - Continues to build up on potatoes in Otero County. Controls used in some cases. (Burchett).

TOMATO FRUITWORM (Heliothis zea) - ALABAMA - Large larvae light to medium in several commercial tomato fields in Blount and St. Clair Counties. Controls good. (Barnett et al.).

POTATO TUBERWORM (Phthorimaea operculella) - MICHIGAN - Surveys of 9 potato fields July 10 in Lenawee and Monroe Counties negative. (Newman).

## BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - WYOMING - Adults 0-6 per 100 row feet of beans in Goshen, Platte, and Laramie Counties. Eggs in all fields checked. (Parshall). COLORADO - Adults light on beans in Arkansas Valley and in northeastern areas. Larvae emerging with controls recommended in some cases. (Urano, Burchett). TENNESSEE - Adults and larvae increasing throughout State. Light to moderate damage on beans in many areas. Controls effective when applied. (Gordon).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larval damage heavy in small commercial planting of beans in 2 to 4-leaf stage on Chandler Mountain, St. Clair County. (Barnett).

## GENERAL VEGETABLES

ONION THRIPS (Thrips tabaci) - COLORADO - Ranged 0-50 per onion plant in Arkansas Valley. Trace to heavy in Weld County. Controls applied. (Burchett, Urano).

ASPARAGUS MINER (Melanagromyza simplex) - MICHIGAN - Present in asparagus in all stages of development. Economic loss not determined yet. (Cress, July 13).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - First second-brood males July 2 in sex lure traps in apple and pear orchard in Yakima County. (Johnson). UTAH - Light flight started in Utah County. (Davis). OHIO - Damaged 16-20 percent of apples in unsprayed orchard. Damage unusually heavy for first brood. Damage by second brood later this season, expected to be worse. (Roach, Holdsworth). NEW JERSEY - Ten moths in Gloucester County baited jar July 7-13. (Ins.-Dis. Newsltr.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - UTAH - Light in infested area of Utah County. (Davis). NEW JERSEY - Three moths in Gloucester County baited jar July 7-13. (Ins.-Dis. Newsltr.).

APPLE MAGGOT (Rhagoletis pomonella) - NEW JERSEY - Five adults on 2 sticky boards in Gloucester County July 7-13. (Ins.-Dis. Newsltr.). CONNECTICUT - Catches increased. Females have eggs ready to deposit. (Savos, July 14). MAINE - Emergence slow to date. Adults on early fruit in abandoned orchards. Emergence increasing from cages at Monmouth, Kennebec County. Adult counts July 13-16 totaled 99. (Boulanger). MICHIGAN - Heavy emergence continues with recent high temperature and rainfall. Adults reaching peak in Van Buren County. (Carpenter, Howitt, July 13).

CHERRY FRUIT FLY (Rhagoletis cingulata) - MICHIGAN - Adults laid eggs in Berrien and Van Buren Counties. Population starting to decrease. (Carpenter, Howitt, July 13).

PEAR PSYLLA (Psylla pyricola) - UTAH - Built up in infested area of Weber County. (Davis). MICHIGAN - Second-generation adults building up. (Carpenter, Howitt, July 13).

LYGUS BUGS (Lygus spp.) - MICHIGAN - Cat-facing on peaches more common than during past 10 years. (Carpenter, Howitt, July 13).

PEAR-SLUG (Caliroa cerasi) - NEVADA - Larval damage heavy on scattered pear trees at Winnemucca, Humboldt County. (Martinelli, Peters). UTAH - Injury developing on pear foliage at Parowan, Iron County. (Brown).

EUROPEAN RED MITE (Panonychus ulmi) - UTAH - Foliar injury in several Utah County apple orchards. (Davis). MASSACHUSETTS - Nymphs and adults 418 per 100 apple leaves in Hampshire County. (Jensen). MAINE - Heavy on untreated apple trees. Mites 100 per leaf on some trees at Monmouth, Kennebec County. (Boulanger).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Heavy on pecan and persimmon trees in Titus, Camp, and Grayson Counties. Moderate in Trans-Pecos region in Val Verde and Kinney Counties. (Coster et al.). ALABAMA - Light but noticeable on pecan, walnut, sweetgum, and other trees statewide. Webs increased on unsprayed trees in Covington County. (Linder et al.).

PECAN SPITTLEBUG (Clastoptera achatina) - ALABAMA - Noticeable on pecan trees in Montgomery, Bibb, Macon, and Mobile Counties last 10 days. (Thompson et al.).

BLACK PECAN APHID (Myzocallis caryaefoliae) - TEXAS - This species and Monellia sp. building up on pecans in Gonzales and Guadalupe Counties. (Cole).

## SMALL FRUITS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Damaged about 25 percent of one acre of strawberry plants at Valrico, Hillsborough County. (Custede, July 6).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - Injury increased in Washington County vineyards. (Huber).

#### ORNAMENTALS

A SPIDER MITE (Platytetranychus thujae) - NEW HAMPSHIRE - Collected on arborvitae at Durham, Strafford County, by G.L. Walker June 22, 1970. Determined by R.M. Reeves. This is a new State record. (Blickle).

A LACE BUG (Stephanitis takeyai) - PENNSYLVANIA - Specimens taken on azalea at Richboro and Morrisville in Bucks County by R. Crum in late July. Determined by E. Simons. This is a new county record. (Gesell).

#### FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - WISCONSIN - Eggs common in northern counties. Few adults persisting and laying eggs. Some light defoliation of balsam. (Wis. Ins. Sur.). PENNSYLVANIA - Catches July 13 of 10,000+ moths in 317-watt blacklight trap at Auburn, Schuylkill County, and of 730 moths in 15-watt blacklight trap at Harrisburg, Dauphin County. (Quinter, Simons).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Second-generation larvae heavily browned many small plantings of pine on highways and lawns in many northern locations. Larvae pupated. Another population increase likely. (Holloway et al.).

WHITE-PINE WEEVIL (Pissodes strobi) - RHODE ISLAND - Larvae infested leaders of spruce and white pine in Washington County. (Field). VERMONT - Damage conspicuous and heavy in some areas. (Nielsen, July 15).

ENGRAVER BEETLES (Ips spp.) - WISCONSIN - Damage moderate to severe on jack pine near Conover, Vilas County, for second year. Some top killing and some edge trees yellowing. Infested trees to be cut and burned before adult emergence. (Wis. Ins. Sur.).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MICHIGAN - Larval activity begun but defoliation not severe. Problem primarily in northern Lower and Upper Peninsulas on red, Austrian, jack, and Scotch pine plantations. (Wallner, July 13).

BIRCH TUBE MAKER (Acrobasis betulella) - PENNSYLVANIA - Larvae collected from white birch at Towanda, Bradford County, by O. Yoder June 5, 1970. Determined by D.M. Weisman. This is a new State record. (Gesell).

OAK LEAF TIER (Croesia semipurpurana) - PENNSYLVANIA - Catch June 30 of 3,515 moths in 317-watt blacklight trap at Auburn, Schuylkill County. (Quinter).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - MISSOURI - Adults in Wayne County. Adults collected at lights in Jasper, Newton, and McDonald Counties. (Munson). These are new county records. (PPD).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Larval damage on Chinese elm in Glasscock and Young Counties. (Neeb, Norman). NEW MEXICO - Heavy on Siberian elm at Albuquerque, Bernalillo County. (Heninger). Light to medium on elm at Tucumcari, Quay County; Ft. Sumner, De Baca County; and at Las Cruces, Dona Ana County. (Heninger et al.). UTAH - Larval injury increasing, spottedly conspicuous. (Knowlton). Damage increasing in Carbon County. (Roberts, Argyle). WYOMING - Larvae and damage heavy on elm at Wheatland, Platte County. (Spackman, Parshall).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 16 cases reported in U.S. July 12-18 as follows: TEXAS - Brewster 6, Pecos 2, Presidio 1, Terrell 6; NEW MEXICO - Eddy 1. Total of 46 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 20, Chihuahua 23, Nuevo Leon 3. Total of 9 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 39,808,000; New Mexico 2,840,000; Arizona 14,230,000; Mexico 97,052,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - UTAH - Increasing generally. (Knowlton). WYOMING - Ranged 10-700 per head on 5 cattle herds in Laramie, Goshen, and Niobrara Counties. Heaviest in Goshen County. (Parshall). NORTH DAKOTA - Light, averaged 4 per head on 4 beef herds in Burleigh County week of July 10. Up to 60 (averaged 9) per head in 2 Richland County herds. Light statewide this season. (Brandvik). SOUTH DAKOTA - Ranged 300-400 per side on cows, heavier on bulls, in herd south of Centerville, northern Clay County. (Jones). NEBRASKA - Averaged 300 per head on 3 valley herds in Lincoln County and about 1,000 per head on 4 range herds pastured in Keith and Arthur Counties week of July 10. (Campbell). Averaged 800-1,000 per head on untreated animals, 300-500 per head on animals with back rubbers, and 50-100 per head on animals aerially sprayed. (Schmidt). OKLAHOMA - Ranged 600-700 per head on Payne County cattle. Heavy in Mayes and Marshall Counties. Moderate in Cleveland County. (Okla. Coop. Sur.). TEXAS - Moderate to heavy on cattle in Kinney, Crockett, and Pecos Counties. Medium to heavy and widespread in Jackson County. (Neeb, Cole). MISSISSIPPI - Declined due to warm weather. Found 1,310 adults on 285 animals in 4 counties; highest average, 1,000 per head on 25 animals in Hinds County. (Sartor). MISSOURI - Ranged 220-277.5 (averaged 246.4) and 409-825.0 (averaged 533.8) per head on 2 cattle herds in Boone County. (Thomas). WISCONSIN - Annoyance light in most areas. Annoyance to cattle severe only in Bayfield, Clark, Rusk, and Calumet Counties. (Wis. Ins. Sur.). VERMONT - Still very light. (Nielsen, July 15).

STABLE FLY (Stomoxys calcitrans) - NEBRASKA - Averaged 6-7 per leg on 3 Platte Valley herds (on pasture) and 2-3 per leg on 2 sandhills herds in Lincoln County week of July 10. Averaged 5-6 per leg on 2 feedlot herds. Currently averaged 6 per leg in herd on irrigated pasture near North Platte, Lincoln County. Averaged 3-7 per leg on feedlot animals. (Campbell). NORTH DAKOTA - Averaged 100 per head on 10 beef cattle in feedlot in Richland County. (Brandvik). WISCONSIN - Annoyance moderate to severe to cattle in Clark, Columbia, Calumet, Dane, Bayfield, Waushara, Walworth, and Rusk Counties. Annoyance light to moderate in Kewaunee and Marquette Counties. Treatment underway in most counties. (Wis. Ins. Sur.). MARYLAND - Heaviest counts averaged 18 per head on 68 Holsteins at Woodsboro, Frederick County. (U. Md., Ent. Dept.). VERMONT - Increasing. (Nielsen, July 15).

FACE FLY (Musca autumnalis) - NEBRASKA - Ranged 8-10 per face on 3 valley herds and averaged 8 per face on two sandhills herds in Lincoln County week of July 10. Ranged 3-5 (averaged about 2) per face on 4 herds in Keith and Arthur Counties. Ranged 15-20 per head on cattle in irrigated pasture near North Platte, Lincoln County. (Campbell). SOUTH DAKOTA - Averaged 5, up to 15, per face on cows and calves in mixed herd south of Centerville, northern Clay County. (Jones). MISSOURI - Ranged 8.5-14.3 (averaged 10.2) and 7-24.7 (averaged 13.5) per head on 2 cattle herds in Boone County. (Thomas). MARYLAND - Heaviest counts averaged 25 per head on 138 cattle at Thurmont, Frederick County. Ranged 10-20 per head in most herds. (U. Md., Ent. Dept.). VERMONT - Still moderate. Annoying cattle on warm days. (Nielsen, July 15).

MOSQUITOES - UTAH - Aedes dorsalis very numerous on range at Locomotive Springs, Box Elder County. Troublesome to ranchers and fishermen. Adults 10 per sweep near springs. (Knowlton, Judd). A. dorsalis extremely numerous in Delta "South Tract," Millard County, (Davis). Less serious than normal in Beaver County due to dry season. (Esplin). TEXAS - Psorophora confinnis major pest during June in Jefferson County. Affected 270 square miles west and southwest of Beaumont. Landing rates in excess of 50 per minute. P. ciliata present. A. sollicitans flight peaked June 17. A. vexans in south Beaumont. Culex pipiens quinquefasciatus larvae scarce. C. salinarius in Port Arthur area. (Thompson). WISCONSIN - Declined steadily. Biting light in most areas. Biting locally heavy in far north and along some woodland streams. Rainfall July 13-14 may cause some localized upsurges of biting next 14 days. A. vexans, A. sticticus, A. trivittatus, and A. cinereus still dominant. (Wis. Ins. Sur.). RHODE ISLAND - Complaints of Aedes spp. throughout State. (Field).

TABANID FLIES - UTAH - Increased, very numerous at Locomotive Springs, Box Elder County. (Knowlton). Moderately annoying livestock in Wayne and Piute Counties. (Knowlton, Chapman). IDAHO - Chrysops spp. heavier than usual, seriously harassing all livestock in eastern area. (Portman). WISCONSIN - Deer flies common statewide. Very numerous at scattered sites near water. Horse flies abundant locally statewide. Severe annoyance to humans at some sites in Fond du Lac, St. Croix, Marquette, and Bayfield Counties. (Wis. Ins. Sur.).

HORSE BOTS (Gasterophilus spp.) - NORTH DAKOTA - Adults laying eggs and annoying horses in Dunn County. Up to 30 G. intestinalis (horse bot fly) eggs on legs of animals. (Brandvik, July 10).

SHEEP BOT FLY (Oestrus ovis) - NORTH DAKOTA - Adults depositing maggots in nostrils of Burleigh County sheep. (Brandvik, July 10).

NORTHERN CATTLE GRUB (Hypoderma bovis) - WISCONSIN - Adults annoying cattle in some areas of Marathon County. (Wis. Ins. Sur.).

A CLERID BEETLE (Trichodes ornatus) - WASHINGTON - Adults flying in alfalfa seed fields, apparently obtaining pollen from dog fennel. Entering tunnels of Megachile rotundata (alfalfa leafcutter bee) nest blocks, near Lowden, Walla Walla County, July 7. (Johansen, Eves).

#### HOUSEHOLDS AND STRUCTURES

An EARWIG (Doru aculeatum) - PENNSYLVANIA - Collected in home in Carbon County by E. Simons July 5. This is a new county record. (Gesell).

#### BENEFICIAL INSECTS

LADY BEETLES - IDAHO - Coleomegilla maculata 45 per 100 row feet and Hippodamia convergens (convergent lady beetle) 10 per 100 row feet in 10 Grenada County cotton fields. (Sartor). Lady beetle adults feeding on Colorado potato beetle eggs in potato fields July 11-12 in Fremont, Jefferson, Madison, Bonneville, and Bingham Counties. (Portman). WYOMING - Adults averaged 22 per 10 sweeps of alfalfa in Platte, Goshen, Niobrara, Converse, and Laramie Counties. (Parshall).

HETEROPTEROUS PREDATORS - MISSISSIPPI - Nabis sp. and Geocoris sp. 15 per 100 row feet in 10 Grenada County cotton fields. (Sartor). WYOMING - Nabis sp. adults averaged 5 per 10 sweeps of alfalfa in Goshen, Platte, Laramie, Niobrara, and Converse Counties. (Parshall). WASHINGTON - G. pallens and G. bullatus adults and nymphs, especially second and third instars, mostly 3 per sweep in alfalfa seed field July 7 in Walla Walla County. (Johansen, Eves).

A BRACONID (Apanteles cinctiformis) - PENNSYLVANIA - Adult collected in Salford Township, Montgomery County, by Semmel June 22, 1969. Determined by P.M. Marsh. This is a new State record. Collected in Foster Township, Luzerne County, June 24, 1970. This is a new county record. (Gesell).

ALKALI BEE (Nomia melanderi) - UTAH - Males active in Millard County. Females at Delta just beginning to construct cells. Females west of Meadow not out as of July 15. (Bohart, Davis).

ALFALFA LEAFCUTTER BEE (Megachile rotundata) - UTAH - Numbers reduced 50 percent by severe windstorm in west Millard County alfalfa seed fields. Pollinated fields generally show excellent seed production potential. (Davis).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Adults 20-30 per plant on sweet corn in Ingham County. Obvious feeding damage on leaves, particularly near field edge. (Sauer, July 13). INDIANA - Adult emergence completed at New Carlisle, St. Joseph County. (Shade).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Flights heaviest in Onondaga, Cayuga, Madison, and Oswego Counties. (N.Y. Wkly. Rpt., July 13).

A GRASS BUG (Irbisia brachycera) - ARIZONA - Infested nearly all range areas reseeded to crested wheatgrass in northern area. (Ariz. Coop. Sur.).

GRASSHOPPERS - WASHINGTON - Melanoplus sanguinipes and M. bivittatus on 100,000 acres of scrubland and range. Fourth instar to adults 20-50 per square yard. Could severely damage fall wheat. Two cooperative control programs concluded in Okanogan County week of July 6. Total of 20,560 acres treated. M. sanguinipes, M. bivittatus, and Camnula pellucida dominant; in second instar to adults. Counts before treatment ranged 20 to 200+ per square yard. (Woodron). NEVADA - Occasional specimens of M. rugglesi in Soldier Meadows area, Humboldt County. Lighter than in 1969 but spread over larger area. M. sanguinipes adults from 4-5 to 20-25 (average 12-15) per square yard on 5,000-6,000 acres of alfalfa hay and alfalfa hay with grain cover crop in Hualapai Valley, Washoe County. Heaviest in recently cut or abandoned fields. (Bechtel, Martinelli). UTAH - Numerous in some areas on Cedar Mountain, Iron County. (Sjoblom). Moderate to serious in parts of Kanarraville, Parowan, and Paragonah in Iron County. (Sjoblom, Brown). Moderate around alfalfa fields at Hanksville, Wayne County. (Roberts). NEW MEXICO - Damage extensive and widespread on alfalfa at Corrales, Sandoval County. (Heninger). COLORADO - M. bivittatus, M. femurrubrum, and other species in crop margins and in many cases, moving into nearby croplands. Damage ranged trace to light. (Johnson, Burchett). WYOMING - Cordillacris occipitalis mostly adults and laying eggs. Many Aulocara elliotti now adults and mating. Egg laying will soon begin. Dominant species at Guernsey from fourth instar to adult July 7: C. occipitalis (11.5 per 100 square feet), A. elliotti (8), and Amphitornus coloradus (7.5). Dominant species at Glendo from third to fifth instar July 9: Ageneotettix deorum (21) and Phlibostroma quadrimaculatum (5.5). (Parshall). NEBRASKA - Averaged 5-6 per square yard in 6 alfalfa fields in Lincoln County. (Campbell). Damaged corn and milo in southeastern area. (Roselle, July 10). Melanoplus spp. currently heavy, averaged 12 per square yard, in red clover field in Lancaster County. Damaged outside rows of corn and grain sorghum in east and southeast districts. Ranged from half to full-grown, averaged 2-3 per linear foot in occasional fields. M. differentialis dominant; adults common. (Keith). SOUTH DAKOTA - Increasing on alfalfa in central and western Hutchinson County, Hanson County, and western McCook County. Heavier counts up to 12 (averaged 5-6) per square yard. In field margins and borders, heavier counts up to 35-40 (averaged 12-20) per square yard. M. bivittatus, M. differentialis, and M. femurrubrum dominant. M. femurrubrum in first to fourth instar. (Blachford). M. bivittatus nymphs 4 per square yard in untreated alfalfa near Brookings,

Brookings County. (Walstrom). Brachystola magna one per 5 square yards on roadside east of Hot Springs, Fall River County. (Jones). NORTH DAKOTA - Ranged 3-8 per square yard in small grains and alfalfa in southern Cass County. Marginal counts up to 20 per square yard in some oats and alfalfa. Melanoplus bivittatus dominant, third instar to adult. Control results poor. (Brandvik). IOWA - Average counts per square yard on roadside by area: West 5-10 (Iowa Ins. Inf., July 10); central, 10; and south, 15. M. differentialis 90 percent in fourth instar in south. In some fields leaf ragging evident 25 rows in from edge of field. (Iowa Ins. Sur.).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Laying eggs at Seaford, Nassau County. Extensive areas of complete forest defoliation worst in years at Amsterdam, Montgomery County. One of more notable locations at Westbrookville in Shawangunk Mountains. Moths emerging and laying eggs week ending July 13. Many larvae killed possibly by virus wilt. Mostly pupae in Suffolk County. Males expected to emerge July 18-19. Virus disease in some larvae at Brookhaven, Shirley, and Shelter Island. (N.Y. Wkly. Rpt.). DELAWARE - Male in trap at Selton, Kent County, for a new county record. Collected by R. Goerger July 16. Determined by E.L. Todd. MARYLAND - Male in trap at Sudlersville, Queen Annes County, for new county record. Collected by W. McFarland July 15. Determined by E.L. Todd. Aerial defoliation survey in several States completed July 12. Preliminary results indicate sharp increase in defoliation over 1969 and 50-70 percent higher acreage figures. PPD surveyed in Connecticut, Maine, New Hampshire, New Jersey, and Pennsylvania. State agencies surveyed in New York, Massachusetts, Rhode Island, and Vermont. (PPD).

JAPANESE BEETLE (Popillia japonica) - OHIO - Discouraged many golfers around golf courses in Wayne County. One manager more concerned with nuisance effect than feeding damage. (Shambaugh). VIRGINIA - Adults 10-20 per 100 sweeps of soybean foliage in Nottoway, Amelia, Southampton, and Richmond Counties. Damage minor. (Allen). MARYLAND - Adults feeding on corn foliage in Talbot, Caroline, and Dorchester Counties. Heaviest infestations ranged 7-10 percent. (U. Md., Ent. Dept.). DELAWARE - Adult injury to wide variety of plants and trees in New Castle County much greater this season than in recent years. (Burbutis). NEW JERSEY - Adults common in several areas. Active between Trenton and Lawrenceville, Mercer County. (Ins.-Dis. Newsltr.). RHODE ISLAND - Numbers very heavy in pockets around State. (Field). MASSACHUSETTS - Adults numerous statewide. (Garland, Jensen).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released July 10-16. CALIFORNIA - Coachella Valley 5,856,700, total to date 70,839,950; Bakersfield 1,200,000, total to date 15,971,700. ARIZONA - Redington, Pima County, 45,000; total to date 719,800. (PPD). Buildup in most cotton statewide; light in few fields. (Ariz. Coop. Sur.). NEW MEXICO - Find of 7 adults in 10 hexalure traps in southern Eddy County cotton fields. (Mathews).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Controls in progress in Union, Harding, and Colfax Counties. (N.M. Coop. Rpt.).



## HAWAII INSECT REPORT

New State Records - Five specimens of a SPHECID WASP (Passaloecus ithacae) found in collections of entomology students in June 1969 and May 1970. All specimens collected in Manoa Valley, Oahu. This wasp provisions nest cells with aphids. P. ithacae was described from eastern North America. Determined by C. Yoshimoto. (Beardsley). An ENCYRTID WASP (Homalopoda cristata), described in 1894 from St. Vincent Island, British West Indies, and collected in Cuba, Trinidad, and Ceylon, has been in Hawaii for many years, but unidentified. Earliest collection in State was by F.X. Williams in 1936. Previous specimens collected on Maui and Oahu. During May 1970, several specimens reared from Duplaspidiotus claviger, a bark-infesting armored scale, on Jasminum stems. Determined by J.W. Beardsley. (Beardsley).

Corn - All stages of CORN PLANTHOPPER (Peregrinus maidis) heavy, averaged 75 adults and nymphs per ear, under loose husks of mature corn ears at Makaha, Oahu; predators trace. Planthoppers trace in trap-crop planting of corn at Waianae, Oahu. (Kawamura).

General Vegetables - Adults of a MIRID (Pycnoderes quadrimaculatus) heavy, as many as 30 per sweep, in backyard planting of white flowered gourd (Lagenaria vulgaris) at Ewa, Oahu. (Au). LEAF MINER FLIES (Liriomyza spp.) generally heavy in 0.5 acre of watermelon at Waianae; adults averaged 8, with as many as 16, per leaf. Mines severe on older leaves. Adjacent acre of same crop with 1-2 adults per leaf; mines light to moderate. Adults heavy on young leaves in 0.5 acre of zucchini at Kahului, Maui; mines heavy on older leaves. Still moderate in most green onion fields at Waianae. (Miyahira, Kawamura).

Fruits - BARNACLE SCALE (Ceroplastes cirripediformis) generally moderate in 50 acres of passionfruit (Passiflora edulis f. flavicarpa) at Kahului; heavy in spots. (Miyahira).

General Pests - Larvae of a CYNIPID WASP (Gillettea taraxaci) heavily galled stems of false-dandelion (Hypochoeris radicata) at Haleakala, Maui (elevation 9,000-10,000 feet). (Davis). Collected 709 specimens of GIANT AFRICAN SNAIL (Achatina fulica) 1-inch or less in size at Poipu, Kauai; 5 at Wahiawa. Poison baits continued at Kona, Hawaii, where snails noticed in early May and in June. (Sugawa, Yoshioka).

### DETECTION

New State Records - BIRCH TUBE MAKER (Acrobasis betulella) PENNSYLVANIA - Bradford County (p. 520). A BRACONID (Apanteles cinctiformis) PENNSYLVANIA - Montgomery County (p. 523). An ENCYRTID WASP (Homalopoda cristata) HAWAII - Maui and Oahu Islands (p. 525). A SPHECID WASP (Passaloecus ithacae) HAWAII - Oahu Island (p. 525). A SPIDER MITE (Platytranychus thujae) NEW HAMPSHIRE - Strafford County (p. 520).

New County Records - ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) MISSOURI - Jasper, McDonald, Newton, Wayne (p. 520). A BRACONID (Apanteles cinctiformis) PENNSYLVANIA - Luzerne (p. 523). An EARWIG (Doru aculeatum) PENNSYLVANIA - Carbon (p. 522). GYPSY MOTH (Porthetria dispar) DELAWARE - Kent; MARYLAND - Queen Annes (p. 524). A LACE BUG (Stephanitis takeyai) PENNSYLVANIA - Bucks (p. 520). WESTERN CORN ROOTWORM (Diabrotica virgifera) MISSOURI - Dade, Lawrence (p. 513).



## SURVEY METHODS

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#### Part XXX

Additional copies of Parts I through XXX of this bibliography are available from Economic Insect Survey and Detection.

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### ECONOMIC INSECT SURVEY AND DETECTION

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

ASTER LEAFHOPPER heavy and aster yellows infection expected to be heavier than normal in west-central and northwest Minnesota. (p. 531). GREENBUG increased on corn and sorghum in High Plains and Trans-Pecos areas of Texas; heavy in older sorghum in southwest Oklahoma; increasing on sorghum in Kansas, several areas of Nebraska, and eastern South Dakota. (p. 532).

CORN ROOTWORMS damaged corn in Wisconsin, Minnesota, South Dakota, and Colorado. (p. 533). EUROPEAN CORN BORER moth collections increased in New Jersey; light trap collections indicate some damage may be expected in limited area of Virginia. Larvae caused problems in sweet corn in southern Michigan, heavy in sweet and field corn in Wisconsin. (pp. 533-534).

BOLLWORMS increased in south Arkansas; moth flights increased in south Alabama. BOLL WEEVIL above control levels in many fields in west Tennessee; increased in several areas of Mississippi. (p. 537, 538).

MEXICAN BEAN BEETLE larvae increasing on beans in Colorado. (p. 539).

BAGWORM heaviest in 35 years on evergreens in limited area of Oklahoma. (p. 540). A SPITTLE BUG heavy on junipers in Colorado. (p. 541).

HORN FLY troublesome on livestock in Utah, Oklahoma, Nebraska, and Illinois. (p. 542). MOSQUITOES continue troublesome in Utah and Wyoming. (p. 543).

Detection

A CUPESID BEETLE reported from Hawaii for the first time. This species reported only from eastern Asia, Japan, and Siberia. This is a new Western Hemisphere record. Larvae are wood borers. (p. 546).

New State records include CLOVER HEAD WEEVIL from Florida (p. 535), LARCH CASEBEARER from Oregon (p. 541), a LEAF BEETLE from Wisconsin (p. 535), and a SCARAB from Oregon (p. 544).

For new county and island records see page 539.

Reports in this issue are for the week ending July 24 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JULY 27

HIGHLIGHTS: Temperatures averaged slightly cooler than normal over the western and eastern thirds of the Nation and much cooler than normal over the central portion. Tropical storm Becky brought rains almost daily to portions of the Southeast.

TEMPERATURE: Cold air poured into the North-central States early in the week dropping temperatures sharply. Monday morning readings plummeted to the 40's and 50's as far south as the northern portions of Kansas and Missouri. Springfield, Missouri, registered 44° early Tuesday morning. These temperatures are near normal for September but are about 15° below normal for July. Warm humid weather continued over the Deep South and hot weather persisted in the Southwest. Temperatures continued near normal over the West at midweek. Over the East, however, cool air continued to pour southward. Afternoon temperatures remained in the 70's and low 80's over a large area from Minnesota to New England and southward to the central gulf coast. Alexandria, Louisiana, registered 75° Wednesday afternoon in contrast to the 92° maximum Monday. Afternoon maximums in the 70's are common over the Deep South in October. Late in the week, a High pressure area remained centered over the central Appalachians. This system brought the return of high temperatures and increased relative humidity to the eastern half of the Nation. By the weekend, maximums in the upper 80's and lower 90's were common from Minnesota to New England. Weekly temperatures averaged above normal over most of California, western Nevada, southwestern Arizona, and New England, and below normal over the rest of the Nation. Parts of the central Great Plains averaged 6° to 10° cooler than normal.

PRECIPITATION: Generous showers fell early in the week along the gulf and Atlantic coasts while lighter, more scattered showers fell in the Southwest Interior, the Great Basin, and the northern Rocky Mountains. Scattered showers occurred over the northern and central Great Plains late in the week and light rains began in the Far Northwest on Sunday. Tropical Storm Becky was responsible for most of the other precipitation last week.

Weather continued on 547.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - IOWA - Moth catches in light traps by county: Monona 38 (7 nights), Hancock 177 (7 nights), Plymouth 180 (11 nights), Louisa 3 (7 nights), and Dubuque 25 (5 nights). (Iowa Ins. Sur.). MINNESOTA - Found half-grown larva in lodged barley in Norman County. (Minn. Pest Rpt., July 17). MICHIGAN - Adults increasing at all blacklight stations. Counts by county: Lenawee 332, Livingston 287, Van Buren 312, Montcalm 187. Counts about double for time of year. (Newman, July 20). INDIANA - Second generation, mostly second instars, on grasses in northern area. Blacklight trap catches by district July 12-18: Northwest 370, east-central 162, central 68, southwest 69, south-central 59, west-central 45. (Huber).

ASTER LEAFHOPPER (*Macrosteles fascifrons*) - MINNESOTA - Remains heavy, ranged 500-1,500 per 100 sweeps, in west-central and northwest districts. Trace aster yellows disease in some flax. Expect higher than normal infection in these districts later this season. (Minn. Pest Rpt.). WISCONSIN - Mass flight night of July 16. Controlled in commercial plantings of lettuce, but about 4 percent of early crop affected by aster yellows. Leafhoppers 3 per 10 sweeps in adjacent fields of mint. (Wis. Ins. Sur.).

CORN EARWORM (*Heliothis zea*) - NEW YORK - Some fourth instars found in about 1,000 ear tips in various Ulster County fields on July 17. First moth in Poughkeepsie trap on July 20. (N.Y. Wkly. Rpt.). DELAWARE - Freshly emerged adults 3 per night in blacklight trap collections in most areas. (Burbutis et al.). MARYLAND - Heaviest adult flights at Salisbury, Wicomico County, and Centreville, Queen Annes County; averaged 2-3 per night in blacklight traps. Flights expected to increase rapidly throughout Eastern Shore next 21 days. (U. Md., Ent. Dept.). VIRGINIA - Expect 50 percent infestation on sweet corn in Holland area, Nansemond County, and no danger at this time to soybeans, based on light trap catches. (Allen). WISCONSIN - About 4 percent of ears of early planting of sweet corn infested in western Dane County. Infestations reported in Portage and Walworth Counties. (Wis. Ins. Sur.). TENNESSEE - Moderate to heavy damage on whorls of late-planted corn and on ears of earlier-planted corn in many central areas. Control in some cases not effective. (Gordon). ARKANSAS - Averaged less than one larva to 10 row feet of sorghum. (Boyer). OKLAHOMA - First to third instars increased in alfalfa in Jackson County. Ranged 5-7 per 10 sweeps in alfalfa in Muskogee and Wagoner Counties. Averaged 1 per ear in corn in Greer County. Moderate in corn and sorghum in Craig County, and light in corn in Choctaw County. (Okla. Coop. Sur.). NEBRASKA - Infested 40 percent of sweet corn ears examined in planting at Lincoln, Lancaster County. (Keith). IDAHO - Incidence in cornfields greater than usual in Canyon County. Average 1-12 percent in some fields indicating heavy ear infestation likely. (Homan). UTAH - Moderate in Washington County sweet corn. (Knowlton, Huber). ARIZONA - Larvae averaged 2 per ear of field corn at Safford, Graham County. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ALABAMA - Found on corn and grain sorghum in all fields examined throughout State. Corn stunt virus and/or maize dwarf mosaic heavy in most corn in Shelby and Bibb Counties. Noticeable in corn throughout most of north area. Estimate corn yields will be reduced by 75 percent in more heavily infested fields in Bibb County. (Clarke et al.). MARYLAND - Corn leaf aphid infested isolated cornfields throughout Eastern Shore, heaviest in 30 acres near Trappe, Talbot County, and 15 acres near Kennedyville, Kent County. Averaged 10 percent of stalks infested. (U. Md., Ent. Dept.). INDIANA - Colonies in about half of cornfields checked in northern fourth of State. Ranged 4-44 percent of plants infested. Colonies ranged small to medium, and mostly confined to whorls. (Meyer). ILLINOIS - Percent plants infested heavy. No increase from previous reports due to cool rainy weather in northern, western, and southern areas. No threat yet. (Ill. Ins. Rpt.). WISCONSIN - Colonies generally still low in most fields but some corn heavily infested in central areas. Appearance of large numbers on fresh silks in some fields important. Aphid reputedly interferes with pollination when feeding on silks. (Wis. Ins. Sur.). MINNESOTA - Small colonies in whorls of corn throughout southern half of State. (Minn. Pest Rpt., July 17).

NEBRASKA - Corn leaf aphid declining in whorls of grain sorghum in southeast crop district. Several small colonies established on undersides of sorghum leaves. (Roselle). KANSAS - Remains light to heavy throughout State. Noticeable increase in beneficial insects particularly in southern areas. (Gates, July 20). ARKANSAS - Generally light and predation taking care of situation. Light in whorls of nonheading sorghum in few fields. Light in headed sorghum. (Boyer). OKLAHOMA - Averaged 300 per plant in young sorghum in Texas County. Ranged up to 300 per plant in Muskogee County. Heavy in Craig County. (Okla. Coop. Sur.). ARIZONA - Ranged 10-30 per plant in Cochise County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - ARIZONA - Infestations in sorghum with average of 30 aphids per leaf reported in CEIR 20(30):512 eradicated by release of 2 gallons of Hippodamia convergens (convergent lady beetle) July 12. About 40 acres of corn and sorghum completely controlled. Adjacent cotton field also benefited at Safford, Graham County. (Ariz. Coop. Sur.). TEXAS - Greenbug increased on sorghum and corn in High Plains and Trans-Pecos regions. Light to heavy in Pecos and Reeves Counties. Isolated fields in Reeves County infested with damaging populations (15-25 colonies per plant, averaging 30-1,200 aphids). Light in Midland and Martin Counties. Populations brought under control by parasites and predators in Blacklands area. Increased greenbug populations noted throughout High Plains, ranging light to heavy with many fields treated. (Neeb et al.). OKLAHOMA - Ranged 0-150 per leaf in grain sorghum in Wagoner and Muskogee Counties and 500-1,000 per plant in few fields in Payne County. Averaged less than 1 per plant in 2 fields of young sorghum (about 12 inches tall) in Texas County. Ranged 200-500 per plant in Coal County. Very heavy (several thousand per plant) on older sorghum in several southwest counties. (Okla. Coop. Sur.). KANSAS - Infestations continue to increase throughout most areas. Average colonies per plant 3.7 in Nemaha County, 4.4 in 24-inch sorghum in Riley County, and 2.2 in 48-inch sorghum in same county. Infestations noted in Jefferson County. Colonies in 5 fields surveyed in Marshall County. Less than one colony per plant in 30-inch sorghum in Republic County. Up to 12.9 per plant on 30-inch sorghum in Cloud County. Trace on 24-inch sorghum in Ellsworth County. None in one field in Ford County. Some fields in Finney County with some degree of infestation. Some also in Seward County. Of several fields surveyed in Neosho and Crawford Counties, greenbug found in one field. (Gates, July 20).

MISSOURI - Greenbug light on sorghum in southwest area. Small colonies on 40 percent of plants in one field. (Keaster). NEBRASKA - Increasing in grain sorghum in east, southeast, central, and southern crop districts. Averaged 500-1,000 per leaf on lower 3-6 leaves in fields checked in Richardson and Nemaha Counties, some injury in most fields. Predators and parasites increasing slowly. Lady beetles averaged 1 per plant and parasitized aphids estimated to be less than 1 percent. At present rate of increase, predators will not effectively bring greenbug under control for another 10 days. (Roselle). SOUTH DAKOTA - Greenbug nymphs and adults heavy in sorghum field near Redfield, Spink County; treatment needed. On Charles Mix County sorghum. Continuing to build up on sorghum in eastern area. (Kantack).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Increasing slowly. Heaviest counts 8-10 per sweep in alfalfa on Eastern Shore. Ranged 10-14 per sweep of alfalfa in Frederick, Carroll, Howard, and Montgomery Counties. Some yellowing at Thurmont, Frederick County. (U. Md., Ent. Dept.). WISCONSIN - Counts vary in adjacent fields. Heaviest in alfalfa on sandy soil and cut early; up to 50 per sweep. Damage severe to some maples in nurseries in southeast. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - UTAH - No damage yet in Millard County alfalfa seed fields (Hall, Davis), light in Washington County alfalfa (Huber). OKLAHOMA - Counts per 10 sweeps in alfalfa averaged 235 in field in Muskogee County and 20 in field in Wagoner County. (Okla. Coop. Sur.).

TOBACCO HORNWORM (Manduca sexta) - MONTANA - Defoliated Russian-olive in Pondera County shelterbelts. (Pratt). CALIFORNIA - Averaged one per leaf on some tomato plantings at Woodland, Yolo County. (Cal. Coop. Rpt.).

## CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (*Diabrotica* spp.) - WISCONSIN - *D. longicornis* (northern corn rootworm) and *D. virgifera* (western corn rootworm) adults appearing in southern areas. *D. virgifera* heavy in many cornfields in western Dane County. Considerable corn rootworm lodging reported from scattered areas of State; reported in Buffalo, Green Lake, Grant, Iowa, Sauk, Trempealeau, Columbia, Dane, Jefferson, and Lafayette Counties. Lodging occurred in untreated fields and where corn grown for 3 or more years in succession. (Wis. Ins. Sur.). MINNESOTA - *D. longicornis* and *D. virgifera* adults heavy in central, southwest, south-central, southeast, and west-central districts. Mostly pupae and adults in corn on sandy soils of Dakota, Wright, and Scott Counties. Development rapid in lighter soils of Watonwan, Redwood, and Swift Counties. Lodging up to 70 percent of corn in eastern Swift County. Not all lodging due to corn rootworms. Adults trace to 3 per plant in southwest and south-central districts; mostly third instars, pre-pupae, and pupae. Larvae 30 per plant in Watonwan County field. Damage severe in Rock County; very few roots remaining in 3 adjacent cornfields. Numerous adults and damage in hybrid corn trial plot outside of Moorhead, Clay County, most northerly report of damage. (Minn. Pest Rpt.). KANSAS - In fields surveyed corn rootworm adults averaged 1-2 per plant on silking corn in Brown County and 0.4 per plant in Pawnee County. Less than 1 per 100 plants on silking corn in Neosho and Crawford Counties. Heaviest to date in Graham County, 8-10 per plant in some fields. (Gates, July 20). SOUTH DAKOTA - Damaged untreated cornfield near Britton, Marshall County. Field had been in continuous corn. Heavily damaged cornfield near Flandreau, Moody County. Some fields with 4-5 adults per plant had small larvae. (Kantack).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - INDIANA - Adults light and scattered in northern districts. Averaged 3+ per plant in Elkhart County field. Feeding on pollen in axils although silks present. (Meyer). Severely damaged 10-acre cornfield in Whitley County, third year without controls; counts of 50 per plant and over half pupae or newly emerged adults. (Lehker). MARYLAND - First adult of season on corn in Kent County July 16. Expecting some light to moderate lodging in Keymar area of Carroll County. Damage not evident yet. (U. Md., Ent. Dept.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - INDIANA - Mating pair in La Porte County July 20. (Anderson). Several adults taken in Porter County from several fields July 22. (Smead, Lehker). Both are new county records, determined by G. Gould. (Meyer). NORTH DAKOTA - First known damage in State on corn near Colfax in Richland County; field in corn for fifth year. Up to 90 percent loss in part of 80-acre field, adults 30-50 per plant. (Vasey). SOUTH DAKOTA - Adults averaged 8 per plant in heavily infested cornfield near Oral, Fall River County. (Jones). NEBRASKA - Adults ranged 1-5 per corn plant in 5 Lincoln County fields. (Campbell). OKLAHOMA - Larvae and pupae ranged 0-18 per plant in irrigated corn in Texas County. Adult emergence beginning. Populations averaged about 60 percent larvae, 30 percent pupae, and 10 percent adults. About 80 percent of specimens checked *D. virgifera*, 20 percent *D. undecimpunctata howardi* (southern corn rootworm). (Okla. Coop. Sur.). COLORADO - Adults ranged 0-6 per corn plant, damage heavy in some fields in Weld, Boulder, Larimer, and Morgan Counties. (Johnson, Stevens).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MAINE - Damage light to moderate. (Boulanger). NEW HAMPSHIRE - Full-grown larvae (first brood) several per plant in Merrimack County July 13. (Fisher). NEW JERSEY - Collections in blacklight traps increased when compared with previous week. First appearance of second-generation moths and egg laying should commence. (Ins.-Dis. Newsltr.). DELAWARE - Adult collections per night in blacklight trap in western Sussex County 60; central Sussex County 20, and eastern Sussex and Kent Counties 4. (Burbutis et al.). VIRGINIA - First-generation larvae pupating in Carroll County. (Dickens, Allen). Based on light trap catches Warsaw, Richmond County, and nearby areas can expect some damage to susceptible crops by second generation. (Allen). INDIANA - Percent of fields infested by district: North-northwest 33 percent, north-northcentral 83 percent, and north-northeast 86 percent. Percent of stalks infested by district:

North-northwest 9 (averaged less than one borer per 100 stalks), north-northcentral 30 (averaged 20), and north-northeast 25 percent (averaged 18). Total of 22 fields examined in these districts. More than half of corn in central and eastern areas in green silk but only 22 percent in north-northwest district. Number of empty tunnels equaled or exceeded number of larvae found in all districts. (Meyer). MICHIGAN - Growers in many southern counties experiencing serious problems with moderate larval counts in early sweet corn. Some unsprayed fields averaged 3-6 third instars per 12 ears in Oakland County. (Newman, July 20). ILLINOIS - Checks in Pike County show 31 percent larvae, 46 percent pupae, and 23 percent emergence. (Ill. Ins. Rpt.). WISCONSIN - Flight of first generation begun in southern areas. Only small percentage of second generation pupated but many entering prepupal stage. Fresh market sweet corn heavily infested. Reports indicate generally heavy infestations of early sweet corn and field corn from scattered areas of State. (Wis. Ins. Sur.). MINNESOTA - Egg masses still found in southwest, south-central and west-central districts. One cornfield in Pipestone County sprayed week ending July 17. Current larval counts per 100 plants by district: Southwest and central 71, and west-central 23. About 50 percent in late instars in southwest and south-central districts, with 12 percent pupae and 63 percent first instars in west-central district. (Minn. Pest Rpt.). IOWA - July 14-18 surveys showed average of 17.3 percent of corn infested and average of 20.6 borers per 100 plants in parts of east and west sections. (Iowa Ins. Sur.). KANSAS - Very few adults emerging from corn in Brown County. Majority of first generation still in late larval or pupal stages. Egg laying expected to peak near end of July or early August in northeastern area. Early planted corn should sustain only minimal injury, late-planted corn still with green silk could be in need of controls. (Gates, July 20).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Larvae damaged 50-acre field of pretassel corn in Green County and several fields in Dale County totaling 100+ acres. Controls applied to field in Green County. Larval damage and corn leaf blight so severe in Dale County field grower will probably not attempt controls. Larvae in about 10 percent of ears of older corn in one other field in Dale County with heavy infestation of corn earworm (*Heliothis zea*). Larvae heavily damaged 60 percent of grain sorghum about 30 inches high in 60-acre field in Dale County. Scattered and light in another large field. Numerous small larvae in several grass crops near fields. (Johnson et al.). ARKANSAS - Primarily this species and some *H. zea* light on sorghum in northeast area. (Boyer). MISSOURI - *S. frugiperda* larvae light; infested 1-8 percent of late-planted corn and sorghum in south-central area. (Munson). MARYLAND - First larvae of season infesting 6 percent of 10-acre corn stand near Buckeystown, Frederick County. (U. Md., Ent. Dept.). NEW YORK - Female moth taken at Poughkeepsie, Ulster County, light trap July 18. (N.Y. Wkly. Rpt.).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - MARYLAND - First injury of season reported on 15 acres of early whorl field corn near Kennedyville, Kent County; infestation averaged 1 percent. (U. Md., Ent. Dept.).

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - TEXAS - Damaged corn in northern panhandle counties. (Clymer).

A FLEA BEETLE (*Systema frontalis*) - IOWA - Adults from northeast Buchanan County for a new county record. (Iowa Ins. Sur.).

GRASSHOPPERS - ARKANSAS - Primarily *Melanoplus differentialis* (differential grasshopper) heavier than for some time in extreme northwest area. Some silage sorghum and several pastures and hayfields treated in Carroll and Washington Counties. Extremely dry weather in 1969 and 1970 probably contributed to infestations. (Boyer, Jones).

CHINCH BUG (*Blissus leucopterus*) - TEXAS - Damage heavy to grain sorghum in Fisher County. (Boring).

**SORGHUM MIDGE** (*Contarinia sorghicola*) - ARKANSAS - Light in 6 northeast counties. None in one field checked in Independence County. Earliest planted fields in 6 counties maturing and past infestations. (Boyer).

**SPIDER MITES** - COLORADO - *Tetranychus urticae* (two-spotted spider mite) increasing in Weld, Larimer, Boulder, and Morgan Counties. Damage ranged trace to moderate, with third and fourth corn leaves infested in few fields. (Johnson). OKLAHOMA - Probably *Oligonychus* sp. heavy and caused damage to scattered cornfields in Texas County. Heavy in some grain sorghum fields in several southwest counties. (Okla. Coop. Sur.).

#### SMALL GRAINS

**RICE WATER WEEVIL** (*Lissorhoptrus oryzophilus*) - CALIFORNIA - Damaged 17-acre rice paddy in Willows, Glenn County. (Cal. Coop. Rpt.).

**A LEAF BEETLE** (*Oulema palustris*) - WISCONSIN - Specimen collected on oats in Iowa County by H. Line June 10, 1970. Determined by R.E. White. This is a new State record. (Wis. Ins. Sur.).

#### TURF, PASTURES, RANGELAND

**JUNIPER WEBWORM** (*Dichomeris marginella*) - TEXAS - Heavy on juniper trees on rangeland in Gillespie County near Fredericksburg. About 2,000 acres on one ranch nearly defoliated. (Menzies, Green).

**WESTERN HARVESTER ANT** (*Pogonomyrmex occidentalis*) - UTAH - Numerous nests of this and other species keeping large areas of rangeland bare in Washington, Beaver, and Utah Counties. (Knowlton).

#### FORAGE LEGUMES

**ALFALFA WEEVIL** (*Hypera postica*) - WYOMING - Light, larvae 0-36 per 10 sweeps, in Big Horn, Washakie, Hot Springs, and Fremont Counties. (Parshall). MONTANA - First crop 90 percent harvested. Damage to first cutting light to medium, hay still to be cut badly ragged especially where no treatments made. Seed alfalfa in early blooming stages. Most cut early and weevil damage minimal. (Pratt). IDAHO - Damage heavy (frosting) past 10 days in Camas County (Hazen); pupating at Rigby, Jefferson County, July 14 (Gooch). IOWA - Adult collected in Wright County July 23 for new county record. (Iowa Ins. Sur.). WISCONSIN - Adults reared from larvae determined by R.E. Warner. The following are new county records: Calumet, Winnebago, Outagamie, Brown, Shawano, Oconto, and Marinette. (Wis. Ins. Sur.). MASSACHUSETTS - Adults 1 and larvae 2.5 per 100 sweeps of alfalfa in 2 Hampshire County fields. (Miller).

**CLOVER HEAD WEEVIL** (*Hypera meles*) - FLORIDA - Five adults swept from crimson clover at Quincy, Gadsden County, by F.W. Mead April 28, 1970. Adult swept from crimson clover at Tallahassee, Leon County, April 30. (Mead). Determined by C.W. O'Brien. These are new State record and new county record. (Fla. Coop. Sur.).

**PEA APHID** (*Acyrtosiphon pisum*) - NEVADA - Ranged 30-40 per sweep of seed alfalfa at Orovada, Humboldt County; Reese River Valley, Lander County; and Lovelock, Pershing County. (Arnett, Hilbig). UTAH - Moderate in some Washington County alfalfa fields (Huber); 20 percent of second-crop alfalfa conspicuously infested in Wayne County (Chapman); decreased recently in Millard County (Hall). Infestation very heavy in some Box Elder County alfalfa fields. (Allred). WYOMING - Increasing but still noneconomic, ranged 30-1,300 per 10 sweeps, in most alfalfa in Big Horn, Washakie, Hot Springs, and Fremont Counties. Heaviest in Washakie County. (Parshall). WISCONSIN - Populations collapsed; counts 1 or 2 per sweep in alfalfa in southwest and central parts of State. (Wis. Ins. Sur.). MASSACHUSETTS - Adults and nymphs 951.5 per 100 sweeps of alfalfa in 2 Hampshire County fields. (Miller). MARYLAND - Increasing in all sections. Eastern Shore population below economic levels on alfalfa now. Ranged 0-15 per sweep. Increasing

more rapidly in many isolated fields of alfalfa in central counties. Pea aphid counts heaviest in Thurmont area of Frederick County, ranged 50-250 per sweep. (U. Md., Ent. Dept.).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - MASSACHUSETTS - Adults 9.5 per 100 sweeps of alfalfa in 2 Hampshire County fields. (Miller).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Averaging up to 35 per sweep on small, localized acreages of untreated alfalfa seed fields at Lovelock, Pershing County. (Arnett, Stitt). Generally less than 2 per sweep in alfalfa seed fields at Orovada, Humboldt County, but averaged up to 10 per sweep in several late-treated fields. (Hilbig, Lauderdale). Up to 2 per sweep in seed fields in Reese River Valley, Lander County. (Hilbig). ARIZONA - Adults and nymphs ranged 180-800 per 100 sweeps of alfalfa at Yuma, Yuma County. Adults averaged 100 per 100 sweeps at Cochise, Cochise County. (Ariz. Coop. Sur.). UTAH - More numerous in east Millard County alfalfa fields than in Delta area. Ranged 2-3 per sweep in some seed fields at Kanosh. (Hall). WYOMING - Ranged 3-22 (averaged 12) per 10 sweeps of alfalfa in Big Horn, Washakie, Hot Springs, and Fremont Counties. (Parshall). MASSACHUSETTS - *L. lineolaris* (tarnished plant bug) adults 50 per 100 sweeps of alfalfa in 2 Hampshire County fields. (Miller).

GRASSHOPPERS - WISCONSIN - Populations heavy in scattered areas and damage to alfalfa becoming noticeable in central area where grown on sandy soil and plant growth has been impaired. In one field nymphs averaged 30 per sweep, about 1 percent *M. differentialis*, 10 percent *M. sanguinipes*, 5 percent *M. bivittatus*, and remainder *M. femurrubrum*. Low percentage of *M. femurrubrum* adults, *M. sanguinipes* 50 percent adults most nymphs in late instars; most will mature next 2-3 weeks. Should dry conditions prevail, heavy feeding on corn expected. On heavier soil still many second and third instar nymphs of *M. femurrubrum*, damage will not be as noticeable since feeding will be over a longer period of time. (Wis. Ins. Sur.). MINNESOTA - Counts per square yard in alfalfa: 9-10 in Redwood County field; 10 in McLeod County field; 12-18 in margins in Otter Tail County; and 12 in sandy areas in Goodhue and Wabasha Counties. Most fields involved only *Melanoplus femurrubrum*. *M. packardii* adults found in Chippewa and Swift Counties. (Minn. Pest Rpt., July 17).

ALFALFA CATERPILLAR (*Colias eurytheme*) - MICHIGAN - Light on July 17 in alfalfa in Oakland, Livingston, Wayne, and Monroe Counties. Early instars ranged 13-29 per 100 sweeps. Adults laying eggs. Populations will steadily increase until fall. (Newman). WYOMING - Ranged 1-4 per 10 sweeps in 3 alfalfa fields in Washakie and Hot Springs Counties. (Parshall).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - OKLAHOMA - Adults and nymphs ranged 8-18 per 10 sweeps in alfalfa in Muskogee and Wagoner Counties. (Okla. Coop. Sur.).

SAY STINK BUG (*Pitiedia sayi*) - NEVADA - Averaged 1-2 per 10 sweeps in alfalfa seed fields and adjacent rangeland at Orovada, Humboldt County. (Lauderdale).

#### SOYBEANS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - FLORIDA - Found in some untreated experimental fields at Jay, Santa Rosa County. Damaged some commercial fields in area. (Hutton). MARYLAND - Heaviest in Wicomico and Worcester Counties. Heaviest counts 1-3 per linear yard. Control needed at Girdletree, Worcester County. About 100-150 acres treated. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - ALABAMA - Adults 1-5 per 3 row feet on 30-inch-high soybeans in several large fields in Sumter County. Fewer in many other fields. Destroyed 1-3 percent of leaf area in more heavily infested fields. (Williams et al.). SOUTH DAKOTA - Damaged field near Elk Point, Union County. (Kantack).



THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Earlier girdling by nymphs and adults now causing 1-10 plants per 100 row feet to fall in large field in Sumter County. Fewer lodged stalks in other fields. Plants 18-30 inches high. No economic damage expected as excessive number of plants present. (Williams et al.).

SOYBEAN LOOPER (Pseudoplusia includens) - FLORIDA - Averaged 1.5 per row foot on 16 acres of experimental soybeans near Gainesville, Alachua County. (Whitcomb).

#### PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Moderate on one-fourth of 40-acre stand, affecting plants at pegging area on farm at Bonifay, Holmes County. (Taylor). GEORGIA - Light to moderate across peanut belt. (French). OKLAHOMA - Moderate in Bryan County. (Okla. Coop. Sur.).

NOCTUID MOTHS - GEORGIA - Feltia subterranea (granulate cutworm), Spodoptera exigua (beet armyworm), and S. frugiperda (fall armyworm) larvae light to moderate in Seminole County. (Hall, French). ALABAMA - F. subterranea heavy, with much damage in large field in Houston County. Light in Henry, Crenshaw, and other counties. (Mathews et al.).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Heavy throughout 20-acre field in Geneva County. Killed peanut tops on about 2 acres. (Reynolds).

#### COTTON

BOLLWORMS (Heliothis spp.) - TEXAS - In McLennan and Falls Counties adults and egg laying decreased. Larvae and injury increased. Eggs averaged 10.7 and larvae 7.1 per 100 terminals in 10 treated fields; eggs averaged 8.3 and larvae 4.6 in 43 untreated fields. Injured squares averaged 4.8 percent in 10 treated fields and 5.6 in 43 untreated fields. Injured bolls averaged 3.7 percent in 10 treated fields; 2.5 percent in 43 untreated fields. H. virescens 22 percent of 273 larvae collected. (Cowan et al.). OKLAHOMA - H. zea eggs averaged 12 percent in Wagoner County and ranged 0-9 percent in Muskogee County. Larvae ranged 6-12 percent in Muskogee County. Averaged 2 larvae and 4 eggs per 100 terminals in Pottawatomie County. Averaged 1 percent in Pawnee County and ranged 1-5 percent in Jackson and Tillman Counties. Generally, higher numbers in treated fields but numbers show slight increases in most areas. (Okla. Coop. Sur.). ARKANSAS - Heliothis spp. activity greatly increased in south area. Activity still light in north with some fresh eggs and new moths in some fields. Eggs and larvae, high in some fields, not nearly as high as expected from heavy moth flight of last week. Damaged square rates at treatment level in some fields but control by predators excellent. (Barnes et al.). TENNESSEE - Eggs and larvae about same as last week. Larvae or eggs per 100 terminals averaged 3 percent in infested fields. Fully grown larvae in many fields. (Locke). MISSISSIPPI - Moths moderate in light traps in delta counties. Infestations not developing as rapidly as expected. Eggs averaged 2.08 (maximum 7.5) per 100 terminals in 13 of 18 fields. Eggs 35-40 per terminal in test plots. No larvae in terminals. Injured squares averaged 1.72 (maximum 4.5) percent in 14 of 18 fields. (Pfrimmer et al.). ALABAMA - Still extremely low statewide. H. zea flights sharply increased in southern area during end of week. Larval increase expected next 14 days. (McQueen). SOUTH CAROLINA - H. zea 48 and H. virescens 25 in Florence County light traps July 15-22. (Taft et al.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Appearing on Yuma Valley cotton. One trouble spot on university farm, Yuma County. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Still light in McLennan and Falls Counties. Punctured squares averaged 5 (maximum 9.9) percent in 10 treated fields; averaged 7.1 (maximum 17.5) percent in 43 untreated fields. (Cowan et al.). OKLAHOMA - Punctured squares averaged 4 percent and 2 percent in 2 fields in Pawnee County and ranged 1-3 percent in Jackson and Tillman Counties. Very

light in Wagoner County but occasional punctured square on ground. Moderate in Bryan County. (Okla. Coop. Sur.). TENNESSEE - First-generation "hatchout" peaked. Rain over area ideal for further buildup. Punctured squares averaged 13 percent (6 percent last week). Above control levels in many fields. Infestations becoming more general, not so spotty within fields. (Locke). MISSISSIPPI - Increased in several areas. Infestation averages ranged 2-6 percent in 93 fields in 6 counties. (Sartor). ALABAMA - Punctured square counts moderate to heavy in most fields in south and central areas. Controls good in central areas. Punctured squares from 10-50 percent to 8-35 percent. Second and overlapping "hatchout" throughout south and central areas. Still light in north areas; punctured squares 0-7 percent. As high as 50 percent in few isolated small fields. Excessive moisture last 7 days and plenty of shade from plants will favor larval development. General adult buildup in State should result in many more infestations next 14-21 days. (McQueen). SOUTH CAROLINA - Catch of 27 on 16 wing traps in Florence County July 15-22; total to date 1,924. (Taft et al.).

TARNISHED PLANT BUG (Lygus lineolaris) - TENNESSEE - Found in most fields in west area but damage light. Increased slightly but not enough to justify control. (Locke). MISSISSIPPI - Problems in some delta counties. Averaged 0.33 per 100 terminals in 6 of 18 fields. (Pfrimmer et al.).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - MISSISSIPPI - Problems in some delta counties. (Pfrimmer et al.).

SPIDER MITES - TENNESSEE - Continue to increase in untreated fields. Continued increase expected and spot infestations will become more general. (Locke).

#### TOBACCO

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Heavy in some Pittsylvania County fields. (Dominick, July 17).

#### SUGAR BEETS

BEET WEBWORM (Loxostege sticticalis) - WYOMING - Larvae ranged 0-6 per 100 sweeps in Washakie, Big Horn, Hot Springs, and Fremont Counties. Adults heavy in adjacent weedy area in Washakie County field. (Parshall).

A LYGUS BUG (Lygus sp.) - WYOMING - Adults 0-18 per 100 sweeps in Washakie, Big Horn, Fremont, and Hot Springs Counties. (Parshall).

#### POTATOES, TOMATOES, PEPPERS

POTATO APHIDS - MAINE - Surveys of 2,100 potato plants at Presque Isle, Aroostook County as follows: Acyrtosiphon solani (foxglove aphid) 3 colonies of 1-4 aphids. Macrosiphum euphorbiae (potato aphid) colonies of 1-22 aphids on 1,019 plants. Parasitism 3.7 percent, fungus disease 2.3 percent. Summer dispersal forms noted. Aphis nasturtii (buckthorn aphid) colonies of 1-43 aphids on 255 plants. Parasitism trace. Summer dispersal forms noted. Myzus persicae (green peach aphid) summer dispersal forms account for 13 colonies of 1-13 aphids. Nymphs with wing pads at Lincoln, Penobscot County. (Boulanger).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Averaged 470 per 100 leaves on unsprayed peppers in Sussex County. Much heavier on some potatoes in Kent County. (Burbutis et al.). CONNECTICUT - Heavy on potatoes in Tolland County. (Kring, July 17).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Declining in northern counties. (Knowlton). Common in most Box Elder County gardens. (Allred). MAINE - Reported at Masardis and Mapleton, Aroostook County, which is much farther north and west than in 1969. Larvae first to last instar. General and damaging where uncontrolled at Lincoln, Penobscot County. (Boulanger).

## BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - COLORADO - Larvae increasing in Weld, Boulder, Larimer, and Morgan Counties; up to 10 per bean plant. Moderate to heavy infestations scattered throughout area. Controls recommended in many instances. (Johnson). TENNESSEE - Still light to moderate on beans throughout State. Damage light in many areas. Controls effective. (Gordon).

GREEN CLOVERWORM (Plathypena scabra) - WISCONSIN - Some damage appearing on snap beans in central area. Heaviest on earlier planted beans. Infestations generally light. (Wis. Ins. Sur.).

## COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - VERMONT - Damaged radishes and turnips. (Nielsen, July 24).

IMPORTED CABBAGEWORM (Pieris rapae) - MAINE - Beginning to appear in numbers in central area. Later and less abundant than usual. (Boulanger).

## CUCURBITS

SQUASH BUG (Anasa tristis) - OKLAHOMA - Still damaging in many areas. Heavy in Marshall County. Moderate in Mayes County. Light in Choctaw County. (Okla. Coop. Sur.).

## GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - NEW JERSEY - Nymphs and winged forms stunted and rosetted asparagus and weeds at New Brunswick, Middlesex County. Also collected in Burlington County for a new county record. Determined by L.M. Russell. (Ins.-Dis. Newsltr.).

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Extremely abundant and troublesome on many crops from Bergen to Cape May County. (Ins.-Dis. Newsltr.). CALIFORNIA - Counts of 1 per 10 sweeps in 70-acre asparagus patch in Rosedale and Shafter area of Kern County. (Cal. Coop. Rpt.).

SPINACH LEAF MINER (Pegomya hyoscyami) - VERMONT - Damaged chard, beets, and spinach. (Nielsen, July 24).

## WEATHER BUREAU'S 30-DAY OUTLOOK

### MID-JULY TO MID-AUGUST 1970

The Weather Bureau's 30-day outlook for mid-July to mid-August is for temperatures to average below seasonal normals over the eastern half of the Nation except for near normal in the middle Atlantic Coast States and near to above normal in the gulf and south Atlantic coast regions and the upper Mississippi Valley. Above normal averages are indicated for most areas west of the Divide as well as for the northern Plains. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Atlantic Coast States, the Great Basin, the Rio Grande Valley, and portions of the southern Rockies. Subnormal totals are in prospect for the Pacific Northwest and also 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.

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - UTAH - Moderate in Salt Lake County. (Burningham). More severe in Box Elder County. (Allred). WISCONSIN - Second-brood flight begun in Dane County. (Wis. Ins. Sur.). MICHIGAN - Adults emerging in Van Buren and Berrien Counties. (Carpenter, July 20).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - Third-brood emergence peaked on peaches July 13 at Parker Heights and Buena Heights in Yakima County. Second-brood peak ended week of June 23 on peaches in lower Yakima Valley. (Johnson).

UGLY-NEST CATERPILLAR (Archips cerasivoranus) - RHODE ISLAND - Larvae heavy on black cherry in Washington County. (Field).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Adult population peaked, now declining in Van Buren and Berrien Counties. (Carpenter, July 20). CONNECTICUT - Total catch increased from 789 adults last week to 1,285 this week at Storrs, Tolland County. (Savos, July 21). Adults peaked in New Haven County. (Moore). MAINE - Adult emergence in cages increased from 38 on July 16, to 93 on July 22 at Monmouth, Kennebec County. (Boulanger).

PEAR PSYLLA (Psylla pyricola) - UTAH - Causing sticky foliage. Nymphs numerous in Ogden, Weber County, orchard where parasites released. Chemical controls effective. (Davis). IDAHO - Severe outbreak in 3-acre pear orchard. Much honeydew and some leaf drop at Twin Falls, Twin Falls County, July 15. (Sutherland, Youtz).

MEALY PLUM APHID (Hyalopterus pruni) - CALIFORNIA - Heavy on apple trees at Yreka, Siskiyou County. (Cal. Coop. Rpt.).

SPIDER MITES - UTAH - Moderate in Washington County apple and pear orchards (Huber), and in Box Elder County (Allred). Spider mites and Tetranychus mcdanieli (McDaniel spider mite) increased 100 fold past 2 weeks in Weber and Davis County orchards. (Davis). Mites and severe heat severely discolored pear foliage in some Weber County orchards. (Rogers). GEORGIA - Panonychus ulmi (European red mite) light to moderate on peaches, apples, and nectarines in Talbot County. (Tyler, Harris). Heavy in apple orchard in Meriwether County. (Harris, Godowns). RHODE ISLAND - P. ulmi light on Washington County apples. (Field). MASSACHUSETTS - P. ulmi per 50 leaves in Hampshire County: 740 on Delicious apples and 895 on McIntosh apples with no dormant oil or treatment; 660 on Delicious and 535 on McIntosh with dormant oil but no treatment. (Jensen).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Light on pecans in Gillespie, Mason, McCullough, San Saba, Llano, Burnett, Williamson, and Milam Counties. Moderate in Kinney and Val Verde Counties. General near Denton, Denton County. (Green et al.).

WALNUT HUSK FLY (Rhagoletis completa) - OREGON - First 2 adults of season July 15 in northwest section of Grants Pass, Josephine County. (McLoughlin).

## SMALL FRUITS

BLUEBERRY MAGGOT (Rhagoletis mendax) - MAINE - Adult emergence from soil declined from 17 on July 15, to 2 on July 21 at Jonesboro, Washington County. (Boulanger).

## ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Heavy, about 200 per pyracantha bush in Kinney County. Very heavy on post oak trees at Franklin, Robertson County. (Neeb, Green). OKLAHOMA - Heaviest in 35 years on evergreens in Mayes County. Moderate to heavy in most areas. (Okla. Coop. Sur.).

ARBORVITAE WEEVIL (Phyllobius intrusus) - NEW HAMPSHIRE - Adult collected from nursery July 14 at Hooksett, Merrimack County. (Mason). This is a new county record. (Conklin).

AN ARMORED SCALE (Phenacaspis cockerelli) - FLORIDA - Abundant on 2 plants of bishopwood (Bischofia javanica) at Hobe Sound, Martin County. (Campbell, July 15). This is a new county record. (Fla. Coop. Sur.).

A LEAFHOPPER (Draeculacephala inscripta) - FLORIDA - Nymphs and adults on 90 percent of 150 plants of waterlettuce (Pistia stratiotes) in aquatic nursery at Tampa, Hillsborough County. (Simmons).

#### FOREST AND SHADE TREES

LARCH CASEBEARER (Coleophora laricella) - OREGON - Adults on western larch (Larix occidentalis) in Umatilla, Flora, and Wallowa Counties. Most larvae pupated. Collected by T.F. Gregg et al. of June 26. Determined by P.W. Orr. This is a new State record. (Gregg, USFS).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MISSOURI - Light to heavy in spots throughout southeastern and south-central areas. Mostly full-grown larvae and pupae. (Kearby, Gass).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Occasional small spot infestations during June in Richmond, Nansemond, King William, and Henrico Counties. (For. Pest Sur. Rpt., June).

A SPITTLEBUG (Clastoptera arborina) - COLORADO - Heavy on junipers from Pueblo, Pueblo County, to Ft. Collins, Larimer County. As high as 3-6 per foot of branch, 3 times level of 1968. Controls recommended. (Thatcher).

A MIDGE (Cecidomyia piniopis) - CALIFORNIA - Damaged 1969 twig growth on ponderosa pine in 100-acre stand in Sierra National Forest, Fresno County. Affected about 1,000 trees. (Crummer, USFS, July 17).

LARCH SAWFLY (Pristiphora erichsonii) - NEW HAMPSHIRE - Larvae, several hundred per larch at Rochester, Strafford County, July 15. (Mason).

TENT CATERPILLAR MOTHS (Malacosoma spp.) - MINNESOTA - Aspens defoliated by M. disstria (forest tent caterpillar) now almost completely refoliated. Parasitism in 54.5 percent of 640 cocoons collected west of International Falls, Koochiching County. Some cocoons at French River northeast of Duluth, Saint Louis County. (Minn. Pest Rpt.). VERMONT - M. disstria and M. americanum (eastern tent caterpillar) adults appearing in light traps past 2 weeks. (Nielsen, July 24).

FALL WEBWORM (Hyphantria cunea) - MICHIGAN - In second instar. Nests 1.5-2 feet long on apple, birch, and oak. Severe damage of ornamental trees anticipated if not controlled. (Wallner, July 20). INDIANA - Webs beginning to appear in Marion County. (Knapp). NEW HAMPSHIRE - First instars on linden in Merrimack County July 14. Small web on elm in Strafford County July 15. (Mason).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - IOWA - Completely defoliated maple grove in Benton County July 22. Left maples to search for food. (Iowa Ins. Sur.).

OAK SKELETONIZER (Bucculatrix ainliella) - MINNESOTA - Heavy along river valleys throughout southeastern and eastern areas; scattered in other areas. (Minn. Pest Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - MINNESOTA - Collected at New Ulm, Brown County, for a new county record. (Minn. Pest Rpt., July 17).

ELM LEAF BEETLE (Pyrrhalta luteola) - MISSISSIPPI - Moderate on Chinese elm in Oktibbeha, Lowndes, and Calhoun Counties. (Sartor). TEXAS - Damage on Chinese elm moderate in Upton and Reagan Counties and light in Midland County. Building up in many northern counties. Widespread at Longview, Gregg County; damage moderate to heavy on individual trees. (Neeb et al.). OKLAHOMA - Moderate to heavy on Siberian elm in most areas. Damage 80-90 percent in some areas. (Okla. Coop. Sur.). COLORADO - Adults and larvae defoliating elm in Weld County past few weeks. (Rothman, Urano). UTAH - Damaging at St. George, Hurricane, and Virgin in Washington County, and at Santaquin, Utah County. Injury increasing generally in State. (Knowlton). Severe in Cache County. (Davis). NEVADA - Larvae collected on elm at Elko, Elko County, for new county record. (Peters).

CHRYSOMELID BEETLES - WEST VIRGINIA - Xenochalepus dorsalis (locust leaf miner) browned black locust foliage 70-80 percent in Lincoln County and 40-50 percent in Boone and Kanawha Counties. (W. Va. Ins. Sur.). CONNECTICUT - Plagioder a viticolora (imported willow leaf beetle) increasing in New Haven County. (Hitchcock).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - TENNESSEE - Foliar injury severe in planting of Chinese chestnut in McNairy County. (Locke).

CICADAS - NEVADA - Diceroprocta apache adults heavy at Boulder City, Clark County. Oviposition causing twig damage to trees. (Zoller). VIRGINIA - Magicalada septendecim (periodical cicada) damage widespread in Fairfax County; severe on oak, maple, and other deciduous trees. (Allen). Extensive twig kill to hardwoods in northern Shenandoah, Frederick, and Clark Counties. (For. Pest Sur. Rpt., June).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 15 cases reported in U.S. July 19-25 as follows: TEXAS - Brewster 1, Pecos 4, Terrell 10. Total of 30 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 16, Chihuahua 7, Coahuila 5, Nuevo Leon 2. Total of 23 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 47,228,000; New Mexico 3,660,000; Arizona 13,295,000; Mexico 67,267,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - UTAH - Ranged 100-400 per head north of Kelton, Box Elder County. (Knowlton). Troublesome in northern Cache County. (Thornley). Very numerous on Duchesne County cattle. (Mathis). WYOMING - Increasing, 70-160 (averaged 120), on 2 cattle herds in Washakie and Fremont Counties. (Parshall). TEXAS - Light in Hudspeth, Culberson, Midland, Reeves, Kinney, and Ward Counties. Light to moderate in Crockett, Edwards, Sutton, Brewster, and Pecos Counties. (Neeb). OKLAHOMA - Averaged 250 per cow in Payne and Noble Counties. Heavy in Marshall, Cherokee, and Craig Counties. Moderate in Cleveland County. Light in Mayes County. (Okla. Coop. Sur.). NEBRASKA - Ranged 400-500 per head on 2 herds in Platte River Valley near North Platte, Lincoln County. Averaged 150 per head on 3 ranch herds sprayed 3 times since mid-June in same county. (Campbell). NORTH DAKOTA - Ranged 20-300 (averaged 110) per head on beef cattle in McLean County. (Brandvik). MISSISSIPPI - Averaged 40 per head on 890 cattle in Hinds County. Averaged 200 per head on 490 cattle in Montgomery County. (Sartor). ILLINOIS - Counts per head of cattle by county: Bureau 59.5, Adams 225.7, Marshall and Putnam 308.3, Jersey 174, Pike 289, and at 2 sites in Williamson, 178.6 and 307. (Ill. Ins. Rpt.). MARYLAND - Controls effective on dairy cattle. (U. Md., Ent. Dept.).

FACE FLY (Musca autumnalis) - UTAH - Numerous in feed yards at Nephi and Starr, Juab County. This is a new county record. (Hanson et al.). Annoying horses at College Ward and Hyrum, Cache County. (Knowlton). Very troublesome in Duchesne County. (Mathis). KANSAS - Averaged 5 per face in one feedlot, 2 per face in

another, and 2 per face on cows in small farm herd in Barton County. (Gates, July 20). NEBRASKA - Averaged 10-15 per head on 2 Platte River Valley herds in Lincoln County; averaged 15-20 per face on 3 ranch herds. (Campbell). WISCONSIN - Troublesome in Calumet, Columbia, and Clark Counties. (Wis. Ins. Sur.). ILLINOIS - Counts per head of cattle by county: Bureau 23.6, Adams 59.3, Marshall and Putnam 14.8, Jersey 20.4, Pike 21.8, and 6.2 and 18.9 at 2 sites in Williamson. (Ill. Ins. Rpt.). TENNESSEE - Moderate to heavy on Warren County livestock. (Warren). MARYLAND - Moderate to heavy on unsprayed cattle in central counties. Heaviest average of 100 per head on 69 cattle near Woodsboro, Frederick County. (U. Md., Ent. Dept.).

HOUSE FLY (Musca domestica) - UTAH - Numerous about communities and campgrounds in Washington County, and communities in various parts of State. (Hanson, Knowlton). Moderate in Box Elder County generally (Allred) and in Duchesne County (Mathis). WISCONSIN - Biggest problem in dairy barns followed by Stomoxys calcitrans (stable fly). (Wis. Ins. Sur.).

STABLE FLY (Stomoxys calcitrans) - NEBRASKA - Ranged 4-5 per leg on 2 groups of feedlot animals near North Platte, Lincoln County. (Campbell). Averaged 3-4 per leg on 2 herds near Platte River. (Keith). ILLINOIS - Ranged 0.1-21.5 per head of cattle in 7 counties. Heaviest in Marshall and Putnam Counties. (Ill. Ins. Rpt.).

MOSQUITOES - UTAH - Troublesome at Fish Creek, Juab County, and very numerous at Hinckley, Millard County (Arnold); less troublesome in eastern Millard County (Hall). Annoying picnickers and fishermen in Logan and Blacksmith Fork Canyons (Bennett, Knowlton) and around many Cache County communities (Thornley, Knowlton). Very heavy in communities and on farms in Box Elder County. (Roberts et al.). Serious in Duchesne County communities and farms. (Mathis). WYOMING - Still numerous and annoying to man and animals in Big Horn, Washakie, Hot Springs, Fremont, and Albany Counties. (Parshall). ARKANSAS - Psorophora confinnis declined in Lonoke County. Averaging 70 per night in light traps. Light to moderate numbers annoying residents locally in Lawrence County. (Meisch, Lancaster). MINNESOTA - Aedes vexans accounted for 89 percent and Coquillettidia perturbans 7 percent of over 22,000 females in light traps at Minneapolis and St. Paul week ending July 10. A. vexans accounted for 82 percent of evening bite collections and 75 percent of daytime catches. A. fitchii ranked second in evening bite collections and was important in daytime bite collections. C. perturbans in significant numbers in daytime and evening collections. C. perturbans reached peak. A. vexans accounted for 26,000, Coquillettidia perturbans 1,780, and Culex tarsalis 277 of 29,425 females in light traps at Minneapolis and St. Paul week ending July 17. A. vexans in 300 of 349 larval collections. A. vexans accounted for 90 percent of catch in evening bite collections and 70 percent in daytime catches. Coquillettidia declined heavily. Rains July 18 produced another brood, mainly in northern half of mosquito control district. No trap had more than 15 mosquitoes night of July 22. (Minn. Pest Rpt.). RHODE ISLAND - Aedes spp. moderate to heavy in Washington County. (Field). MAINE - Gradually declining in most areas. (Boulanger).

TABANID FLIES - UTAH - Annoying horses at Nephi, Juab County, and troublesome at Dolomite, Tooele County. (Knowlton). Deer flies and horseflies annoying cattle at Richmond, Cache County; people near Bear Lake, Rich County; and livestock in meadow areas of Tooele County. (Knowlton, Thornley). Problem in some Duchesne County localities. (Mathis). MISSOURI - Tabanus sulcifrons up to 23 per head on 2 cattle herds in Texas County. (Munson). FLORIDA - Chlorotabanus crepuscularis heavy on dairy cattle at Lake City, Columbia County. Several adults per head following cattle into barns. (Smith, July 16).

BLACK FLIES - MAINE - Second generation emerged at Orono, Penobscot County; numbers not so heavy as in 1969. Second generation at Jackman; Somerset County, will begin to emerge next week. Sufficiently abundant to make presence felt. (Boulanger).

A SCARAB (Aphodius washtucna) - OREGON - Adults collected from nest of sage vole (Lagurus curtatus) 3 miles north-northwest of Culver, Jefferson County, by C. Maser December 21, 1969. Identified by O.L. Cartwright. (Ritcher). This is a new State record. (Penrose).

CHIGGER MITES (Eutrombicula spp.) - OKLAHOMA - Heavy in eastern areas despite dry weather. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Larvae very heavy in Cherokee County, adults and nymphs light. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - TENNESSEE - Confirmed at Celina, Clay County, for a new county record. Determined by J.A. Keener. (Keener).

#### HOUSEHOLDS AND STRUCTURES

OLD-HOUSE BORER (Hylotrupes bajulus) - FLORIDA - Damage extensive to supporting roof timbers over garage area of home at Gainesville, Alachua County. (Strayer). Treatment and extensive renovation required. (Fla. Coop. Sur.).

A JAPANESE WEEVIL (Calomycterus setarius) - IOWA - Collected from homes in Boone County July 1, Webster County July 13, and Franklin County July 15. These are new county records. (Iowa Ins. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - Increasing around homes and gardens in many areas. Appear more abundant than in previous years. (Gittins).

#### BENEFICIAL INSECTS

LADY BEETLES - WASHINGTON - Hippodamia convergens (convergent lady beetle) very common on peppermint, about 1 per sweep on 40 acres at Vancouver, Clark County. (Shanks). WYOMING - Lady beetle adults 1-15 per 10 sweeps of alfalfa in Washakie, Big Horn, Hot Springs, and Fremont Counties. (Parshall). MISSISSIPPI - Declined in cottonwood nursery stock at State College, Oktibbeha County, and in Montgomery County. (Sartor). MAINE - Many Coccinella transversoguttata (transverse lady beetle) maturing in aphid-infested oats. Moving to adjacent potatoes in Aroostook County. Many pupae. H. tredecimpunctata tibialis (thirteen-spotted lady beetle) larvae, few adults, present. (Boulanger).

GREEN LACEWINGS (Chrysopa spp.) - COLORADO - As high as 20-30 per 100 sweeps. Heavy flights on orchard cover crops in Mesa County. (Johnson, Sisson).

MISSISSIPPI - These predators, a big-eyed bug (Geocoris punctipes), a flower bug (Orius insidiosus), and damsel bugs (Nabis spp.), still plentiful in many cotton fields in delta counties. (Pfrimmer et al.).

A DAMSEL BUG (Nabis sp.) - WYOMING - Adults 3-11 per 10 sweeps of alfalfa in Washakie, Big Horn, Hot Springs, and Fremont Counties. (Parshall).

BRACONIDS - OKLAHOMA - Lysiphlebus testaceipes increased considerably in greenbug-infested sorghum in Payne County. (Okla. Coop. Sur.). COLORADO - Macrocentrus ancylivorus released earlier on Western Slope. Parasitized 70 percent of larval specimens of oriental fruit moth recovered in Mesa County. (Sisson, Anderson).

A EULOPHID WASP (Dahlbominus fuscipennis) - VIRGINIA - Surveys to recover cocoons of an unspecified pine sawfly where parasite released in 1959, 1960, 1961, and 1969 in progress. Collections from 2 of 5 sites of release in 1969 positive for parasite. (For. Pest Sur. Rpt., June).

A CINNABAR MOTH (Tyria jacobaeae) - WASHINGTON - Steadily increased on tansy ragwort since release in western area in 1966 at Amboy, Clark County. (Shanks).



## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Flights still heavy, adults more numerous than in past 10 years. Egg laying should be heavier and more damage can be expected. (N.Y. Wkly. Rpt., July 20).

GRASSHOPPERS - UTAH - Damage to small grains by Aulocara elliotti, Melanoplus sanguinipes, and other grasshoppers generally light and local. Little control done. (Knowlton). Moderate on small grains at Logan, Paradise, and Richmond in Cache County. (Thornley). Threatening in some spots on Cedar Mountain, Iron County; 90 percent Camnula pellucida and 5 percent M. sanguinipes, 50 per square yard on Podunk Creek; A. elliotti adults spottedly serious at Holden, Millard County; nymphs 3-5 per square yard on Shivivit Reservation in Washington County and along Virgin River. (Thornley, Knowlton). OKLAHOMA - Mainly M. differentialis damage to field crops in scattered areas over most of State. (Okla. Coop. Sur.). NORTH DAKOTA - Some movement from margins into fields in Ransom, Richland, Burleigh, and Grant Counties. Counts 6-20 per square yard in margin and up to 10 in field. Dominant species, M. sanguinipes in Richland and Ransom Counties and M. bivittatus in Burleigh and Grant Counties. Development third instar through adults. (Grasser). MINNESOTA - Damaging numbers in Swift County. Infested 3 townships near and south of Danvers. Most common in alfalfa fields, roadsides, and ditchbanks with some movement from hay to other crops. Ranged 10-18 per square yard of margins and ditchbanks in Swift County. Less than 2 per square yard in most southwest district fields. Ranged 4-5 per square yard in occasional alfalfa field in Rock and Nobles Counties. Some M. femurrubrum adults but mostly second to fourth instars. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - MARYLAND - Male in trap on woodlot at Glencoe, Baltimore County, for a new county record. Collected by L. Sellman July 20. Determined by D.M. Weisman. PENNSYLVANIA - Moths in traps determined by E.L. Todd for new county records as follows: Collected on golf course in Dauphin County, by M. Haas July 15. In Beaver Township, Columbia County, by M. Carroll July 16. In Middletown Township, Delaware County, by W.J. Pisch July 16. In Stevens Township, Bradford County, by G.S. Soroka July 17. (PPD). NEW YORK - Males abundant in blacklight trap catches at Poughkeepsie, Ulster County, throughout middle third of July. (N.Y. Wkly. Rpt.). CONNECTICUT - Egg laying statewide. Many complaints of moth flights. (Hitchcock). RHODE ISLAND - Adults active in Washington County. (Field). VERMONT - Males emerging at Burlington, Chittenden County. (Nielsen, July 24).

JAPANESE BEETLE (Popillia japonica) - ALABAMA - Adults light in trap at feed mill at Haleyville, Winston County, for a new county record. Collected by G.C. Cain July 16. Determined by V.H. Owens; confirmed by R.D. Gordon. (PPD). TENNESSEE - Found again in McMinn County at Etowah. Extensions in Mount Vernon and Rural Vale areas of Monroe County, and Metcalf Bottom area of Great Smoky Mountains National Park in Sevier County. (PPD). RHODE ISLAND - Adults heavy on shrubs, roses, and other plants in pockets throughout State. (Field). VERMONT - Adults common problem in many localities, often heavy. (Nielsen, July 24).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Sterile moths released July 17-23: Coachella Valley 5,720,750, total to date 76,560,700; Bakersfield 1,400,000, total to date 17,371,700. First 2 native moths of season trapped July 17 near southeast corner of Kern County. Number of rosetted blooms in Coachella Valley quadrupled over last week; heaviest in field, with 298 rosette blooms per acre. ARIZONA - Released at Redington, Pima County, 67,500 sterile moths; total to date 787,300. Catch to date of 141 sterile moths in release field at Redington, but 40 native moths in south trapline and 31 native moths in north trapline. Second bloom inspection on July 17 negative. (PPD). Infestations in Yuma County. Ranged 2-20 percent in lower Yuma Valley; first and second instars in mature bolls in upper Yuma Valley; overall infestation 5 percent in Yuma Valley fields, infestation 3 percent in Parker Valley. Larvae 20 percent diseased by

Bacillus sp. at Safford, Graham County. Peak of third generation expected in Pima County. Exit holes in mature bolls east of Gilbert, Maricopa County. Larvae infested Hibiscus rosa-sinensis varieties Red Monarch and Double Yellow in nursery in Yuma County. Collected by L. Lee and R. Crount. Determined by L. McHenry and K. Winks; confirmed by D.M. Weisman. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSISSIPPI - Cysts on soybeans on farm in Pontotoc County for a new county record. Collected by Gregory and Wilson July 15. Determined by V.H. Owens; confirmed by A.M. Golden. (PPD).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Larvae heavy on domestic and wild grapes at Yreka, Siskiyou County. Collected by F.D. Horn July 15. Determined by M.R. Gardner. This is a new county record. Infestation about 425 miles north of nearest live infestation at Clovis, Fresno County. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - FLORIDA - Graphognathus spp. adults on soybeans averaged 2 per row foot at Quincy, Gadsden County, and averaged 8 per row foot in more than 12 acres in experimental plots at Marianna, Jackson County. (Greene). VIRGINIA - Graphognathus sp. adults feeding on narrow-leave plantain at Alexandria and in Fairfax County. (Kludy, Thomas).

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#### HAWAII INSECT REPORT

New State Record - One adult of a CUPESID BEETLE (Cupes clathratus Solsky) collected on a log at University of Hawaii quarry, Manoa, Oahu, by J. Fujii, March 16, 1969. Second specimen collected at Pearl City, Oahu, by Santos, May 7, 1970, found in student collection by F. Holworth. Larvae are wood borers, living under bark or about logs or moist frame structures. Determined by A. Neboiss. (Beardsley). Known to occur in eastern Asia, Japan, and Siberia. This is a new Western Hemisphere record. (PPD).

Fruits - ORIENTAL FRUIT FLY (Dacus dorsalis) adults moderate on orange tree at Kahului, Maui; as many as 15 adults on single ripe fruit. Infested about 15 percent of fruits. (Miyahira).

Ornamentals - An ADELGID (Pineus pini) in 3 backyard collections of Pineus spp. in June at Waimea, Hawaii; first detection outside of initial site of infestation at Waikii, Hawaii. Intensive survey of nurseries and garden shops on Oahu detected a Pinus sp. bonsai plant at Kailua with branch terminals moderately infested; chemical treatment advised. (Yoshioka, Kawamura).

Miscellaneous Insects - Several adults of CLUSTER FLY (Pollenia rudis) collected at Kalalau, Kauai, for a new island record. (Sugawa). CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) nymphs and adults light on 10 Chinese banyan (Ficus retusa) at Kihel, Maui. An ANTHOCORID BUG (Montandoniola moraguesi), an introduced predator, in 25 percent of infested leaves. (Miyahira).

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#### CORRECTIONS

CEIR 20(30):522 - LADY BEETLES - IDAHO ... (Sartor). Lady beetle ... (Portman). should read LADY BEETLES - MISSISSIPPI ... (Sartor). IDAHO - Lady beetle ... (Portman).

CEIR 20(30):519 - CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - July 2 should read July 6. (Johnson, Chandler).

## DETECTION

New Western Hemisphere Record - A CUPESID BEETLE (Cupes clathratus Solsky)  
HAWAII - Oahu Island (p. 546).

New State Records - CLOVER HEAD WEEVIL (Hypera meles) FLORIDA - Gadsden County  
(p. 535). LARCH CASEBEARER (Coleophora laricella) OREGON - Flora, Umatilla,  
Wallowa Counties (p. 541). A LEAF BEETLE (Oulema palustris) WISCONSIN - Iowa  
(p. 535). A SCARAB (Aphodius washtucna) OREGON - Jefferson County (p. 544).

New County and Island Records - ALFALFA WEEVIL (Hypera postica) IOWA - Wright;  
WISCONSIN - Brown, Calumet, Marinette, Oconto, Outagamie, Shawano, Winnebago  
(p. 535). ARBORVITAE WEEVIL (Phyllobius intrusus) NEW HAMPSHIRE - Merrimack  
(p. 541). An ARMORED SCALE (Phenacaspis cockerelli) FLORIDA - Martin (p. 541).  
ASPARAGUS APHID (Brachycolus asparagi) NEW JERSEY - Burlington (p. 539). BROWN  
RECLUSE SPIDER (Loxosceles reclusa) TENNESSEE - Clay (p. 544). CLOVER HEAD WEEVIL  
(Hypera meles) FLORIDA - Leon (p. 535). CLUSTER FLY (Pollenia rudis) HAWAII -  
Kauai (p. 546). ELM LEAF BEETLE (Pyrrhalta luteola) NEVADA - Elko (p. 542). FACE  
FLY (Musca autumnalis) UTAH - Juab (p. 542). A FLEA BEETLE (Systena frontalis)  
IOWA - Buchanan (p. 534). GYPSY MOTH (Porthetria dispar) MARYLAND - Baltimore;  
PENNSYLVANIA - Bradford, Columbia, Dauphin, Delaware (p. 545). JAPANESE BEETLE  
(Popillia japonica) ALABAMA - Winston (p. 545). A JAPANESE WEEVIL (Calomycterus  
setarius) IOWA - Boone, Franklin, Webster (p. 544). SMALLER EUROPEAN ELM BARK  
BEETLE (Scolytus multistriatus) MINNESOTA - Brown (p. 541). SOYBEAN CYST NEMATODE  
(Heterodera glycines) MISSISSIPPI - Pontotoc (p. 546). WESTERN CORN ROOTWORM  
(Diabrotica virgifera) INDIANA - La Porte, Porter (p. 533). WESTERN GRAPE LEAF  
SKELETONIZER (Harrisina brillians) CALIFORNIA - Siskiyou (p. 546).

Weather continued from 530.

**TROPICAL STORM BECKY:** Becky began quite humbly as a weak tropical depression that formed in the central Atlantic Ocean about 750 miles east of the Lesser Antilles late on July 14. The depression moved westward into the Caribbean, causing some shower activity over Cuba and the Florida Straits. Once reaching the Gulf of Mexico, the depression began to intensify rapidly, and by afternoon on the 20th, a poorly organized tropical storm had formed. Becky moved northward and continued to intensify. Becky continued northward toward the Florida Panhandle with just below hurricane-force winds near the center, and hurricane warnings were issued from Fort Walton to Point St. Joe, Florida. The storm remained poorly organized, however, and by 3 a.m. on the 22d she had begun to weaken and turn slightly towards the northeast. At 5 a.m. on the 22d, hurricane warnings for the Florida coast were discontinued. Gale warnings remained in effect from Panama City to St. Marks, Florida. Tropical storm Becky moved inland near Point St. Joe at 7 a.m. on the 22d, bringing heavy rain and squalls to the Florida Panhandle. A total of 8.16 inches of rain was dumped on Tallahassee, which also recorded a sustained 29 m.p.h. wind with gusts to 44 m.p.h. A tornado destroyed three houses in Panacea, Florida, but no injuries were reported, and a high tide of 3 feet above normal was recorded at Panacea. Becky rapidly became extratropical, but the remnants of the storm continued northward bringing rain to the southeastern and Middle Atlantic States. Flash flood warnings were issued for the Appalachian region. The storm moved through Georgia, Tennessee, and Kentucky, and by the morning of the 24th she had completely dissipated over Indiana, leaving behind a great deal of moisture. In Georgia, 3.34 inches of rain fell in Augusta and a tornado demolished two houses in Jefferson County, injuring one person seriously. Columbia, South Carolina, had 2.72 inches of beneficial rain and no adverse effects from the storm. Elsewhere the rainfall was widespread south of the Great Lakes and east of the Mississippi River. (Summary supplied by Environmental Data Service, ESSA.)

### LIGHT TRAP COLLECTIONS

|                   | Precipitation Type | Approx. Location     | Date | Species                              |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        | Crops |    |   |  |
|-------------------|--------------------|----------------------|------|--------------------------------------|----------------------------|-------------------------------|-----------------------------|----------------------------|---------------------|----------------------------|---------------------|--------------------------------|-------------------------|-------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|-------|----|---|--|
|                   |                    |                      |      | BL - Blacklight<br>or other<br>lamps | Moths (light<br>attracted) | Chalcids (light<br>attracted) | Chalcids (not<br>attracted) | Diptera (not<br>attracted) | Diptera (attracted) | Pterid. (not<br>attracted) | Pterid. (attracted) | Hymenoptera (not<br>attracted) | Hymenoptera (attracted) | Orthoptera (not<br>attracted) | Orthoptera (attracted) | Orthoptera (not<br>attracted) | Orthoptera (attracted) | Orthoptera (not<br>attracted) | Orthoptera (attracted) |       |    |   |  |
| FLORIDA           |                    |                      |      | 1                                    | 4                          | 22                            | 2                           | 23                         |                     |                            |                     |                                |                         |                               |                        | 6                             |                        |                               | 1                      | 13    | 20 | 1 |  |
|                   | BL                 | Gainesville 7/17-23  |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| MARYLAND          |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Centreville 7/17-23  |      |                                      |                            |                               |                             | 25                         |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | St. Michaels 7/16-22 |      |                                      |                            |                               |                             | 2                          |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Sallybury 7/16-22    |      |                                      |                            |                               |                             | 32                         |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Snow Hill 7/16-22    |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| MINNESOTA         |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Crookston 7/14-20    |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Fergus Falls 7/14-20 |      |                                      | 14                         |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Shakopee 7/14-20     |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Worthington 7/14-20  |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| MISSISSIPPI       |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | 2BL                | Stoneville 7/17-23   |      | 10                                   |                            | 59                            | 7                           | 256                        |                     |                            |                     |                                |                         |                               |                        | 2                             |                        |                               |                        |       |    |   |  |
| MISSOURI (County) |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | 3                  | Greene 7/16-22       |      | 3                                    |                            |                               |                             | 3                          |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | 3                  | Platte 7/17-23       |      | 3                                    |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| NEBRASKA          |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | 76                 | Lancoln 7/18-24      |      | 76                                   | 2                          |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| NEW JERSEY        |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Cedarville 7/17-21   |      | 11                                   |                            |                               |                             | 1                          |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Evesboro 7/17-21     |      | 4                                    |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Hamonton 7/20-21     |      | 8                                    |                            |                               |                             | 1                          |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Plainsboro 7/7-21    |      | 19                                   |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| NORTH DAKOTA      |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Fargo 7/21-22        |      | 46                                   |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Mandan 7/19          |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                | 1                       |                               |                        |                               |                        |                               |                        |       |    |   |  |
| OHIO              |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Kenton 7/17-23       |      | 3                                    |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Wooster 7/17-23      |      | 3                                    |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| SOUTH DAKOTA      |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Brookings 7/18-23    |      | 31                                   |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| TEXAS             |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   |                    | Waco 7/17-23         |      | 8                                    |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| VIRGINIA          |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | 2                  | Charlotte 7/18-20    |      | 2                                    |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | 2                  | Holland 7/17-19      |      | 14                                   |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | 6                  | Warsaw 7/18-21       |      | 6                                    |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
| WISCONSIN         |                    |                      |      |                                      |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |
|                   | BL                 | Madison 7/15-21      |      | 17                                   |                            |                               |                             |                            |                     |                            |                     |                                |                         |                               |                        |                               |                        |                               |                        |       |    |   |  |



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REPORT



*Issued by*

PLANT PROTECTION DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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 reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

CORN LEAF APHID heavy on corn in southeast North Dakota and sorghum in northwest Missouri. GREENBUG heavy on sorghum in northwest Missouri and several areas of Texas. Much spraying underway in Texas. (pp. 551-552).

CORN ROOTWORM adult emergence increased in Minnesota, damage increased in Wisconsin; lodging of corn reported in North Dakota and Wyoming. (p. 553). EUROPEAN CORN BORER moth catches heavy in Kansas, increased in New York and Wisconsin; controls will be necessary earlier than normal in Wisconsin with severe problems predicted in sweet corn. (p. 554). SPIDER MITES heavy on sorghum and field corn in western Texas. (p. 555).

LYGUS BUGS heavy on alfalfa throughout eastern Colorado, and Gila, Yuma, and Salt River Valleys of Arizona. (p. 556).

BOLL WEEVIL increasing in Florence area of South Carolina and in southern Georgia; damaging in western Tennessee; controls general in southern and central Alabama. Potential for serious BOLLWORM infestations exists over wide areas of South Carolina; larvae a problem over western Tennessee and egg laying heavy in Georgia. (pp. 557-558).

COLORADO POTATO BEETLE required several control applications on some commercial potatoes and tomatoes in north-central Utah; second-brood larvae unusually heavy on these crops on the Virginia Eastern Shore. (p. 559).

OAK SKELETONIZER damaging in west-central Wisconsin and along Mississippi River in northeast Iowa. SADDLED PROMINENT caused defoliation over several thousand acres in New Hampshire. (p. 564).

STABLE FLY annoyance to cattle severe in scattered areas of Wisconsin. (p. 565).

Detection

New State records include an ADELGID (p. 563) and a BRACONID (p. 567) in Pennsylvania, a HUMPBACKED FLY and a SCARAB in Hawaii (p. 569), and STOMBLER MOTH in Texas (p. 558).

For new county and island records see page 561.

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### WEATHER OF THE WEEK ENDING AUGUST 3

**HIGHLIGHTS:** Hot humid weather continued through most of the week in the Central and East. Spotty nighttime thundershowers brought little relief from the heat and humidity.

**PRECIPITATION:** Widely scattered showers and thunderstorms dotted the Nation last week. They occurred principally over the northern and southern Rocky Mountains early in the week from the northern Great Plains to New England and across the Deep South at midweek, and over the weekend. Gusty winds and hail accompanied some of the nighttime thunderstorms in the central and eastern parts of the country. A few tornadoes occurred but caused relatively little damage. Weekly totals ranged widely from none or only light sprinkles to near 1 inch over the West and from sprinkles to 2 inches or so over the East. A few spots in the East received more than 2 inches.

**TEMPERATURES:** Cool weather prevailed only along the northern Pacific coast last week with temperatures reaching the 60's in the afternoons and dropping to the 50's at night. The Southwest continued hot with nighttime temperatures in the upper 70's and 80's and daytime maximums from the 90's to 110° or more. Maximums in the southwestern deserts averaged about 110°. Summer heat and high humidity continued in the stagnant air that lay east of the Rockies. At midweek, temperatures from the Great Plains to the Atlantic Ocean were mostly in the upper 80's and 90's except 100° or warmer over the central Great Plains. Nighttime minimums ranged from the 60's in the northern border States and Appalachian Mountains to the 70's elsewhere. The high relative humidity in this large stagnant air mass added to the discomfort caused by the high temperatures. Cooler drier air moved over the Northeast Sunday. Weekly average temperatures were below normal northwest of a line from Bakersfield, California, to Fargo, North Dakota, and above normal elsewhere. A large area from the central Great Plains to New England averaged 3° to 9° above normal. (Summary supplied by Environmental Data Service, ESSA).

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM** (*Pseudaletia unipuncta*) - NEW YORK - Larvae unusually scarce on Hudson Valley sweet corn. One fourth instar at Claverack, Columbia County, July 22 and fifth instar at New Paltz, Ulster County, July 24. (N.Y. Wkly. Rpt.). MINNESOTA - Scattered on grassy weeds with no damage on corn in Sibley County field (Minn. Pest Rpt.).

**ASTER LEAFHOPPER** (*Macrosteles fascifrons*) - MINNESOTA - Ranged 50-800 per 100 sweeps in west-central district, 80-1,000 in southwest. Declined on small grain in northwest district as grain "hardened off." Ranged 200-300 per 100 sweeps in flax. Aster yellows disease in flax averaged about 3 percent in northwest district. Flax blooming and disease symptoms easily seen. (Minn. Pest Rpt.). OHIO - Averaged about 1 per sweep in alfalfa in Wayne County. Alfalfa 6-12 inches tall. (Flessel). FLORIDA - Adults 3 in 100 sweeps of 12-inch alfalfa at Gainesville, Alachua County. (Mead).

**BEE T LEAFHOPPER** (*Circulifer tenellus*) - CALIFORNIA - Curly-top infection less than 1 percent in most tomato fields throughout east side of San Joaquin Valley; ranged 0-0.03 percent in 700 acres of tomatoes in Turner Island area near Los Banos, Merced County. (Cal. Coop. Rpt.). WYOMING - Trace in fields checked in Goshen, Niobrara, and Platte Counties; no curly top noted. (Parshall).

**CORN EARWORM** (*Heliothis zea*) - NEW YORK - One larva in corn ear at New Paltz, Ulster County, and one in ear in Greene County July 17. No moths in traps. (N.Y. Wkly. Rpt.). MARYLAND - Populations on Eastern Shore increasing. Infestation throughout area ranged 6-40 percent in mature sweet corn (U. Md., Ent. Dept.). VIRGINIA - Damage relatively light, less than 50 percent infestation in untreated sweet corn at Painter; injury should increase steadily into September in Accomack and Northampton Counties. (Hofmaster, July 22). TENNESSEE - Continues to cause some damage to whorls of late-planted corn in western area and some parts of central area. Damage to forming corn ears still occurring across State. Damage light in most cases. (Gordon). GEORGIA - Light to moderate across peanut belt. (French, Coleman). FLORIDA - Variable, very light to light, averaging 1 larva per 4 row feet of soybeans at Jay, Santa Rosa County. (Whitcomb, Greene). ARKANSAS - Numbers remain low in grain sorghum; generally zero to 5-10 in 10 row feet. Heaviest in sorghum in milk stage in field with semi-open heads in Hempstead County. This field planted broadcast. Larvae averaged 1 per 3-4 heads. (Boyer). MISSOURI - Early instars of this and *Spodoptera frugiperda* (fall armyworm) on 0-30 percent of sorghum in late whorl stage in southwest area. (Hanning). OKLAHOMA - *H. zea* light in young ears or tassels in most corn checked in Beaver, Texas, and Cimarron Counties. (Okla. Coop. Sur.). TEXAS - Damaged grain sorghum in Jackson County. (Cole). NEW MEXICO - Averaged 2 per cornstalk in Chaves County. (Mathews, July 27). Larvae in whorls of grain sorghum in Hidalgo County. (Riddle). ARIZONA - One per ear of sweet corn at Skull Valley, Yavapai County. (Ariz. Coop. Sur.). UTAH - Light on Box Elder County corn. (Allred).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - NEW YORK - Becoming widely distributed in Hudson Valley with flight of winged generation. (N.Y. Wkly. Rpt., July 24). MARYLAND - Infestations generally scattered but ranged 10-50 percent in heaviest fields on Eastern Shore. No economic damage expected. (U. Md., Ent. Dept.). OHIO - Statewide on field corn. Heaviest on developing tassels. Lighter on undersides of developed tassels and on leaves. (Roach, July 21). MICHIGAN - Small colonies in whorls in all corn checked. Constant rain kept numbers low. (Newman, July 27). ILLINOIS - Decreasing, but of concern where moisture is low. (Sur. Bull.). IOWA - Present on some corn. In 6 fields checked July 28 in Wayne County, aphids absent on 76-80 percent of plants, light on 10-15 percent, and covered tassel and top 3 leaves of 5-10 percent of plants. (Iowa Ins. Sur.). NORTH DAKOTA - Colonies heavy on tasseling corn in Richland, Ransom, and Dickey Counties. Up to 5,000 aphids per plant. Up to 90 percent of plants infested. Honeydew heavy on tassels in several fields. Green lacewing adults and lady beetle adults and larvae abundant in most fields. (Brandvik). KANSAS - Mostly light to moderate with few heavy infestations. (Gates). MISSOURI - Ranged

15-4,000+ on all sorghum checked in northwest area. Sorghum 24 inches or taller. (Hanning). OKLAHOMA - Ranged 25-600 per plant in corn and sorghum in Cimarron, Texas, and Beaver Counties. Generally on decline as most corn tasseling and some sorghum heading. Reported moderate on sorghum in Lincoln County. Ranged 45-50 per 10 row feet on sorghum in Tillman County, 300-400 per plant on broomcorn in Stephens County. (Okla. Coop. Sur.). TEXAS - Moderate in El Paso County. (Cole). NEW MEXICO - Light to medium in whorls of Chaves County corn. (Mathews, July 27). Light to medium on grain sorghum in Luna, Hidalgo, and Grant Counties. (Riddle). Heavy in some sorghum in Roosevelt County. (Mathews, Campbell).

GREENBUG (*Schizaphis graminum*) - SOUTH DAKOTA - Heavy on grain sorghum near Milesville, northern Haakon County. Increased rapidly; some lower leaves killed. Controls applied. (Jones). KANSAS - Colonies per sorghum plant by county July 18-24: Geary averaged 0.1, Clay 3.3 in two fields, Mitchell one, Osborne up to one, Phillips 2-6, Smith 10.4, Republic 8.6, Washington 9.3 on 10-inch sorghum, and Brown 9.1 in one field of 10-inch sorghum. Sorghum usually 24-48 inches tall. One field in Osborne County with 300-350 per plant. Parasitism 5-10 percent in Washington County field; absent in other fields surveyed. Predators very light. Few fields of late planted 6 to 10-inch sorghum generally lightly infested, but few heavy infestations noted. Up to 2,000 per plant in sorghum field in preboot stage in Geary County July 28. (Gates). MISSOURI - Ranged 20-3,000+ per grain sorghum plant on 0-65 percent of plants. Ranged 20-2,000+ per plant in northwest area; most lower leaves discolored. Plants 10 inches or shorter. Scattered and light in early boot or headed sorghum. (Hanning). ARKANSAS - Up to 1,000 per plant in preboot sorghum in Washington County. (Boyer, Jones). Survey negative in Hempstead, Lafayette, and Miller Counties. (Boyer). OKLAHOMA - Ranged moderate to heavy (up to 1,200 per plant in few fields) on sorghum in Cimarron County; light to moderate (generally under 350 per plant, but up to 900 per plant in one field) in Texas County. Generally light (up to 50 per plant) in Beaver County. Reported heavy in Lincoln County, light in Grady County. (Okla. Coop. Sur.). TEXAS - Increased in Rolling Plains, Trans-Pecos, and High Plains. Several farms sprayed in Knox and Haskell Counties. Increased in Pecos, Reeves, El Paso, Culberson, and Hudspeth Counties. In Pecos and Reeves Counties greenbug killed lower 4 normal sized leaves on most plants. Light on 8 to 10-inch grain sorghum grown closely with heavily infested larger plants. Heavy in isolated fields at Del City, Hudspeth County. Light to moderate in El Paso and Culberson Counties. Parasites in Trans-Pecos area very light, but predators heavy in most fields. In High Plains, greenbug increased in most untreated fields; many fields sprayed. (Green). High counts per grain sorghum plant by county July 20-21: Hockley 20,000; Lamb 10,000; Swisher 8,000; Hale 7,000; Floyd 6,000; Lynn 5,000. Counts found on 5 of 50 plants. High counts per plant ranged 1,000-2,000 in Castro, Farmer, Lubbock, Briscoe, Cochran, Gaines, Crosby, and Potter Counties. Highs of 200-600 per plant in Yoakum, Dawson, and Terry Counties. Most plants in boot stage to headed. Much spraying done and in progress in area. Lady beetles not plentiful. (Daniels).

NEW MEXICO - Greenbug light to heavy on grain sorghum in Chaves and Curry Counties. (Mathews, July 27). Light to medium on sorghum and broomcorn in Roosevelt County. (Mathews, Campbell). COLORADO - Increasing on eastern area sorghum; ranged 0-400 (average less than 100) per plant. Up to 2,000 per plant in some fields; some controls necessary. (Burchett). CALIFORNIA - Nymphs and adults on milo in Yolo, Sacramento, and Fresno Counties. Damaged young and older plantings; severe in some cases. Control better this season as most growers recognize symptoms and know how and when to treat. (Cal. Coop. Rpt.).

PICKLEWORM (*Diaphania nitidalis*) - SOUTH CAROLINA - Infestations increasing in pickling cucumbers in Dillon County. (Nettles, July 22).

POTATO LEAFHOPPER (*Empoasca fabae*) - MARYLAND - "Hopperburn" or damage becoming more evident in Frederick, Montgomery, Howard, and Baltimore Counties. Leafhoppers 0-4 per sweep in most fields. Heaviest counts, 21-55 per sweep, in field at Buckeystown, Frederick County. (U. Md., Ent. Dept.). VIRGINIA - Nymphs 40 per 100 sweeps in 10-acre alfalfa field in Rappahannock County. (Allen, July 23).

WISCONSIN - Potato leafhopper counts vary on beans and potatoes. Average of 6 per linear foot noted. Slight damage apparent on untreated potatoes in Dane County. Heavy on lima beans and carrots in Rock County. Damage to sugar and Norway maples still heavy in nurseries in southern area. Distortion of new leaves most obvious damage. Counts variable but as many as 5 per leaf observed. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Averaged 60 per 10 sweeps in alfalfa in southern Harper County. (Okla. Coop. Sur.). NEW MEXICO - Light to medium, 0-18 per 25 sweeps, on Rio Arriba County alfalfa. (Heninger). COLORADO - Up to 30 per 100 sweeps of alfalfa in Pueblo County. (Burchett).

TOBACCO HORNWORM (*Manduca sexta*) - OHIO - First generation pupated in Brown County; defoliation minor on cigar tobacco. Many dead *Apanteles* sp. (a braconid) among leaves. (Roach, July 21).

### CORN, SORGHUM, SUGARCANE

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - MARYLAND - Adults active from Washington County southeast to Queen Annes County. (U. Md., Ent. Dept.). NEW YORK - Few adults in Hudson Valley beginning third week of July. Few signs of rootworm injury in State due to wet season. (N.Y. Wkly. Rpt., July 24). OHIO - Adults light on corn silks in Ross County. (Roach, July 21). Currently ruined 80 of 120 acres of field corn in Wyandot County. (Musick). WISCONSIN - Corn damage increasingly apparent in many localities. Damaged many fields of second-year corn. Root damage in treated sweet corn field in southern Dane County severe enough to retard individual plants and entire sections of field. In Green County, root damage combined with dry weather actually killed some fields of corn. Adults of *D. longicornis* and *D. virgifera* (western corn rootworm) more numerous on southern area corn. (Wis. Ins. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - OKLAHOMA - Occasional adults in treated Texas County fields; heaviest infestation 1 per ear on silks of young corn ears. Ranged 0-4 and 0-6 per plant in 2 untreated fields in northern Cimarron County. Few collected from flowers of wild gourd in Beaver County. Cimarron and Beaver Counties are new county records. (Okla. Coop. Sur.). SOUTH DAKOTA - Adults heavy on corn near Oral, Fall River County. Ranged 15-20 per plant in parts of research field, 10 or more per plant common. Adults heavy, 15+ per plant, on corn at Centerville, Clay County. (Jones). NORTH DAKOTA - Rootworm damage in additional corn fields at Colfax, Richland County. Adults 3-25 (averaged 8) per plant in field; lodging 60 percent. Up to 8 (averaged 4) adults per plant in one field; lodging 20 percent. Up to 4 (averaged 1) adults per plant in 1 field; lodging 5 percent. Adults 1 per plant near Mooreton, Richland County, and 1 per 100 plants near McLeod, Ransom County, and near Oakes, Dickey County. No damage in these fields. (Brandvik). MONTANA - Root damage in several Yellowstone County cornfields. Some severe damage but slight in most cases. No adults. (Pratt). WYOMING - Larvae 1-22 (averaged 13) per plant in several Goshen County fields. Larvae 90 percent, pupae 7 percent, and adults 3 percent. Beetles ranged 0-3 (average 1) per plant. (Burkhardt, July 22). Some severe damage to corn roots in Platte County. Lodging ranged 20-60 (averaged 33) percent in 3 severely infested fields in Goshen and Platte Counties. (Burkhardt). COLORADO - Adults light, 0-2 per corn plant, in Weld, Boulder, and Larimer Counties. Damage light; some heavy. (Johnson, Urano).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - *D. longicornis* and *D. virgifera* emergence continues to increase. Adults 1-8 per plant in Rock, Murray, Nobles, Lyon, and Lincoln Counties. Larvae and pupae still in soil but emergence near peak in southwest district. Situation similar in south-central and southeast districts; heaviest in Le Sueur, Rice, Dakota, Faribault, Goodhue, Olmsted, and Dodge Counties. Lodging increased in southern area after heavy rains and wind. Development rapid this year. (Minn. Pest Rpt.). KANSAS - Generally light, rarely above 2-3 adults per plant, and in most fields less than one per plant. Adults heavy in Mitchell County field. Adults 20-30 per plant in Geary County field where no larval control applied. Larvae still feeding and damage moderately severe

to waist-high corn in Osborne County field. (Gates). OKLAHOMA - D. undecimpunctata howardi (southern corn rootworm) 0-3 per corn plant in field at Balco, Beaver County. (Okla. Coop. Sur.). OREGON - D. undecimpunctata undecimpunctata (western spotted cucumber beetle) damaged corn silks at Roseburg, Douglas County. (Passon, July 24).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Heavy infestations centered in Frederick County area this season. Damage moderate to heavy in 80-100 percent of most heavily infested fields at Emmitsburg, Buckeystown, Woodsboro, and Frederick. (U. Md., Ent. Dept.).

A WEEVIL (Anacetrinus deplanatus) - TEXAS - Light in Grimes, Brazos, Bosque, Grayson, Ellis, McLennan, and Navarro Counties. Lodging in spots in some fields. (Turney, Wilson).

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Over half of first-generation moths emerged by July 24 in early corn in Brown County. Very heavy moth catches July 16 and 22. Egg masses July 23 on corn in mid-silk in Cloud County. Egg laying may peak July 27-31 in most of northeast area and will probably remain heavy next 7 days. Traces of first-generation larvae from Mitchell County and Osborne County west to Sherman County. (Gates). MISSOURI - Less than 1 second or third instar per plant on 0-14 percent of corn in southwest and west-central areas. Corn in whorl or tasseling stages. Egg masses averaged 40 per 100 corn plants recently pollinated in northwest area; no larvae. (Hanning). IOWA - Larvae July 16-18 averaged 20.6 per 100 plants on average of 17.3 percent of plants. Emergence 20 percent July 23 at Ankeny, Story County. Only 20 percent of females mating; egg laying still light. (Iowa Ins. Inf.). MINNESOTA - Counts per 100 plants by district: Southwest 40, west-central 23, southeast 18.6, and south-central 1.44. Over 50 percent in late instars in southeast and west-central districts. Moth emergence 20 percent in south-central district and 7 percent in southwest district. (Minn. Pest Rpt.). WISCONSIN - Moth catches increased. On July 28 only 8 percent of moths emerged, 52 percent pupae, 28 percent fifth instar, and 12 percent fourth instar on corn in southern and central areas. Very heavy on early, fresh market sweet corn in several localities. Moths totaled 208 July 24-29 in blacklight trap at Arlington, Columbia County. Pupation up to 80 percent at some central area sites. Very high percentage of first brood will be maturing rather than entering diapause. Control will be necessary about August 8 as compared with August 15 in normal years. Severe problems predicted in sweet corn. (Wis. Ins. Sur.). ILLINOIS - Development by area: South - second-generation larvae present 10-14 days; south-central - some small second-generation larvae, moths plentiful and still depositing eggs; central and north-central - moth emergence 50 percent and moths laying eggs; north - some moths emerging. (Sur. Bull.). MICHIGAN - Pupation started. (Sauer, July 27). Larvae heavier than in 1969 on July 24 in Lenawee and Monroe Counties. In late instar with 20 percent pupae. (Newman). OHIO - Pupae in as much as 30 percent of field on some field corn in south-central, central, and west-central areas July 21. Currently, second-moth emergence for season begun and will probably peak first 10 days of August, about one week earlier than in 1969; consistent with one week earlier first-moth emergence of season. Damage by next generation larvae expected to be one week early also. (Roach). SOUTH CAROLINA - Larvae down half of corn ear and in cob in Edgefield County. (Nettles, July 14). DELAWARE - Moths averaged 100+ per night in blacklight trap collections in western Sussex County. (Burbutis).

NEW YORK - Second-brood adults emerging at Geneva, Ontario County. Much heavier catches July 26 would indicate egg laying should begin this week. (N.Y. Wkly. Rpt.). NEW HAMPSHIRE - First-brood adults emerged in laboratory from cornstalks brought from Hillsborough County July 22. (Conklin). MAINE - Damage light on sweet corn in southern area. (Gall).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Almost full-grown larvae 1-2 per stalk in two-thirds of silks in 60-acre field of grain sorghum in Macon County. Plants 3.5-4.0 feet tall; heads not emerged. Larvae, 1-3 per stalk, severely damaged small field of tasseling corn in Lee County; pupated, some moths laying eggs. (Brown). TENNESSEE - Heavy in whorls of late corn in western area.

(Johnson). MARYLAND - Fall armyworm infested average of 6 percent of 18-acre field near Frederick and 2 percent of 15-acre field at Emmitsburg, Frederick County. (U. Md., Ent. Dept.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - COLORADO - Adults heavy in light traps, 31-115 per night at Hudson, Weld County. Eggs and larvae on corn. (Urano, Jenkins).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARIZONA - Larvae 1-3 per late-planted sorghum plant at Avra Valley and Marana, Pima County. Necessary to treat by air as ground too moist for wheeled equipment. (Ariz. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalus lignosellus) - MISSISSIPPI - Reduced half of 39-acre milo stand in Noxubee County. (Sartor). ARIZONA - Infested sorghum at Yuma, Yuma County. (Ariz. Coop. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - In most late-blooming grain sorghum in Blacklands and in Haskell County. Only 53 midges emerged from over 5,000 Johnson grass and grain sorghum head samples collected since early June in 10 South Plains counties. Only one midge emerged from grain sorghum samples last week. (Turney et al.). ARKANSAS - Generally light except in few areas. Ranged 1-5 per head in field in early bloom north of Texarkana, Miller County. Only occasional midge found in Hempstead and Lafayette Counties; unusual as sorghum grown in area for several years. (Boyer). Ranged 2-18 per head in 3 of 4 blooming fields in Crittenden County. (Kimbrough).

A LEAFHOPPER (Dalbulus maidis) - FLORIDA - Male in blacklight trap at Gainesville, Alachua County, July 29. (Mead). This is a new county record and third record for State. (Fla. Coop. Sur.).

FALSE CHINCH BUG (Nysius ericae) - TEXAS - Light to date on grain sorghum in several South Plains areas. (Rummel, Clymer).

SPIDER MITES - ARIZONA - Controls needed for Tetranychus turkestanii (strawberry spider mite) on young sorghum in Yuma Valley, Yuma County. (Ariz. Coop. Sur.). COLORADO - Oligonychus pratensis (Banks grass mite) and T. urticae (two-spotted spider mite) still on eastern area corn. Damage trace to heavy; controls necessary in some fields. (Johnson, Burchett). TEXAS - Oligonychus spp. heavy in El Paso, Hudspeth, Culberson, Reeves, and Pecos Counties only in fields where grain sorghum headed and grain development started. Light on blooming grain sorghum. Heavy infestations completely desiccated leaves in 3-4 days on grain sorghum in El Paso and Reeves Counties although plants stood in irrigation water. Heavy on field corn grown for silage in Culberson County. Heavy on tasseling corn. Light on younger corn grown close to older corn. (Neeb). IOWA - T. urticae heavy in 2 acres of large cornfield in Dallas County July 21. Eggs average 10 and motile forms 15-20 per square inch on leaves. (Iowa Ins. Inf.).

#### TURF, PASTURES, RANGELAND

HAIRY CHINCH BUG (Blissus hirtus) - NEW HAMPSHIRE - Very numerous, lawns brown in Hillsborough County. Migrating into houses. (Conklin).

SOUTHERN CHINCH BUG (Blissus insularis) - TEXAS - Heavy infestations numerous in St. Augustine grass lawns in Brazos County. (Green).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - UTAH - Injury moderate to date in Salt Lake County lawns. (Burningham, Knowlton).

## FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - OREGON - Much heavier than during first cutting of alfalfa in Klamath County. (Wilcox, July 24). NEVADA - Varied 5-10 per sweep in Lovelock, Pershing County, alfalfa seed fields. (Martinelli). WYOMING - Ranged 6-70 (averaged 31) per 10 sweeps of alfalfa in Goshen, Niobrara, and Platte Counties. (Burkhardt). COLORADO - Light throughout eastern area, up to 800 per 100 sweeps, in alfalfa; under 150 per 100 sweeps in most fields. (Burchett, Johnson). WISCONSIN - Averaged 2 per sweep in forage legumes. (Wis. Ins. Sur.). MASSACHUSETTS - Averaged 441 per 100 sweeps in Hampshire County field July 31. (Miller).

YELLOW CLOVER APHID (Therioaphis trifolii) - NORTH DAKOTA - All forms present, 1,000 per 100 sweeps, in red clover near Abercrombie, Richland County. (Brandvik).

LYGUS BUGS (Lygus spp.) - IDAHO - Averaged 8 per sweep in alfalfa seed field at Gooding, Gooding County. (Koester, Sutherland). NEVADA - Averaged up to 21 per sweep in several alfalfa seed fields in Reese River Valley, Lander County. (Hilbig). Ranged 1-3 adults and nymphs per sweep in Lovelock, Pershing County, alfalfa seed fields. (Martinelli). UTAH - Averaged 3 adults and 4 nymphs per 10 sweeps of alfalfa at Smithfield, Cache County. (Knowlton). COLORADO - Heavy on alfalfa throughout eastern area. Ranged 50-500 per 100 sweeps in northeastern area. (Johnson, Burchett). ARIZONA - Ranged 120-600 per 100 sweeps of alfalfa in Gila and Yuma Valleys, Yuma County. Averaged 100 adults and 200 nymphs per 100 sweeps on westside of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). WYOMING - Ranged 6-184 (average 65) per 10 sweeps of alfalfa in Goshen, Niobrara, and Platte Counties. (Burkhardt). MICHIGAN - Moderate, 100-240 per 100 sweeps, in Lenawee and Monroe Counties July 24. (Newman). MASSACHUSETTS - L. lineolaris (tarnished plant bug) averaged 49 adults per 100 sweeps in Hampshire County field July 31. (Miller).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - MASSACHUSETTS - Averaged 68 adults and 43 nymphs per 100 sweeps in Hampshire County field July 31. (Miller).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Nymphs 25 and adults 10 in 100 sweeps of 12-inch alfalfa at Gainesville, Alachua County. (Mead).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae ranged 50-100 per 100 sweeps of alfalfa in 5 fields on westside of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Light on Eddy County alfalfa. (Mathews).

ALFALFA WEEVIL (Hypera postica) - WYOMING - Diminished to less than one per sweep of alfalfa in Goshen and Niobrara Counties. (Parshall). NEW MEXICO - Generally light on alfalfa at Espanola, Rio Arriba County. (Heninger, July 27). FLORIDA - One larva collected in 100 sweeps of 12-inch alfalfa at Gainesville, Alachua County. Field last cut 2 weeks previously, fourth cut of year. (Mead). MASSACHUSETTS - Larvae averaged 3 per 100 sweeps in Hampshire County field July 31. (Miller).

CLOVER LEAF WEEVIL (Hypera punctata) - NEW MEXICO - One adult on alfalfa at La Mesilla, Rio Arriba County, for a new county record. (Heninger).

GRASSHOPPERS (Melanoplus spp.) - VIRGINIA - M. femurrubrum (red-legged grasshopper) 25 per 100 sweeps of alfalfa in Rappahannock County field. (Allen, July 23). M. differentialis (differential grasshopper) nymphs defoliated 40 percent of alfalfa in Augusta County field. Averaged up to 10 per sweep. (Hendrick).



## SOYBEANS

GREEN CLOVERWORM (Plathypena scabra) - VIRGINIA - Averaged 30 per 100 sweeps in Sussex, Dinwiddie, and Nottoway Counties. Below levels of past 2 years. (Allen).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Heavy in several Tift County fields. (Todd).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Averaged 1 adult per row foot in 5 fields at State College, Oktibbeha County. (Sartor).

GARDEN FLEAHOPPER (Halticus bracteatus) - OHIO - Averaged 10 per sweep in Fairfield County. (Roach).

GRASSHOPPERS - ARKANSAS - Ranged 20-25 per square yard in Johnson grass along field borders and canals in Cottondale area, Jefferson County. Soybeans showed severe damage 20-25 feet and moderate damage 40-50 feet from field margins. No damage to soybeans observed where Johnson grass absent. (Loftin).

## PEANUTS

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Medium to heavy in 20-acre field in Coffee County; controls applied. Pseudaletia unipuncta (armyworm) also present. (Presly). Larvae of S. frugiperda and other cutworms medium to heavy on foliage of another large field in Coffee County where controls applied under good weather conditions. (Speed).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Infestation averaged less than 10 percent in several fields in Bryan and Hughes Counties; averaged 20 percent in one field in Hughes County. (Okla. Coop. Sur.). ARIZONA - Infested peanuts on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - ARKANSAS - Infestations observed in most areas of State. Probably noneconomic in most cases. (Boyer et al.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - VIRGINIA - Adults in sufficient numbers to cause much damage in Nansemond County if regular rains continue. (Smith, July 23).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Increasing in unprotected fields in Florence area, but still below normal. Adults per acre ranged 0-708 in treated plots, 0-872 in control plots. Larval infestations ranged 1-29 percent in treated plots, 2-8 percent in control plots. Two weevils taken in 9 wing traps, total to date 1,466. (Taft et al., July 29). TENNESSEE - Continues to cause much damage in spots over regularly weevil-infested portion of cotton-growing area. Average percent punctured squares 12 for those fields found infested. Some second-generation weevils will emerge by latter part of week ending August 7. Infestations appear to be in proportion to amount of rainfall over area. (Locke). GEORGIA - Increasing throughout south area. Punctured almost all squares where spray schedules not followed. (Womack). Punctured squares 18 percent in treated field; 42 percent in untreated field. (Coleman). ALABAMA - Weevil counts continue high in south and central sections; controls general and successful. Very few fields with extremely high counts as was general past 3-5 years. Counts continue low in northern area fields although first "hatchout" complete, with second due in 5-12 days. Only few fields with damaged square counts above 10 percent. Highest counts in north area in Cherokee County. (McQueen). MISSISSIPPI - One weevil in 1 of 12 fields in delta counties. Punctured 3.5 percent of squares. (Pfrimmer et al.). Infestation averages ranged 0.5-5 percent in 191 fields checked in 9 counties. (Sartor). LOUISIANA - Continues to emerge from squares on ground. Punctured squares increasing. (Tynes, July 28). ARKANSAS - Increasing in some fields, but treatment still not widespread. Treatments needed in 495 of 6,782

fields scouted. Continued emergence will increase infestations; as squaring rates level off, infestations expected to increase much more rapidly. (Barnes et al.). OKLAHOMA - Punctured squares averaged 20 percent in field in Humphreys area, Jackson County. (Okla. Coop. Sur.). TEXAS - Still light in McLennan and Falls Counties. Punctured squares averaged 2.8 percent in 43 treated fields (maximum 15); average 11.5 percent (maximum of 20.2) in 17 untreated fields. (Cowan et al.).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Increasing rapidly in Florence area. Moth activity much increased; potential for serious infestations exists in wide areas. Percent larval infestation ranged 1-25 in treated plots, 0-3 in control plots. Adults in light trap: H. zea 1,126, total to date, 1,440; H. virescens 51, total to date 119. (Taft et al., July 29). TENNESSEE - Problem over western area. Counts ranged 1-9 larvae or eggs per 100 terminals. Averaged 2 per 100 terminals for fields found infested. Eggs more plentiful than larvae. (Locke). GEORGIA - Egg laying still heavy. Large larvae in many fields. (Womack). Adults still increasing in light traps in Spalding County. (Beckham). ALABAMA - Larval counts remain low over most of State. Damaging numbers reported in several fields in southern area. Moth flights and heavy egg laying underway in southern and central sections; moths increasing in northern area. Larvae generally not yet major problem in cotton. Threat may increase next 5-15 days. (McQueen). MISSISSIPPI - Flight still fairly heavy in delta counties. Eggs and small larvae scarce in most fields. Eggs in 6 of 12 fields averaged 0.33 per 100 terminals. Injured squares averaged 2.83 (maximum 5.5) percent in 11 of 12 fields. (Pfrimmer et al.). Infestation averages ranged 1-5 percent in 190 fields checked in 7 counties. (Sartor). LOUISIANA - Ahead of some farmers where controls unsatisfactory. (Tynes, July 28). ARKANSAS - Activity very heavy in some fields. Numbers very low considering potential 7 days ago. Damaged squares increased to 30-40 percent in some fields. Beneficial insects in many fields kept damaged squares to 3-4 percent. Next heavy moth flight in about 2 weeks. (Barnes et al.). Ratio of H. virescens to total Heliothis spp. collected on cotton apparently following same pattern as in past years; higher in early and late summer than in midsummer. H. virescens 34.5 percent of determinations to mid-July, 5.7 percent since mid-July. (Boyer).

OKLAHOMA - Bollworm larvae per 100 terminals ranged 10-15 in Grady County and 3-7 in Jackson County. (Okla. Coop. Sur.). TEXAS - Infestation fairly light in McLennan and Falls Counties; only few fields still attractive to moths. Eggs averaged 5.7 and larvae 3.2 per 100 terminals in 43 treated fields (maximum 18.0 eggs and 10.4 larvae). In 17 untreated fields eggs averaged 2.9 and larvae 3.8 per 100 terminals (maximum 8.2 eggs and 17.8 larvae). Injured squares averaged 4.7 percent in 43 treated fields (maximum 12.6 percent); averaged 8.8 percent (maximum 30 percent) in 17 untreated fields. Injured bolls averaged 4.5 percent in 43 treated fields (maximum 13.2 percent); averaged 8.4 percent (maximum 25 percent) in 17 untreated fields. H. virescens 38 percent of 775 larvae collected. (Cowan et al.). NEW MEXICO - Rainy weather past week increased activity of bollworms over southern area. (N.M. Coop. Rpt., July 27). ARIZONA - H. zea larvae and damaged bolls found more easily in most cotton areas. Averaged 6 per 100 bolls at Safford and on west side of Salt River Valley in Graham and Maricopa Counties. (Ariz. Coop. Sur.).

STOMBLER MOTH (Heliothis stombleri) - TEXAS - Following collections recorded in Brownsville area, Cameron County. Moths in blacklight traps: 2 males April 24; 2 females June 2; one male and one female June 4; 2 males June 10; one male June 29. Adults reared from eggs collected on cotton: 2 males June 9; 2 males June 12; one female June 19. One female reared from small larva collected on Ruellia sp. June 11. (Graham). This is a new State record. (PPD).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Controls necessary in lower Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - MISSISSIPPI - Caused 50 percent reduction of foliage on 30-acre field in Covington County. (Sartor).

PLANT BUGS - TENNESSEE - Increasing over western area; damage to pinhead squares increasing. Control for these pests alone not justified in any field infested this season. (Locke). ARKANSAS - Lygus lineolaris (tarnished plant bug) and other plant bugs continue to appear in damaging numbers in more fields. (Barnes et al.). MISSISSIPPI - L. lineolaris remains light at Stoneville, Washington County (Pfirmer et al.); moderate in Coahoma and Tunica Counties (Sartor).

SPIDER MITES - TENNESSEE - Continue to increase in western area with heavy damage in some fields. Further increase expected. (Locke). ALABAMA - Tetranychus urticae (two-spotted spider mite) infestation spotted throughout 400-acre field in Lawrence County. Grower considering treatment. (McClelland et al.). MISSISSIPPI - Tetranychus spp. light in 2 of 12 fields in delta counties. (Pfirmer et al.). LOUISIANA - Increasing in Red River Valley. (Tynes, July 28). TEXAS - Spotty in several fields in McLennan and Falls Counties. (Cowan et al.).

#### POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Five per square yard on 1,000-acre potato planting at Ferndale, Humboldt County. (Cal. Coop. Rpt.). COLORADO - On tomatoes and potatoes in Otero County. Continue to increase; controls used in some cases. (Burchett). MICHIGAN - Heavy in some potato fields. Poor control application in some cases. Control now difficult with heavy foliage. (Wells, July 27). DELAWARE - Greatly increased on sweet peppers and potatoes; 2,500 per 100 leaves in unsprayed peppers in Sussex County. (Burbatis). NEW JERSEY - Very heavy on peppers, potatoes, and particularly eggplant in all counties. Heavy numbers of unspecified alates hovering over eggplants in Cumberland County field. (Ins.-Dis. Newsltr.).

POTATO APHIDS - MAINE - Counts by 3-leaf method showed 52 percent of potato plants infested at Presque Isle, Aroostook County. Macrosiphum euphorbiae (potato aphid) most abundant, followed by Aphis nasturtii (buckthorn aphid) and Myzus persicae (green peach aphid). Single colony of Acyrtosiphon solani (foxglove aphid) observed. Buckthorn aphid colonies ranged 1-21; few summer dispersal forms. Parasitism trace. Potato aphid colonies ranged 1-8; some summer dispersal forms. Parasitism 5.9 percent. Fungus killed 4 percent of population. Green peach aphid colonies ranged 1-5; no summer dispersal forms. (Gall).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Increased on potatoes and tomatoes at Logan, Cache County. (Hammond). Many commercial fields treated 2-3 times. (Knowlton). VIRGINIA - Second-brood larvae unusually heavy on potatoes and tomatoes in Accomack and Northampton Counties. Tremendous numbers of adults emerged last of June. Temperatures June 26-29 as low as 54°F. and exceeded 80°F. for only several hours; evidently stimulated reproduction. (Hofmaster, July 22).

CHRYSOMELID BEETLES - ARIZONA - Metriorhina bicolor (golden tortoise beetle) fed on green peppers at Globe, Gila County. (Ariz. Coop. Sur.). WASHINGTON - Epitrix tuberis (tuber flea beetle) 5 in 10 sweeps of seed potatoes at Sumas, Whatcom County. (Holmes).

POTATO TUBERWORM (Phthorimaea operculella) - MICHIGAN - Very light in 3 potato fields in Monroe County July 20. Normal spray program keeping population under control. (Hanna et al.). Infested corner of 2-acre plot in Monroe County. Controls applied. (Newman, July 27).

NOCTUID MOTHS - COLORADO - Trichoplusia ni (cabbage looper) damaged tomatoes in Arkansas Valley. Up to 40 per 100 sweeps. (Burchett). MICHIGAN - Papaipema nebris (stalk borer) moderately mined laterals of tomatoes and potatoes in Monroe County plots. (Newman, July 27).

SEED-CORN MAGGOT (Hylemya platura) - WASHINGTON - About 10 per 10 sweeps in 200-acre potato field at Paterson, Benton County. Seed pieces probably infested. (Landis).

## BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - UTAH - Light to moderate on commercial bean plantings; heavier in many home gardens. (Knowlton, Duncan). COLORADO - Larvae 0-9 per bean plant in spots in many fields in Pueblo, Crowley, and Otero Counties. Up to 2 per plant in Weld, Boulder, and Larimer Counties; damage trace to moderate. Controls effective. (Burchett, Johnson). WYOMING - Larvae 2-10 (averaged 4) per plant in Goshen County field. Up to 1 per plant in other fields in Goshen and Niobrara Counties. (Burkhardt). TENNESSEE - Numbers and damage still light where controls applied. (Gordon). VIRGINIA - Some damage to beans in Accomack and Northampton Counties. (Hofmaster, July 22).

PEA LEAF WEEVIL (Sitona lineatus) - WASHINGTON - Infested field beans; all plants infested in Grant County field. (Retan, Forster).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpuncta undecimpunctata) - OREGON - Becoming problem in bean fields and gardens at Roseburg, Douglas County. Controls needed on pole beans. (Passon, July 24).

SPIDER MITES (Tetranychus spp.) - IDAHO - First report of bean damage in field bordering alfalfa; damage light and confined to margin at Filer, Twin Falls County. (Sutherland, Youtz).

## COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Abundant on cabbage. Noticeable injury in many areas due to poor control. (Ins.-Dis. Newsltr.). NEW YORK - Larvae and eggs on cabbage and cauliflower in seedbeds at North Syracuse, Onondaga County. (N.Y. Wkly. Rpt., July 24). WISCONSIN - Damaged cabbage at Jackson, Washington County, and at Janesville, Rock County. Damaged one-third of plants in fields surveyed in Columbia County. Damage light and in most cases, infested plants had only one insect on them. In last larval instar or pupae. One adult observed. Emergence of significant numbers of adults should begin in 7 days. (Wis. Ins. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - OHIO - Severely damaged 6-acre cabbage plot in Van Wert County. (Miller, Roach, July 24).

DIAMONDBACK MOTH (Plutella xylostella) - NEW YORK - Seems heavier, more widespread and not so confined to Southern transplants in Madison, Oneida, Cayuga, Onondaga, and Oswego Counties. (N.Y. Wkly. Rpt., July 24).

IMPORTED CABBAGEWORM (Pieris rapae) - CALIFORNIA - Medium to heavy on cauliflower at Davis, Yolo County. (Cal. Coop. Rpt.).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Medium to heavy on cauliflower at Davis, Yolo County. (Cal. Coop. Rpt.).

## CUCURBITS

SQUASH BUG (Anasa tristis) - OKLAHOMA - Still heavy on squash in Payne County. Moderate on several vine crops in Choctaw County. (Okla. Coop. Sur.).

MELON APHID (Aphis gossypii) - OKLAHOMA - Heavy on watermelons in Lincoln County. (Okla. Coop. Sur.).

## GENERAL VEGETABLES

ASPARAGUS BEETLE (*Crioceris asparagi*) - NEW JERSEY - Adults and larvae light to moderate in several Cumberland County asparagus fields. Little, if any, damage to brush. (Ins.-Dis. Newsltr.). MICHIGAN - Larval damage to asparagus ferns heavy in Van Buren County last 7-10 days. (Earl, July 27).

GREEN PEACH APHID (*Myzus persicae*) - NEW JERSEY - Very abundant on sweetpotato foliage in field near Lumberton, Burlington County. *Hippodamia convergens* (convergent lady beetle) adults and larvae heavy in this field; may control aphids. (Ins.-Dis. Newsltr.).

ONION MAGGOT (*Hylemya antiqua*) - UTAH - Injury common, generally moderate in Davis and Weber Counties. (Stokes, Knowlton).

ONION THRIPS (*Thrips tabaci*) - COLORADO - Remains problem on some onions in Arkansas Valley; up to 40 per plant. Light, 0-30 per plant, in fields checked in Weld County. (Burchett, Johnson).

## DETECTION

New State Records - An ADELGID (*Adelges tsugae*) PENNSYLVANIA - Montgomery County (p. 563). A BRACONID (*Apanteles miantonomoi*) PENNSYLVANIA - Berks County (p. 567). A HUMPBACKED FLY (*Megaselia rufipes*) HAWAII - Oahu Island (p. 569). A SCARAB (*Trox suberosus*) HAWAII - Oahu Island (p. 569). STOMBLER MOTH (*Heliothis stombleri*) TEXAS - Cameron County (p. 558).

New County and Island Records - An ADELGID (*Adelges tsugae*) PENNSYLVANIA - Delaware (p. 563). ASIATIC OAK WEEVIL (*Cyrtepidomus castaneus*) ALABAMA - Cherokee, Coosa (p. 564). A BRACONID (*Apanteles miantonomoi*) PENNSYLVANIA - Pike (p. 567). BROWN RECLUSE SPIDER (*Loxosceles reclusa*) TEXAS - Bastrop, Brown, Young (p. 565). CLOVER LEAF WEEVIL (*Hypera punctata*) NEW MEXICO - Rio Arriba (p. 556). A DAMPWOOD TERMITE (*Zootermopsis nevadensis*) IDAHO - Power (p. 566). FACE FLY (*Musca autumnalis*) CALIFORNIA - Butte, Napa, and Solano (p. 565). GYPSY MOTH (*Porthetria dispar*) MARYLAND - Kent, Worcester; PENNSYLVANIA - Northumberland (p. 568). JAPANESE BEETLE (*Popillia japonica*) INDIANA - Dearborn, Ohio, Washington (p. 568). A LACE BUG (*Stephanitis takeyai*) PENNSYLVANIA - York (p. 563). A LEAFHOPPER (*Dalbulus maidis*) FLORIDA - Alachua (p. 555). ODD BEETLE (*Thylogrias contractus*) IOWA - Benton (p. 566). A PSYLLID (*Psylla uncatoides*) HAWAII - Hawaii (p. 569). SOYBEAN CYST NEMATODE (*Heterodera glycines*) MISSISSIPPI - Le Flore (p. 568). WESTERN CORN ROOTWORM (*Diabrotica virgifera*) OKLAHOMA - Beaver, Cimarron (p. 553).

## CORRECTIONS

CEIR 20(29):503 - MITES - OHIO - *Psoroptes equi* (scab mite)... should read *Sarcoptes scabiei* (itch mite) ... (Roach).

CEIR 20(29):505 - PINK BOLLWORM (*Pectinophora gossypiella*) - ARIZONA - ... Redington, Yuma County, ... should read ... Redington, Pima County, ...

CEIR 20(31):539 - ASPARAGUS APHID (*Brachycolus asparagi*) - NEW JERSEY - ... stunted and rosetted asparagus and weeds ... should read ... stunted and rosetted asparagus and volunteer asparagus plants ...

## DECIDUOUS FRUITS AND NUTS

**CODLING MOTH** (*Laspeyresia pomonella*) - UTAH - So light that many orchardists reduced spray programs, resulting in moderate increase of wormy fruit in central area. (Davis, Barlow). WISCONSIN - Second-brood flight well underway. Blacklight catch of 74 July 23-28 at Madison, Dane County. (Wis. Ins. Sur.). MICHIGAN - Adult emergence continuing in Van Buren County. (Earl, July 27). NEW JERSEY - Five adults in baited jar July 20-27 in Gloucester County. (Ins.-Dis. Newsltr.).

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - UTAH - Light, 4 moths in 10 traps in 10 days, at Pleasant Grove, Utah County. Lightest since mid-May. (Davis, Barlow). NEW JERSEY - Six adults in baited jar July 20-27 in Gloucester County. (Ins.-Dis. Newsltr.).

**OBLIQUE-BANDED LEAF ROLLER** (*Choristoneura rosaceana*) - OREGON - Damage light in untreated cherry orchards at Milton-Freewater, Umatilla County, during picking. Damage found at packing plants about 3-5 percent. (Goeden, July 24).

**RED-HUMPED CATERPILLAR** (*Schizura concinna*) - WASHINGTON - Small to medium-sized larvae skeletonizing and defoliating ornamental crab apple near Pullman, Whitman County. (Johansen). Infested apple at Ellensburg, Kittitas County. (Bloom).

**FALL WEBWORM** (*Hyphantria cunea*) - OHIO - Unusually heavy on flowering crab apple in Cuyahoga County. As many as 15 large webs per tree. Defoliation and unsightliness concern to many homeowners. (Roach, July 23).

**APPLE MAGGOT** (*Rhagoletis pomonella*) - NEW YORK - Emergence in cages peaked July 20 at Geneva, Ontario County. (N.Y. Wkly. Rpt.). NEW JERSEY - Three adults on 2 sticky boards July 20-27 in Gloucester County. (Ins.-Dis. Newsltr.). OHIO - Heavy in Lorain County apples. Reduced many apples to pulpy mass. (Miller). CONNECTICUT - Adults on lures totaled 1,934 versus 1,285 last week. Will probably be peak for year. (Savos, July 28). WISCONSIN - Emergence increased July 21-27. Catches of 100+ as follows: Madison, Dane County 114, Evansville, Rock County 124, Eau Claire, Rock County 134 and 147, and Chilton, Calumet County 144. (Wis. Ins. Sur.).

**PEAR-SLUG** (*Caliroa cerasi*) - UTAH - Damaged foliage in young pear orchard at Spanish Fork, Utah County. (Davis).

**APHIDS** - OHIO - *Eriosoma lanigerum* (woolly apple aphid) heavy on hawthorn trees in nursery in Pickaway County; infested terminals of about 500 trees. (Roach). CALIFORNIA - *Dysaphis plantaginea* (rosy apple aphid) 100 per leaf on apple trees at Markleeville, Alpine County. (Cal. Coop. Rpt.).

**SAN JOSE SCALE** (*Quadraspidiotus perniciosus*) - WASHINGTON - First second-generation nymphs July 23 on unsprayed apple tree at Grandview, Yakima County. (Johnson).

**EUROPEAN RED MITE** (*Panonychus ulmi*) - UTAH - Continues to cause more damage in Utah County orchards than two-spotted group combined. (Davis). MARYLAND - Controls needed in few large orchards in Washington and Carroll Counties, mostly for this species. (U. Md., Ent. Dept.). NEW JERSEY - Increased on apple in several Burlington and Gloucester County blocks; leaf bronzing evident. (Ins.-Dis. Newsltr.). MASSACHUSETTS - Counts per 100 apple leaves in Hampshire County: 3,600 on Delicious and 1,810 on McIntosh with no dormant oil or treatment, and 1,345 on Delicious and 805 on McIntosh with dormant oil but no treatment. (Jensen).

**SPIDER MITES** - UTAH - *Tetranychus* sp. and *T. mcdanieli* (McDaniel spider mite) built up in central area orchards; 4 per leaf in Bountiful, Davis County, orchard. *Typhlodromus* spp. (phytoseiid mites) light to date. (Davis). COLORADO - *T. urticae* (two-spotted spider mite) heavy in some Mesa County orchards. Foliage

showing severe stress in many cases. (Sisson). IDAHO - All stages of Tetranychus spp. on apples. Some bronzing on inner leaves of Wealthy, Delicious, Yellow Transparent, Whitney Crab, and Lodi at Arco, Butte County. (Sutherland, York, July 23).

FALL WEBWORM (Hyphantria cunea) - SOUTH CAROLINA - Heavy on untreated pecans at Orangeburg, Orangeburg County. (Nettles, July 22). TEXAS - Many infestations on pecan in south-central area. (Cole). WASHINGTON - Defoliating many tree species, but very common on walnut at Vancouver, Clark County. (Shanks).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Second-generation eggs light (3 percent or less) on pecans in Tulsa County July 24. (Okla. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - OREGON - Adults emerged at The Dalles, Wasco County; Hood River, Hood River County; Portland, Multnomah County; Cottage Grove, Lane County; and Roseburg, Douglas County. Up to 40 flies per trap at Roseburg. (Larson, July 24).

APHIDS - TEXAS - Monellia costalis (black-margined aphid) light on pecans in El Paso and Pecos Counties. Myzocallis caryaefoliae (black pecan aphid) light on pecans in lower El Paso Valley. (Neeb). OKLAHOMA - M. caryaefoliae honeydew heavy on pecans at Ardmore, Carter County. (Okla. Coop. Sur.).

#### SMALL FRUITS

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Caused frequent losses to raspberry in Niagara County. (N.Y. Wkly. Rpt., July 24).

A SPIDER MITE (Tetranychus sp.) - IDAHO - Building up on raspberries at St. Anthony, Fremont County. (Hillman).

#### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - GEORGIA - Severe in scattered locations in much of Piedmont area. (Tippins). TENNESSEE - Damage moderate to heavy across State. Damage very heavy to native cedars in some central areas. (Warren et al.).

A LACE BUG (Stephanitis takeyai) - PENNSYLVANIA - Very abundant on several hundred andromedas in York County. Damage obvious on lower leaves. This is a new county record. (Quakenbush, Simons, July 17).

MELON APHID (Aphis gossypii) - FLORIDA - Nymphs moderate on 25 percent of 100 plants of parrotfeather, Myriophyllum brasiliense, in aquatic nursery at Tampa, Hillsborough County. (Simmons, July 22). This is a new host record. (Fla. Coop. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Very numerous in home gardens, often entering homes, population above normal in many communities statewide. (Knowlton).

#### FOREST AND SHADE TREES

AN ADELGID (Adelges tsugae) - PENNSYLVANIA - One specimen collected on eastern hemlock (Tsuga canadensis) in Montgomery County for a new State record. Collected by R.J. Gouger, October 30, 1969. Determined by L.M. Russell. Collected in Delaware County July 16, 1970, for a new county record. (Gouger).

LARCH SAWFLY (Pristiphora erichsonii) - MINNESOTA - Defoliation extensive again in northern area. Feeding virtually completed but many third to fifth instars in scattered locations. (Minn. Pest Rpt.).

WHITE-PINE WEEVIL (Pissodes strobi) - MINNESOTA - Killed terminals of blue spruce in scattered locations. Killed about half of terminals in blue spruce plantation in Hubbard County. (Minn. Pest Rpt.). NEW JERSEY - Pine damage in Middlesex and Somerset Counties. Adults removed from damaged leaders July 28. Emergence should occur soon. (Ins.-Dis. Newsltr.). RHODE ISLAND - Damaged leaders of pines and spruce statewide. (Field).

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) - MONTANA - Infested apparently healthy yellow pine at Hamilton, Ravalli County. (Pratt).

SPRUCE BUDWORM (Choristoneura fumiferana) - NEW YORK - In several Upstate counties past 2 weeks. Moth flights heavy in some areas. Most eggs hatched. (N.Y. Wkly. Rpt., July 24).

OAK SKELETONIZER (Bucculatrix ainliella) - IOWA - Infesting black and red oaks from Harpers Ferry, Allamakee County, along Mississippi River northward. Infested narrow strip at Harpers Ferry and 6-mile wide area at Minnesota State line. (Iowa Ins. Sur.). WISCONSIN - Damage clearly visible on many hillsides in west-central counties. (Wis. Ins. Sur.).

MIMOSA WEBWORM (Homadaula anisocentra) - PENNSYLVANIA - Aerial survey indicates nearly 100 percent defoliation to honeylocust throughout Greene County. (Jeffery, July 17). MISSISSIPPI - Moderate on mimosa in Lowndes, Oktibbeha, Webster, and Montgomery Counties. (Sartor).

HICKORY TUSSOCK MOTH (Halisidota caryae) - OHIO - Statewide on maple, oak, and crab apple trees. Moth activity heavy earlier in season, and damage expected to be more severe this year. (Roach, Rings).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - MASSACHUSETTS - Larvae heavy on maples in Franklin County. (Jensen).

SADDLED PROMINENT (Heterocampa guttivitta) - NEW HAMPSHIRE - Defoliation extensive on thousands of acres; particularly troublesome in recreational areas in Carroll County. (Conklin, Mason).

FALL WEBWORM (Hyphantria cunea) - WISCONSIN - Webs more noticeable statewide. Hosts include tag alder, pin cherry, dogwood, and alpine currant. (Wis. Ins. Sur.). MINNESOTA - Tents with second and third instars common on alder in northern area; also on apple, Juneberry, and aspen. (Minn. Pest Rpt.).

ELM LEAF BEETLE (Pyrhalta luteola) - UTAH - Severely defoliated some elms in Cache, Emery, and Washington Counties. (Judd, Knowlton). COLORADO - Adults and larvae of second generation appearing in many areas of Arkansas Valley. Controls may be necessary in some cases. (Burchett). NEW MEXICO - Heavy on Siberian elm at Espanola and Santa Cruz, Rio Arriba County, and at Tesuque and Santa Fe, Santa Fe County. (Heninger, July 27). Currently heavy; elm leaves falling at Hillsboro and Williamsburg, Sierra County. (Hare). Heavy around Silver City, Grant County. (Riddle). OKLAHOMA - Damage moderate to heavy on Siberian elms in Beaver, Texas, and Cimarron Counties. Small larvae most common. (Okla. Coop. Sur.).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - ALABAMA - Specimens collected from oaks in Lee, Coosa, and Cherokee Counties. (Barwood et al.). Coosa and Cherokee are new county records. (PPD).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW MEXICO - Heavy on elms in Rio Arriba County. (Heninger, July 27). UTAH - Very numerous, damaging young elms near Salt Lake City, Salt Lake County. (Knowlton). IDAHO - Light on Siberian elm at Arco, Butte County. (Sutherland, York, July 22).



MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 5 cases reported in U.S. July 26 to August 1 as follows: TEXAS - Terrell 4; NEW MEXICO - Grant 1. Total of 39 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 26, Chihuahua 9, Coahuila 2, Nuevo Leon 2. Total of 16 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 57,136,000; New Mexico 4,180,000; Arizona 10,335,000; Mexico 79,481,000. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - CALIFORNIA - Collected in Butte, Napa, and Solano Counties for new county records. Heavy in all known-infested counties. (Cal. Coop. Rpt.). UTAH - Moderately troublesome to horses and cattle in Weber County. (Boyer). WYOMING - Averaged 5 per head in Hereford herd in northern Goshen County. (Burkhardt, Lloyd). WISCONSIN - Not as numerous or bothersome as stable fly in most localities. Bothersome only in parts of Clark County. (Wis. Ins. Sur.). OHIO - Averaged 13 per face in Highland, Pickaway, and Fairfield Counties. Weather cool and breezy. (Roach, July 21). MISSISSIPPI - Averaged 20 per face on 100 head of cattle checked in Monroe County. (Sartor).

HOUSE FLY (Musca domestica) - WISCONSIN - Very heavy statewide. Major nuisance in homes. Moderate to severe in barns depending on control program of individual farm. (Wis. Ins. Sur.).

HORN FLY (Haematobia irritans) - WISCONSIN - Not as numerous or bothersome as stable fly in most localities. Severe on cattle in Chippewa, Clark, and Bayfield Counties and moderate to light elsewhere. (Wis. Ins. Sur.). OKLAHOMA - Ranged 200-400 per head on cattle in Cimarron County; heavy in Ottawa County. (Okla. Coop. Sur.). TEXAS - Increasing in Gonzales County. (Cole). WYOMING - Ranged 4-470 (averaged 107) per head in Goshen and Niobrara Counties. (Burkhardt). UTAH - Moderately numerous on Weber County cattle. (Boyer).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Annoyance to cattle severe in Clark, Calumet, Chippewa, Dane, Fond du Lac, Bayfield, and Columbia Counties. Annoyance moderate in most other counties except Wood County where annoyance light. (Wis. Ins. Sur.).

MOSQUITOES - MINNESOTA - Aedes vexans accounted for 2,606, Coquillettidia perturbans 462, and Culex tarsalis 122 of 3,635 adults in light traps at Minneapolis and St. Paul week ending July 24. A. vexans in 286 of 354 larval collections. C. tarsalis in about 10 percent of samples. A. vexans dominant in evening and daytime bite collections. Other species included C. perturbans, Culex tarsalis, A. fitchii, and A. trivittatus. Rainfall during last 3 weeks spaced such that a brood of A. vexans could be found in some portion of Metropolitan Mosquito Control District during that period. (Minn. Pest Rpt.). WISCONSIN - Activity reduced over most of State. Biting bothersome at dusk in few localities. Biting heavy only in Bayfield County. Annoyance to cattle declining in most areas, but continues severe in Chippewa County. (Wis. Ins. Sur.). UTAH - Serious problem over much of Cache, Box Elder, and Rich Counties, and areas of Uintah, Duchesne, and Utah Counties. (Knowlton, Allred). IDAHO - Adults continue to annoy residents at Fairfield, Camas County. (Hazen, Sutherland).

TABANID FLIES - WISCONSIN - Horse and deer flies numerous and bothersome to livestock and humans locally statewide. (Wis. Ins. Sur.).

BED BUG (Cimex lectularius) - MASSACHUSETTS - Household infestations reported from Norfolk County. (Jensen).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - TEXAS - Collected in Young, Brown, and Bastrop Counties past 2 weeks. (Boring, Green). These are new county records. (PPD).

## HOUSEHOLDS AND STRUCTURES

A DAMPWOOD TERMITE (Zootermopsis nevadensis) - IDAHO - Collected from lumber May 5 at American Falls, Power County. Identified by D.R. Smith. This is a new county record. (Schow, Sutherland). NEVADA - Heavy in home at Reno, Washoe County. Damage generally heavy throughout wood foundation, header boards, sills, joists, and subfloor of kitchen; will need replacement. Several larger timbers almost completely hollowed. Mostly confined to wet wood but some in dry wood; decay and rot prevalent. (Ting).

LEAD-CABLE BORER (Scobicia declivis) - CALIFORNIA - Adults infested residence at Garberville, Humboldt County. Occurred in residences more frequently in past few months than previously. (Cal. Coop. Rpt.).

AN ANOBIID BEETLE (Hadrobregmus sp.) - WASHINGTON - Damaged floor, support posts, and sill of dwelling at Wenatchee, Chelan County. (Rushmore).

A JAPANESE WEEVIL (Calomycterus setarius) - NEW HAMPSHIRE - Migrating into houses by hundreds July 16-17 in Rockingham County. (Conklin).

EUROPEAN EARWIG (Forficula auricularia) - MASSACHUSETTS - Infestations still reported statewide. (Jensen).

## STORED PRODUCTS

ODD BEETLE (Thylocladius contractus) - IOWA - Abundant in house at Vinton, Benton County, July 29 for a new county record. (Iowa Ins. Sur.).

GRAIN MITE (Acarus siro) - MASSACHUSETTS - Heavy in horse feed in Hampshire County. (Harris).

## BENEFICIAL INSECTS

LADY BEETLES - OHIO - Coleomegilla maculata heavy, about 3 per tassel, on corn leaf aphids in several cornfields in Brown County. (Roach, July 21). IOWA - Hyperaspis signata feeding on corn leaf aphids in Appanoose County July 28. Not abundant. (Iowa Ins. Sur.). WYOMING - Adults light, 0-20 per 10 sweeps of alfalfa in eastern area. (Parshall).

A CARABID BEETLE (Calosoma frigidum) - NEW HAMPSHIRE - Adults at least 1 per square yard, feeding on Heterocampa guttivitta (saddled prominent) in Carroll County. Climbing trees in search of larvae as well as feeding on larvae that had dropped to ground. (Mason, Conklin, July 21).

A WEEVIL (Rhinocyllus conicus) - VIRGINIA - Spring-generation adults recovered in Pulaski County. Imported to reduce seed development in musk and curl thistles. (Hendrick).

DAMSEL BUGS (Nabis spp.) - FLORIDA - Nymphs 2 and adults 15 in 100 sweeps of 12-inch alfalfa at Gainesville, Alachua County. (Mead). MASSACHUSETTS - Adults averaged 4 per 100 sweeps in Hampshire County field July 31. (Miller). WYOMING - Adults and nymphs 0-20 (averaged 8) per 10 sweeps in Goshen, Niobrara, and Platte Counties. (Parshall).

A FLOWER BUG (Orius insidiosus) - FLORIDA - Adults 31 in 100 sweeps of 12-inch alfalfa at Gainesville, Alachua County. (Mead).

A BIG-EYED BUG (Geocoris punctipes) - FLORIDA - Nymphs 12 and adults 6 in 100 sweeps of 12-inch alfalfa at Gainesville, Alachua County. (Mead).

A BRACONID (Apanteles miantonomoi) - PENNSYLVANIA - Collected in Albany Township, Berks County, for a new State record. Collected by L. Semmel June 5, 1969. Determined by P.M. Marsh. Collected in Delaware Township, Pike County, summer of 1969 for a new county record. (Gesell).

A BRACONID (Macrocentrus grandii) - NEW HAMPSHIRE - Emerged from European corn borer larvae collected in commercial sweet corn field in Hillsborough County; parasitized 20 percent of larvae. (Conklin).

A EULOPHID WASP (Tetrastichus incertus) - OHIO - First known recovery in State from alfalfa weevil larvae collected July 13 at Wooster, Wayne County. (Flessel).

AN ICHNEUMON WASP (Bathyplectes curculionis) - OHIO - In half of alfalfa weevil larvae collection at Wooster, Wayne County, July 13. (Roach, Flessel).

HONEY BEE (Apis mellifera) - OHIO - Colony buildup going well but little slower than in 1969. Less swarming than usual because of weakened colonies due to severe winter. Large colonies rented for cucumber pollination in northeast area. (Stephens, July 20).

A FLESH FLY (Blaesoxipha kellyi) - WASHINGTON - Presumably this species attacking Melanoplus sanguinipes and Cannula pellucida 2 miles west of Goldendale, Klickitat County. Flies numbered 3-4 per square yard over about 75 acres. (PPD).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Male and female in light trap July 16. First adults this season at Blaine, Whatcom County. (PQ, PPD).

A GRASS BUG (Labops hesperius) - MONTANA - Occurrence on range sporadic in Fergus, Judith Basin, and Wheatland Counties, mostly where crested wheatgrass predominates. Counts up to 25 per sweep. (Pratt).

GRASSHOPPERS - WASHINGTON - Conozoa wallula up to 12 per square yard on 2,500 acres of weedy areas along railroad and highway rights-of-way and adjacent idle lands between Mabton and Satus, Yakima County. Melanoplus sanguinipes, M. bivittatus, and Cannula pellucida ranged 25-50 per square yard on about 2,500 acres of alfalfa and grain in northern Spokane County. Mostly adults, but all stages present. Numerous dead grasshoppers clinging to stems, evidently result of disease. (PPD). NEVADA - M. sanguinipes, M. packardii, and predominantly Schistocerca shoshone heavy and causing heavy damage to flowers, shrubs, small trees, and vegetable gardens at Sun Valley, Washoe County. Many smaller plants completely defoliated. (Nev. Coop. Rpt.). UTAH - Grasshopper nymphs threat in some canning beans and peas in north-central area. (Duncan). Numerous in greasewood area near Abraham, Millard County. (Hall, Roberts). NEW MEXICO - Damaged alfalfa at Espanola, Rio Arriba County. Ranged 49-150 per 25 sweeps. (Heninger). TEXAS - Grasshoppers feeding on grain sorghum in Lee County. (Cole). KANSAS - Mostly M. differentialis caused much leaf damage in corn field and sorghum field in Osborne County. (Gates). MONTANA - Grasshoppers absent in many counties. Mostly Cannula spp. and Melanoplus spp. averaged 10 per square yard in small areas in Camas Prairie area of Sanders County. Spotty counts of up to 10 per square yard on 4,000 acres on Northern Cheyenne Indian Reservation and Custer National Forest in Lame Deer and Ashland area; mostly M. packardii, M. sanguinipes, M. bivittatus, and Amphitornus coloradus. (Pratt). NORTH DAKOTA - Ranged 6-50 per square yard in cropland adjustment fields near Flasher, Morton County. M. bivittatus and M. sanguinipes fourth instar through adults dominant. Up to 20 per square yard on alfalfa. M. femurrubrum third and fourth instars, and M. bivittatus and M. sanguinipes third instar through adults dominant. Up to 18 per square yard in field margins. (Grasser). MINNESOTA - Most M. femurrubrum fourth instar to adult. M. differentialis or M. bivittatus in few fields; all adults. Some movement in Dakota County. M. femurrubrum averaged 15 per square yard in margin rows of corn in one field. (Minn. Pest Rpt.). WISCONSIN - Heavy on some central area alfalfa. Dissosteira carolina, M. differentialis, M. sanguinipes, and M. bivittatus very light in

central counties. Melanoplus femurrubrum comprises 90-100 percent of population in most alfalfa. Adults of M. femurrubrum increasing gradually; most nymphs in late instars. Damage not significant. If dry weather continues through August, damage by maturing grasshoppers could be serious in localized areas. (Wis. Ins. Sur.). MICHIGAN - Grasshoppers heavy in alfalfa July 24; counts reached high of 660 per 100 sweeps in second-growth field in Lenawee County. (Newman).

GYPSY MOTH (Porthetria dispar) - MARYLAND - Males in traps for new county records. Collected at Kennedyville, Kent County, by R. Fox July 17. Determined by E.L. Todd. Collected at Boxiron, Worcester County, by R. Wilson July 27. Determined by D.M. Weisman. PENNSYLVANIA - Adult in trap in Point Township, Northumberland County, for a new county record. Collected by D.R. Mussen July 20. Determined by D.M. Weisman. (PPD). NEW YORK - Adults flying in Nassau County. (N.Y. Wkly. Rpt., July 24).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Heavy flight occurred in Coosa and nearby counties. (Barwood).

JAPANESE BEETLE (Popillia japonica) - INDIANA - Adults light in traps for new county records. All determined by R.D. Gordon. Collected on farm in Washington County by S. Hickman July 9. On farm in Dearborn County, by T. Fogle July 11. In gas refinery at Rising Sun, Ohio County, by T. Fogle July 27. (PPD). OHIO - Floral gardeners in Franklin County extremely concerned with Japanese beetles in their roses and several other flowers. Extensive damage already reported. (Jones, July 22). Infested soybeans in Scioto and Ross Counties, and field corn in Pike and Ross Counties. Damage may increase. (Blair, July 22). Currently light on corn in Athens County and soybeans in Scioto County. (Blair). VIRGINIA - Severe enough to warrant spraying corn silks in Augusta and Rockbridge Counties. (Allen, Hendrick). NEW YORK - Seems to be increasing on roses in Rockland County. (N.Y. Wkly. Rpt., July 24). RHODE ISLAND - Numerous locally statewide. (Field).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Sterile moths released July 24-30: Coachella Valley 3,550,500, total to date 80,111,200; Bakersfield 1,855,000, total to date 19,226,700. Bloom and boll inspections showed heavy increase in infestation in Coachella Valley; 16 problem fields with boll infestation of 3.2-29.1 percent on 860 acres. Boll infestations recorded in 66 percent of fields. No new acreage brought into State control program because size of problem area has become prohibitive. Sterile release program in Coachella Valley terminated August 3 because of widespread, heavy native populations. One of 2 native moths trapped July 17 in Kern County determined sterile. Second native moth caught July 24 doubled size of area receiving intensive surveillance. Additional 200,000 moths now released daily in this new area measuring 2 by 4 miles. Detection survey efforts increased in these Kern County locations. ARIZONA - Sterile moths released at Redington, Pima County, 67,500; total to date 854,000. (PPD). Larvae in 28 percent of 100 bolls on southside of Avra Valley, Pima County. Infestations 0-10 percent at Safford, Graham County. Rosetted blooms with 1-2 percent infestations in northern Pinal County. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSISSIPPI - Cysts on soybeans on farm in Le Flore County for a new county record. Collected by Wood July 8. Determined by V.H. Owens; confirmed by A.M. Golden. (PPD). TENNESSEE - Cysts on Pickett soybeans in 8 western counties as of July 24, 1970. Five new infestations in Henry County and one in Hardeman County. (Tenn. Dept. Agr., PPD).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Infestation extends about one mile northward from confluence of the Shasta and Klamath Rivers. Very light to very heavy on wild grape along Klamath River, on adjacent mountain slopes, and in tributary creek terrain. Completely blasted several mountainside grape patches; dusted as a suppressive measure and for public relations value. (Cal. Coop. Rpt.).

#### HAWAII INSECT REPORT

New State Records - A HUMPBACKED FLY (Megaselia rufipes) taken twice in mosquito light trap catches at Honolulu, Oahu, at Public Health Service Quarantine Station. First specimen taken October 18, 1961, and second on May 2, 1966. Identification confirmed by W.W. Wirth. (Joyce). Several adults of a SCARAB (Trox suberosus) in a blacklight trap at Barbers Point Naval Air Station, Oahu, on January 29, 1970. Determined by R.D. Gordon. Known to occur in all of South America including Galapagos Islands, north into Central America, Mexico, and all United States except extreme northeast parts. Probably in all Greater and Lesser Antilles, Bahamas, and Bermuda. Found in many situations under various kinds of carrion, under cow chips, at malt, on chicken feathers, at lights, and in bone and wool shipments. Larvae reported to prey on grasshopper eggs. (Shiroma).

General Vegetables - Adults and oviposition punctures of LEAF MINER FLIES (Liriomyza spp.) heavy in acre of tomato at Omapio, Maui; mines light. (Miyahira). TOMATO PINWORM (Keiferia lycopersicella) damage moderate to older leaves in 0.5 acre of tomato at Halawa, Oahu; about 10 percent of fruits affected. (Kawamura). Nymphs and adults of a PLATASPID BUG (Coptosoma xanthogramma) heavy in backyard planting of snap beans and jade vine (Strongylodon macrobotrys) at Kona, Hawaii; light to moderate on roadside mauna loa (Canavalia cathartica) vines at Waiahole (average 7 per terminal) and at Waimanalo, Oahu (average 6 per terminal); nil to trace on snap beans at these 2 areas. (Iwane et al.).

Fruits - A BARK BEETLE (Xyleborus semiopacus) damaged about 100 Litchi chinensis trees at Kaupakulua, Maui. Larvae and adults heavy in smaller branches. (Miyahira).

Ornamentals - An ARMORED SCALE (Phenacaspis cockerelli) heavy, averaged 50 scales per leaf, on 50 oleander plants at Kahului, Maui. (Ah Sam).

Forest and Shade Trees - Nymphs and adults of a PSYLLID (Psylla uncatoides) heavily damaged terminals of Acacia koa at Mauna Loa strip, Hawaii (elevation 5,400 feet); this is a new island record. On Oahu, sweeping of Acacia confusa at Nuuanu, averaged 1 adult per 5 sweeps. Previously damaged terminals of Acacia koa at Kawaihae uka (Kohala mountain) in March 1970 but not officially reported. (Davis, Kawamura).

Miscellaneous Insects - Larvae of a CYNIPID WASP (Gillettea taraxaci) heavily galled stems of false-dandelion (Hypochoeris radicata) collected on Mauna Loa trail, Hawaii (elevation 7,000 feet). First report of host infestation on Hawaii. Single adult swept by J.W. Beardsley in June 1966 at Mauna Loa. (Davis).

Addendum - Specimens of a CADDISFLY (Hydroptila sp.) reported as a new State record in CEIR 18(34):826-827 and CEIR 19(1):13 have been determined as H. arctia by B.L. Blickley and D.G. Denning. (Beardsley).



**LIGHT TRAP COLLECTIONS**

| State       | Locality   | Date       | Temp. at trap | Humidity | Wind | Direction | Time of day | Time of year | Time of day | Time of year | Time of day | Time of year | Time of day | Time of year | Time of day | Time of year | Time of day | Time of year | Time of day | Time of year |  |
|-------------|------------|------------|---------------|----------|------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|--|
| TEXAS       | Waco       | 7/24-30    | 75-97         | BL       | 3    | 23        | 110         | 3            | 5           | 1            | 8           | 20           | 2           | 10           | 12          | 8            | 2           | 455          |             |              |  |
|             | VIRGINIA   | Charlotte  |               |          | 9    |           |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
|             |            | Courthouse | 7/21-28       |          |      | 10        |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
|             |            | Holland    | 7/20-28       |          |      | 15        |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
| WISCONSIN   | Petersburg | 7/20-24    |               |          | 15   |           |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
|             | Warsaw     | 7/22-28    |               |          |      |           |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
|             | Hancock    | 7/21-28    |               |          | 11   |           |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
|             | Madison    | 7/23-28    |               |          | BL   | 16        | 74          |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
|             | Nenno      | 7/21-27    |               |          | BL   | 16        |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |
| Platteville | 7/20-27    |            |               | BL       | 6    |           |             |              |             |              |             |              |             |              |             |              |             |              |             |              |  |

**WEATHER BUREAU'S 30-DAY OUTLOOK**

AUGUST 1970

The Weather Bureau's 30-day outlook for August calls for temperatures to average above normal east of the Appalachians and also over the Southwest except for slightly below normal over coastal California. Below normal temperatures are predicted for the Great Lakes region and the northern Plains. Elsewhere in the Nation near normal temperatures are indicated. Precipitation is expected to average near normal over the northeast quarter of the country except for normal rainfall over New England. Slightly above normal precipitation is expected for California, the west gulf coastal region, and the southern Plains. An remaining areas near normal rainfall is indicated.

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







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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PROTECTION DIVISION**

### **ECONOMIC INSECT SURVEY AND DETECTION**

**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.**

**All reports and inquiries pertaining to this release, including the mailing list, should be sent to:**

**Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

ARMYWORM economic and damaging grasses in South Carolina. BEET LEAFHOPPER damage moderate to severe on sugar beets in Antelope Valley of California. CORN EARWORM principal pest of sorghum in northeast Arkansas. (p. 575). GREENBUG building up on sorghum in Nebraska and heavy in panhandle of Oklahoma and parts of New Mexico; beneficial insects building up in Nebraska, controlling greenbug in eastern Kansas. (p. 576).

EUROPEAN CORN BORER second-generation larvae expected to be heavy in Nebraska and Iowa; severe infestations expected on late sweet corn in Wisconsin. Moths increasing in New Jersey, Pennsylvania, and New York (pp. 577-578); larvae expected to be serious in sweet corn, peppers, and beans in Michigan (pp. 577, 583). WESTERN CORN ROOTWORM adults heavy in several areas of Minnesota, and feeding severe on corn silks in Wisconsin (p. 579).

BOLLWORM moth catches heavy in South Carolina, moths and larvae increased in Alabama. (p. 581). BOLL WEEVIL increasing on cotton in High Plains of Texas. (p. 591).

CABBAGE LOOPER troublesome on crucifers in New Jersey and Wisconsin. (p. 584).

FACE FLY major fly problem on beef cattle in Iowa, annoying in some areas of Wisconsin, Maryland, and Vermont. (p. 590).

Detection

New State records include a SCOLYTID from West Virginia (p. 588), a NOCTUID MOTH (p. 589) and a SCARAB (p. 593) from Oregon, and BROWN RECLUSE SPIDER from Colorado. (p. 591).

For new county records see page 593.

Special Reports

State Survey Coordinators. (pp. 596-598).  
Cooperative Survey Entomologists. (pp. 599-600).

Reports in this issue are for the week ending August 7 unless otherwise indicated.

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Volume 8 of "Insects Not Known to Occur in the United States," revised July 1970, is now available on request. The revision includes additional distribution for several species and some scientific name changes.

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WEATHER OF THE WEEK ENDING AUGUST 10

**HIGHLIGHTS:** Central and south Great Plains in the far southwest continued hot. Some relief from heat and humidity occurred in the Northeast. Flood producing thundershowers fell in parts of Iowa, Missouri, North Carolina, and Georgia.

**PRECIPITATION:** Hurricane Celia dumped some heavy rains in the southern portions of Texas and New Mexico early in the week. Moderate to heavy showers also fell in other parts of the country. More scattered in the central and southern Rocky Mountains, but not so scattered from the middle and southern Mississippi River Valley to the middle and southern Atlantic coast. Heavy rains in Iowa, 4 to 7 inches at some spots, caused lowland flooding along some creeks and rivers on Wednesday. The weekend brought scattered moderate to heavy showers from Missouri and Arkansas to the western portions of the Carolinas and southward to the Florida Peninsula. Many streams in North Carolina and in the Savannah area of Georgia overflowed their banks. Precipitation was light over the western half of the Nation with many western areas receiving no rain or only light sprinkles.

**TEMPERATURE:** Typical summer heat continued over much of the Nation last week. Maximum temperatures reached the 60's along the Pacific coast but climbed much higher over the rest of the country. The southwestern deserts and the southern Great Plains warmed to 100° or higher on almost everyday. Havre and Miles City, Montana, registered 100° Wednesday and Goodland, Kansas, recorded 108° Thursday. Kansas, Oklahoma and nearby parts of neighboring States averaged 3° to 9° warmer than normal. The mercury soared to 114° at Thermal, California, Thursday. The Deep South continued hot and humid with maximums in the 90's on most afternoons. Wednesday afternoon readings included 99° at Macon, Georgia, and 96° at Palm Beach and Miami, Florida. Sunny weather with a cooling trend occurred from the northern and central Great Plains to New England. Temperatures from northern Minnesota to Upper Michigan dropped to the 30's and 40's Tuesday morning but bounced up to the 80's by Thursday afternoon. A large area from Iowa to New York averaged 3° to 6° cooler than normal. The week ended with warmer weather returning to the Northeast. (Summary supplied by Environmental Data Service, ESSA.)

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - SOUTH CAROLINA - Economic infestations reported from Aiken to Chesterfield Counties; particularly damaging to Coastal Bermuda and other grasses in pastures and lawns. Large scale control efforts underway. Equipment and chemicals adequate. Problem expected to continue and infestations probably will be appearing to the north. Conditions favorable for development because of rainy weather following extensive dry period. (Nettles). Worst outbreak in 7 years in Columbia area of Richland County. Up to 2,000 acres of lawns and pastures damaged. Over 500 calls received during week ending August 7. (Bailey). NEBRASKA - Occasional larvae in corn ears in Hall County; averaged less than 1 percent in 20 fields. Larvae fourth to fifth stage. (Keith, Berogan).

**BEET LEAFHOPPER (*Circulifer tenellus*)** - CALIFORNIA - Curly top 100 percent in about 2,500 acres of sugar beets in Antelope Valley, Los Angeles County. Damage moderate to severe. Worst year of past 8 years. Cold weather, replanted fields, and early flights favored pest. (Cal. Coop. Rpt.).

**CORN EARWORM (*Heliothis zea*)** - NEW HAMPSHIRE - Third-stage larva found in ear of sweet corn in Hillsborough County August 3. Determined by J.G. Conklin. First collection of season. (Blickle). NEW YORK - No larvae in several hundred untreated ear tips examined in sweet and field corn. One moth taken August 1 at Poughkeepsie, Dutchess County. (N.Y. Wkly. Rpt., Aug. 3). MARYLAND - Well below 1969 heavy levels at this time. Heaviest on 26 percent of 40-acre stand on Eastern Shore near Ruthsburg, Queen Annes County. Very low in ears this season, averaging below 10 percent throughout Eastern Shore area. (U. Md., Ent. Dept.). VIRGINIA - Heavy population damaged 70 acres of corn in Goochland County. (Truett, July 30). Infested 2 percent of ears of field corn in Charlotte County. (Hendrick). Moth catches remain light but unsprayed sweet corn may show much damage. (Allen). FLORIDA - Adults heavy on Bahia grass seed heads at Quincy, Gadsden County. (Greene). Adults abundant in fields at Gainesville, Alachua County. (Mead). Very light on soybeans, 7 larvae per 10 row foot, at Gainesville. (Whitcomb). ALABAMA - Flights heavy throughout northern area. Very heavy increase in larvae throughout northern area on silking corn; infestation 50-100 percent. (McQueen). ARKANSAS - Principal pest of sorghum in northeast area. Ranged 3.7-4.3 per row foot in untreated fields in milk to dough stages in Independence County; planted in 38-inch rows. Averaged 3.2 per row foot in Jackson County field planted in 30-inch rows and sorghum in same stages of development. Larvae 0-0.25 per row foot in mature fields in these counties. Control ineffective in treated field in Independence County; larvae 2.6 per row foot. No larvae found in another field treated with different material. Larvae averaged 0.2 per row foot in treated field in Jackson County. (Boyer, Jones). INDIANA - Late instars in only one field in southern districts. In fewer than 1 of 50 ears of early planted field corn. (Meyer, July 31). WISCONSIN - Few adults in blacklight trap at Arlington. Larvae reported in sweet corn in few southeast area localities. (Wis. Ins. Sur.). NEBRASKA - Averaged less than 1 percent in 20 cornfields in Hall County. (Keith, Berogan). KANSAS - Generally lighter than on silking corn. Averaged one per ear in Osborne County, but none in fields in early silk in Stafford or Grant Counties. (Gates, Aug. 5). UTAH - Light to moderate on corn in Weber (Boyer), San Juan and Grand (Jones), and Cache Counties (Knowlton).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - NEW YORK - Prevalent in most early planted sweet corn. Wingless and winged forms abundant on emerging tassels of sweet corn in Hudson Valley. Honeydew slick with sooty mold on ears as infested tassels rise above ears. (N.Y. Wkly. Rpt., Aug. 3). MARYLAND - Remained light on corn statewide but infestation up to 50 percent in 75-acre field at Howell Point, Kent County. Infested up to 72 percent of 6-acre field near Thurmont, Frederick County. Infestations above 1 percent in 1 of 30 fields statewide. (U. Md., Ent. Dept.). INDIANA - In only few fields of field corn in southern districts; mostly in southeast district. Infested 72-94 percent of plants. (Meyer, July 31). ILLINOIS - Heavy in some corn in east-southeast area and occasional field in other areas; heaviest in pretassel corn. Populations light generally; decreased in many fields as tassels emerged. No widespread outbreak expected. (Sur. Bull.). WISCONSIN -

Corn leaf aphid very heavy in some fields. Up to 100 percent of fields infested in some areas; colonies of 500+ aphids per plant on 80 percent of plants in few fields. Lady beetle adults and larvae and syrphid larvae numerous and preying on aphids in all areas checked from Rock County to Door County. (Wis. Ins. Sur.). NEBRASKA - Most aphids gone from fields examined in Lincoln County. (Campbell). OKLAHOMA - Generally decreasing in panhandle counties. Most fields checked averaged less than 500 per plant. Heavy on Craig County sorghum. (Okla. Coop. Sur.). ARIZONA - Averaged 30 per 2-foot high sorghum boot in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

GREENBUG (*Schizaphis graminum*) - NEBRASKA - Building up, ranged 100-6,000 per plant in 12 fields in Lancaster, Gage, Jefferson, Thayer, Webster, and Franklin Counties. Destroyed 4-acre field of grain sorghum about 10 inches in extended leaf height in Saunders County; averaged 1,000 per leaf on 4 lower leaves in another field. Beneficial insects increasing slowly. Lady beetle adults and larvae averaged 2 per plant in most fields. *Lysiphlebus testaceipes* (a braconid) parasitism less than 1 percent. Greenbug flights so heavy in some areas that plane windshields cannot be kept clear. Spraying increasing, but not extensive due to drought damage to grain sorghum in east, southeast, and central areas. (Keith et al., July 31). Currently declining in grain sorghum. Ranged 25-1,000, averaged about 300 per leaf in 3 fields in Platte, Butler, and Saunders Counties. In Gage and Lancaster Counties, ranged 10-275 (averaged about 50) per leaf in 6 fields. Most decline in east and southeast attributable to hard, driving rain, accompanied by 50-100 mile per hour winds over weekend. Parasites and predators continue to increase. *L. testaceipes* destroyed 5-35 percent or more of remaining aphids in fields examined in east and southeast. Still many fields not out of danger. (Keith et al.). Economic in 1 of 3 fields surveyed in Lincoln County. (Campbell). KANSAS - Most fields in State infested. Average counts per sorghum plant July 25-31 by county: Kearny 570 in one field, 90 in nearby field, Finney 240 in 1 field, beneficial insects extremely scarce in these 3 fields; Meade 250 in field in boot stage, mostly lady beetles or lacewing eggs on 80 percent of plants examined and little doubt field under natural control within few days. Seedlings up to 10-inch plants most critically infested and will be dead by August 12 in many cases if not treated. Beneficial insects appeared to decrease greenbug counts in several cases in eastern area. In many cases, wilting plants on dryland fields not supporting heavy greenbug populations. Irrigated sorghums in west most likely will represent greatest amount of acreage needing treatment next 7 days. (Gates, Aug. 5).

ARKANSAS - Greenbug survey of sorghum negative in Independence County. Found at rate of one colony per 5 blades in Jackson County; this is a new county record. (Boyer, Jones). OKLAHOMA - Continues to increase on sorghum in panhandle counties. Up to 2,500 per plant in some fields. Scattered fields being sprayed. Heavy in scattered fields in Payne and Ottawa Counties. (Okla. Coop. Sur.). NEW MEXICO - Heavy on grain sorghum in Hidalgo County. Controls applied. (Hitson). Heavy on some sorghum and broomcorn in Roosevelt County. (Durkin). ARIZONA - Averaged 25 per 100 sweeps in 4 sorghum fields in Yuma Valley, Yuma County. (Ariz. Coop. Sur.). COLORADO - Up to 20 per plant in sorghum field in southwest Morgan County. Damage very light. (Johnson).

POTATO LEAFHOPPER (*Empoasca fabae*) - MARYLAND - Averaged less than 5 per sweep of alfalfa statewide; averaged 50 per sweep at Trappe, Talbot County. Ranged 20-30 per sweep on 50 acres at Chestertown, 25 acres at Howell Point, and 45 acres at Coleman, Kent County. Heaviest in central counties, 7-25 per sweep in Thurmont, Frederick County. (U. Md., Ent. Dept.). MICHIGAN - Very heavy on red kidney beans in Kent County. (Cress, Aug. 3). Damaging numbers of adults and nymphs in few fields of Clinton County beans. Adults common on alfalfa in Clinton County and on beans in Huron, Ingham, and Tuscola Counties. Could increase to severely damaging numbers very quickly, especially with drier weather. (Ruppel, Aug. 3). WISCONSIN - Averaged 12 per 10 sweeps in alfalfa in Kewaunee County; ranged 4-35 per sweep in central and southern counties. Apparent damage severe in portions of some fields. Spraying of second crop probably would not be economically justified in Sauk County due to large yields of first-crop hay. Populations



variable in beans and potatoes. "Hopperburn" severe on small Dane County potato planting after adjacent alfalfa cut. Few found in Waushara County snap beans, possibly due to treatment. Averaged 5 per linear foot in untreated garden plots of beans and potatoes in Dane County. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OREGON - Averaged less than one per sweep at Hermiston, Umatilla County. (Goeden, July 31). UTAH - Ranged 2-50 per 25 sweeps of alfalfa in Delta area of Millard County. (Wayland, Hurst). KANSAS - Infested field in Meade County. Could be present over wide area in southwestern and western sections. If current weather continues without drastic change this could be severe threat to establishment of new stands of susceptible alfalfa. (Gates, Aug. 5). VIRGINIA - Averaged 200 per 100 sweeps in 36 acres of alfalfa in Halifax County. (Hendrick).

TOMATO HORNWORM (*Manduca quinquemaculata*) - WISCONSIN - Numerous on tomatoes in some truck gardens in Sauk County. Treatments underway; larvae half grown. (Wis. Ins. Sur.). VERMONT - Heavy in early tomato varieties in gardens. (Nielsen, Aug. 4).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - COLORADO - Larvae 4-6 per 100 row feet of corn to date in Kiowa Valley, Weld County. (Johnson). KANSAS - Some light infestations in Saline and Ottawa Counties. Some infestations in Republic County. Early second-generation larvae in northeast area feeding at base of upper leaves and beginning to tunnel into some stalks. Egg masses common in some fields. Moths still heavy, over 500 in Brown County light trap. (Gates, Aug. 5). NEBRASKA - First-generation larvae in Cuming County heavy in most of 20 fields. Infested 47-100 (averaged 77) percent of plants. Adults of summer generation laying eggs. Moths averaged 6 per square yard in weedy and grassy borders of corn at Mead, Saunders County. Egg masses of 10-25 eggs on less than 1 percent of plants in adjacent corn. Adult emergence and egg laying should peak in east area next few days. Substantial infestation of second-generation larvae expected if conditions remain favorable. (Hill, Keith, July 31). First-brood activity currently light in Hall County. Percent infestation ranged 0-34 (averaged 13.7) in 20 fields. None economic. Moth emergence well underway. Emergence continues in east and southeast with little egg laying. (Keith, Berogan). IOWA - Pupation in laboratory 100 percent with 70 percent of these emerged July 30 at Ankeny, Polk County. Adults not occurring in light trap, but many kicked up from fencerows. Second-brood egg masses easy to find. With average rainfall and cooler than average temperature, larval survival will be high. (Iowa Ins. Inf., Aug. 3). MINNESOTA - Second-generation moth flights in southwest, central, and east-central districts. None in blacklight traps. Larvae ranged 25.3-36 per 100 plants in southwest and west-central districts. Moth emergence 16 percent in southwest district and trace in west-central district. (Minn. Pest Rpt.).

WISCONSIN - European corn borer up to 8 egg masses per 100 plants in pretassel corn August 4 at Arlington, Columbia County. Cool weather restricted moth activity. Over half fifth instars and over one-fourth pupae or new moths at Columbus and Beaver Dam area as of August 4. Few third instars in Dane and Door Counties. Pupae as far north and east as Kewaunee County. Pupation heavy in all areas. Severe infestations expected in late sweet corn when warm weather facilitates egg laying. (Wis. Ins. Sur.). MICHIGAN - Near perfect weather of past few weeks encouraged second-brood emergence at Lenawee and Livingston County stations July 22, ten days earlier than in 1969. Indications of heavier than average population this season. Few eggs deposited July 30. Expect explosive larval populations on sweet corn next 10-14 days. (Newman). INDIANA - Egg masses in only 1 cornfield in southern districts, 6 per 25 plants on tassel-in-whorl corn in southwest district. First-generation moth emergence nearly completed. Corn nearly all tasseled and many silks browned. (Meyer, July 31). Adults currently in central districts on grasses and corn. Only one second-generation larva in all fields visited. (Meyer). ILLINOIS - Laying eggs on late corn, will continue for 7-14 days in southern area, 14-21 days in central area, 21-28 days in northern area. Third generation likely in southern and south-central sections in late

August and early September. (Sur. Bull.). ALABAMA - Full-grown European corn borer larvae medium throughout 400-acre field of mature corn in Escambia County. This is a new county record. Old larvae light but scattered in all corn examined in Lauderdale, Colbert, Lawrence, Morgan, Cullman, Winston, Walker, Lamar, Marion, and Fayette Counties. Occurred with *H. zea* (corn earworm), *Spodoptera exigua* (fall armyworm), and *Diatraea grandiosella* (southwestern corn borer). (Martin et al.). VIRGINIA - Moths numerous in light trap at Holland, Nansemond County, and still moderate at Warsaw, Richmond County. Susceptible crops may need protection. (Allen). DELAWARE - Egg masses and young second-generation larvae very abundant on corn and sweet peppers in most areas. Adults still abundant in blacklight traps statewide. (Burbutis et al.). NEW JERSEY - Second-generation moths increased on sweet corn in most areas. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Second-generation moths increased rapidly, 34 in Clinton County light trap night of August 3. No egg masses August 4. (Gesell). NEW YORK - Moth catches remained heavy in blacklight trap at Geneva, Ontario County, through last week of July. Egg laying begun. Treatment should be considered first week of August. First-generation moths increased sharply in field and trap on sweet corn in Hudson Valley. Egg mass hatched August 2 at Poughkeepsie, Dutchess County. (N.Y. Wkly. Rpt.).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Scattered and light infestations of older larvae in whorls of silking corn in Lauderdale, Colbert, Lawrence, Morgan, Cullman, Winston, Walker, Lamar, Marion, and Fayette Counties. Pupation 10-15 percent. New generation expected in northern area next 10-20 days. Larvae 1-3 on 80-90 percent of plants in several fields of pretassel corn of 3-6 acres each in Marion, Fayette, and Walker Counties. Nearly full-grown larvae present. (McQueen). MISSOURI - Larvae 3-20 per 100 plants of late corn in east-central area. All instars observed. (Hanning). ILLINOIS - Damaged late corn, particularly in southern sections. Larvae up to half grown; expected to feed 7-10 days more. Additional generations could cause problems in late-maturing fields. (Sur. Bull.). INDIANA - Early instars minimal to heavy on very late (shooting-tassel stage) corn in Tippecanoe County experimental plots. (Gould). OHIO - Larvae few in 30-acre field of sweet corn at Troy, Miami County, but foliar damage heavy. (Miller). VIRGINIA - Larvae on corn in Greensville County. (Allen, Jennings). Moths increased. Damage should increase next few weeks. (Allen). MARYLAND - Expected to increase in Frederick and Carroll Counties next 2 weeks. Spotty in these counties but as high as 38 percent in 10-acre corn stand near Frederick, Frederick County. Early whorl corn hit heaviest in Carroll and Frederick Counties. (U. Md., Ent. Dept.). DELAWARE - Feeding on whorls of late-planted corn in area of Sussex County. (Burbutis et al.). NEW YORK - Moths increased in trap catches in Hudson Valley. Smaller larvae in up to 5 percent of sweet corn whorls. (N.Y. Wkly. Rpt., Aug. 3).

NOCTUID MOTHS - OHIO - *Agrotis ipsilon* (black cutworm) infested 30-acre field of sweet corn at Troy, Miami County. Second planting of sweet corn for field this summer. Bored into 2-3 percent of stalks. Infested plants wilted and 7 inches tall, half of height of uninfested plants. (Miller). NEBRASKA - *Loxagrotis albicosta* (western bean cutworm) light in 20 fields in Hall County. Ranged 0-3 (averaged 0.8) third to fifth instars per 10 ears. (Keith, Berogan). COLORADO - *L. albicosta* eggs one or more per corn plant on 20-50 percent of plants in Hudson, Weld County. Hatched. Controls used. (Urano).

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - ARIZONA - Young maize in poor shape where not treated or treated too late at Avra Valley and Marana, Pima County. (Ariz. Coop. Sur.). ALABAMA - Light to medium in all corn examined in late silking stage in 9 northwestern counties. Some fully grown inside stalk above ground line. Will probably be overwintering larvae. Second and third instars more plentiful than older larvae; feeding in whorl of late corn. (McQueen).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ARIZONA - Heavily damaged sorghum field planted in July at Yuma, Yuma County. (Ariz. Coop. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - MONTANA - Damage to field corn less than 0.1 percent in Yellowstone County. (Pratt). COLORADO - Adults light on all corn checked in Weld, Morgan, Larimer, and Boulder Counties. Controls used in some heavily infested fields. (Johnson, Urano). NEBRASKA - Adults light in all fields surveyed; damage to silks minimal. Ranged 5-6 per plant in untreated checks in adult control experiment at Rising City, Butler County. (Keith, Lipsey). Ranged 1-7 (averaged about 3) per plant in 20 fields in Hall County. (Keith, Berogan). Adults light in Lincoln County, averaged 1-2 per plant in 5 fields (Campbell). MINNESOTA - Found in southern Otter Tail County, averaged 4-5 per 10 plants in 1 field. This is a new county record. (Minn. Pest Rpt.).

CORN ROOTWORMS (*Diabrotica* spp.) - KANSAS - Some heavy larval damage. Down from high of 100 beetles to average of 13 per plant with range of 11-48 per plant in Geary County field; field had been treated. Control poor in Grant County field and Meade County field and not obtained in some fields at Courtland, Republic County. Larvae still abundant July 29-30 in some of these heavily damaged fields in western area. Highest average in one survey of 4.7 per plant in mid silk in Rush County. Ranged 1.0-2.9 per plant in early silk in Washington and Grant Counties. Heavy in treated Grant County field. Two per plant in late silk in Osborne County and 1.2 per plant in Cloud County. (Gates, Aug. 5). MINNESOTA - *D. longicornis* (northern corn rootworm) adults more numerous than *D. virgifera* (western corn rootworm) except in Rock and Pipestone Counties. Adults averaged per acre by county: Rock 79,849; Hennepin 19,009; Washington 14,928; Sherburne 4,466; Anoka 3,610, Chisago 433. (Minn. Pest Rpt.). WISCONSIN - Adult emergence expected to continue for 2-3 weeks. Late instars ranged 2-4, pupae 3-8, and adults 4-8 per plant in soil beneath lodged sweet corn plants in Dane County field. Up to 10 adults per plant, feeding severe on silks, in some fields. Some spraying to prevent poor pollination in some southern counties. *D. virgifera* more numerous than in past years and more numerous than *D. longicornis* in some fields. (Wis. Ins. Sur.).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - INDIANA - Occasional to one adult per corn plant in some fields in southern districts August 31. Adults currently averaged 2 per plant in most corn visited in central districts; in occasional west-central and central fields; economic in none. Most corn will be too old to damage. (Meyer). ALABAMA - Occasional adult collected from silking corn in Winston, Marion, Lamar, and Fayette Counties. (McQueen).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - ALABAMA - Adults on 3-8 percent of silks in all fields examined in 10 northern counties. (McQueen).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MISSOURI - Adults 1-12 per leaf on corn 36 inches or shorter in east-central area. Light to moderate leaf feeding on lower leaves. (Hanning).

GRASSHOPPERS - ILLINOIS - Continue heavy in some areas; migrating into corn and soybeans. (Sur. Bull.). MARYLAND - Mostly *Melanoplus femurrubrum* (red-legged grasshopper) nymphs active on corn throughout Frederick, Carroll, Howard, Montgomery, and Harford Counties. Most damage restricted to border rows. Heaviest damage at Mt. Airy, Frederick County, where nymphal injury light to moderate to first 5 rows of 10-acre stand. Activity of adults and nymphs expected to increase throughout August. (U. Md., Ent. Dept.).

YELLOW SUGARCANE APHID (*Sipha flava*) - OKLAHOMA - Heavy, 500-1,000 per plant on scattered sorgham fields in Ottawa County. (Okla. Coop. Sur.).

LYGAEID BUGS - NEW MEXICO - *Nysius* sp. heavy on grain sorghum at Roswell, Chaves County. (Chappell). OKLAHOMA - *Blissus leucopterus* (chinch bug) up to 2,000 per 300 row feet in small, experimental plantings of sorghum at Chickasha, Grady County. (Okla. Coop. Sur.).

MITES - NEW MEXICO - Damaged cornfields in Dona Ana County noticeable. (Clayshulta). COLORADO - Tetranychus urticae (two-spotted spider mite) light to very heavy on corn in Weld, Morgan, Boulder, and Larimer Counties. Heavy in many fields; controls used. (Johnson).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MINNESOTA - Counts of 300 per 100 sweeps on late-planted small grain in northwest district. Predators numerous and should keep aphids in check. (Minn. Pest Rpt.).

#### TURF, PASTURES, RANGELAND

SOUTHERN MASKED CHAFER (Cyclocephala immaculata) - WEST VIRGINIA - Adults collected around lights in Wood County June 19. (Tustin). This is a new county record. Collected in blacklight trap in Mason, Pocahontas, Tyler, Monroe, and Nicholas Counties July 29. (Hacker).

A SALTGRASS SCALE (Circulaspis fistulella) - FLORIDA - On salt meadow cordgrass, Spartina patens, at Cedar Key, Levy County, March 19. (Dekle et al.). This is a new county record. (Fla. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - WEST VIRGINIA - Adult and nymphal damage heavy on Ohio County lawns. (Hacker, July 29).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Less numerous than normal in several Box Elder, Salt Lake, and Washington County range areas. (Knowlton).

#### FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - COLORADO - Larvae 0-100 (average 10-20) per 100 sweeps of alfalfa in Weld, Morgan, Boulder, and Larimer Counties. (Johnson). ARIZONA - Larvae averaged 15 per 100 sweeps of alfalfa in Gila and Yuma Valleys, Yuma County. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Damaging to near damaging numbers in some alfalfa fields in Ingham and Clinton Counties. Larvae very few in recently cut alfalfa. (Ruppel, McQueen, Aug. 3). VIRGINIA - Larvae per 100 sweeps in alfalfa averaged 5 in Charlotte County and 15 in Halifax County. (Herrick).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Adults 0-2 per sweep, larvae 1-8 per sweep in 5 forage fields surveyed in Point of Rocks and Buckeystown area of Frederick County. (U. Md., Ent. Dept.).

PEA APHID (Acyrtosiphon pisum) - OREGON - Averaged 4+ per sweep in alfalfa near Talent, Jackson County. (Penrose). IDAHO - Up to 0.75 cup per sweep in alfalfa seed field near Parma, Canyon County. (Waters). UTAH - Light to moderate in alfalfa in Cache County (Knowlton) and Delta area of Millard County (Wayland). COLORADO - Ranged 0-200 per 100 sweeps of alfalfa checked in Weld, Boulder, Larimer, and Morgan Counties. (Johnson). WISCONSIN - Counts ranged 2-3 per sweep in forage legumes in all areas. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - OREGON - Averaged 4.5 adults per sweep in alfalfa near Talent, Jackson County. (Penrose). MONTANA - Infesting most alfalfa seed crops in Rosebud, Powder River, Cargon, and Custer Counties; ranged 5-30 per sweep. Reinfestations after treatment reported. (Pratt). UTAH - Averaged 50 per 10 sweeps in Delta area alfalfa seed fields of Millard County. (Wayland, Hurst). ARIZONA - Averaged 700 per 100 sweeps of alfalfa in Gila and Yuma Valleys, Yuma County. Averaged 20 adults per 100 sweeps on east side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). MASSACHUSETTS - L. lineolaris (tarnished plant bug) adults 112 per 100 sweeps in Hampshire County field. (Miller).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - MASSACHUSETTS - Adults 96 per 100 sweeps in Hampshire County field. (Miller).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Ranged 20-300 per 100 sweeps of alfalfa in Gila and Yuma Valleys, Yuma County. (Ariz. Coop. Sur.).

RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) - MARYLAND - Nymphs, mostly this species, averaged 15 per sweep in 25 acres of alfalfa at Howell Point, Kent County. (U. Md., Ent. Dept.).

#### SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MINNESOTA - Five per row foot in eastern Yellow Medicine and Redwood Counties. Damage on 75-90 percent of leaves but not serious at this time of year. No pod feeding. (Minn. Pest Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Damaging to near damaging numbers in some fields in Ingham and Clinton Counties. (Ruppel, McQueen, Aug. 3).

SPIDER MITES - VIRGINIA - Unspecified species reported heavy and causing significant economic damage in Henrico and Essex Counties. (Allen et al.). IOWA - Tetranychus urticae (two-spotted spider mite) damaged edges of field in Clay County August 3. Conditions extremely dry. (Iowa Ins. Sur.).

#### PEANUTS

NOCTUID MOTHS - ALABAMA - Spodoptera frugiperda (fall armyworm), Heliothis zea (corn earworm), Prodenia ornithogalli (yellow-striped armyworm), and Feltia subterranea (granulate cutworm) larvae medium to heavy on foliage in large field in Coffee County, although controls being applied under good weather conditions. (Speed).

#### COTTON

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Increased rapidly at Florence, Florence County. Percent larval infestation ranged 3-36 in treated plots and 3-9 in control plots. H. zea 4,453 in light trap; 5,893 to date. H. virescens 108 in light trap; 227 to date. (Taft et al., Aug. 5). ALABAMA - H. zea moths and larvae increased considerably throughout south and central areas. Larvae in many fields built up from 1-3 to 5-20 per 100 terminals; control difficult on older larvae in several fields. Heaviest in Macon and Montgomery Counties. Moth flights heavy throughout northern area. No larvae on cotton. (McQueen). MISSISSIPPI - Eggs in 3 of 23 fields checked in delta counties. No larvae in terminals. Injured squares in 19 of 23 fields; averaged 2.73 percent (maximum 10). Larvae in squares in 7 fields. (Pfrimmer et al.). LOUISIANA - Damaged squares ranged 1-16 (averaged 4.5) percent in 97 of 104 treated plots and fields in Madison Parish. Averaged 10.1 in 12 untreated fields. Damaged bolls averaged 4.3 percent in treated fields and 7.5 percent in untreated fields. (Cleveland et al.). Abundant statewide where controls not properly applied. (Tynes, Aug. 3). ARKANSAS - Declined rapidly. Some high counts in more fields than usual. Several high counts in 40-percent damaged square range. Most high counts from lag in square counts following larval peaks. Controls not satisfactory in some fields. We are very fortunate in the number of fields that beneficial insects held. In southeast 1,519 fields of 2,182 fields needed control. In northeast 259 of 2,877 fields needed control. (Barnes et al.).

TEXAS - In Falls and McLennan Counties bollworms damaging only in occasional field. Eggs averaged 2.5 (maximum 8.5) and larvae 1.8 (maximum 6.5) per 100 terminals in 25 treated fields; eggs averaged 0.6 (maximum 3.5) and larvae 0.9 (maximum 5.5) per 100 terminals in 24 untreated fields. Percent injured squares averaged 2.8 (maximum 6) in 24 treated fields, 1.8 (maximum 12.5) in 24 untreated fields. Percent injured bolls averaged 3 (maximum 6.7) in 25 treated

fields, 3 (maximum 17.5) in 24 untreated fields. Of 488 larvae collected on cotton, 47 percent determined *H. virescens*. (Cowan et al.). OKLAHOMA - *H. zea* 2-4 per 100 terminals in dryland cotton in Tillman and Jefferson Counties. Light in Marshall and Bryan Counties. (Okla. Coop. Sur.). NEW MEXICO - Rain showers over much of cotton areas increased *H. zea* activity past week. Some growers treating heavier infestations. (N.M. Coop. Rpt.). ARIZONA - *H. zea* eggs few on young cotyledons on east side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

BEE T ARMYWORM (*Spodoptera exigua*) - ALABAMA - Comprised 25 percent of 18-20 larvae per 100 terminals in large field in Montgomery County. First report of heavy numbers on cotton for season; occurring where heavy late last season. Field under constant control for weevils and bollworms for last 3-4 weeks and predator-parasite population extremely low. (Sanders). SOUTH CAROLINA - Light at Florence, Florence County. (Taft et al., Aug. 5).

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Below normal but increasing at Florence, Florence County. Adults per acre ranged 0-52 in treated plots and 0-3,200 in control plots. Percent larval infestation ranged 7-44 in treated plots and 15-27 in control plots. (Taft et al., Aug. 5). ALABAMA - Remains heavy in south and central areas. Controls somewhat general and successful. Extremely heavy in very few fields. Remains low in northern area although first "hatchout" completed with second occurring in older cotton. Damaged squares above 10 percent in only few fields. Higher counts in northern area continue in Cherokee County. (McQueen). MISSISSIPPI - No weevils or punctured squares found in 23 fields checked in delta counties. (Pfrimmer et al.). LOUISIANA - None in 34 wing traps. Punctured squares ranged 2-39 (averaged 12.9) percent in 104 treated plots and fields in Madison Parish. Averaged 22.3 percent in untreated fields. (Cleveland et al.). ARKANSAS - Normal increase. No problems with control. Will increase rapidly in more heavily infested fields as squaring rates decrease. (Boyer et al.). OKLAHOMA - Punctured squares ranged 19-35 percent in 3 fields of dryland cotton in Jefferson and Tillman Counties. Light in Marshall and Bryan Counties. (Okla. Coop. Sur.). TEXAS - Infestation remains light in Falls and McLennan Counties. Percent punctured squares averaged 2 (maximum 5.5) in 24 treated fields, 12.4 (maximum 24.5) in 24 untreated fields. (Cowan et al.). For Boll Weevil in High Plains area see page 591.

TARNISHED PLANT BUG (*Lygus lineolaris*) - LOUISIANA - Averaged 2 per 100 sweeps in one of 4 fields in Madison Parish. (Cleveland et al., July 30). ARKANSAS - This and other plant bugs still problem in northeast area. (Boyer et al.).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Adults 2 per plant (usually in open blooms) or 50 per 100 sweeps in 8 fields checked on east side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

APHIDS - ALABAMA - *Aphis gossypii* (cotton aphid) generally light statewide. Heavy in large field in Colbert County; control to be applied. (Somerville et al.). NEW MEXICO - *Aphis craccivora* (cowpea aphid) heavy in one field at Dora and Causey, Roosevelt County. Curled leaves, honeydew noticeable. (Mathews, Campbell).

WHITEFLIES - ARKANSAS - Built up in Red River Valley week ending July 31. (Boyer). Currently increasing in southeast area. (Wall). LOUISIANA - Increased along Red River Valley to level where some fields should be treated. (Tynes, Aug. 3).

SPIDER MITES - SOUTH CAROLINA - Generally widespread and increasing at Florence, Florence County. (Taft et al., Aug. 5). LOUISIANA - Infestations should be watched closely in Red River Valley. (Tynes, Aug. 3). ALABAMA - *Tetranychus* spp. and other mites scattered in fields in Colbert, Lawrence, Lauderdale, Fayette, and Jackson Counties. Light to medium in large field in Limestone County; controls applied. (Wagnon et al.).

## SUGAR BEETS

BEEF WEBWORM (Loxostege sticticalis) - MONTANA - Some fields being treated in Big Horn County. (Pratt).

SPINACH LEAF MINER (Pegomya hyoscyami) - UTAH - Moderate, infested 5 percent of leaves near Garland, Box Elder County. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Much less abundant in eastern area than in any year since 1955. (Landis).

## MISCELLANEOUS FIELD CROPS

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - OREGON - Still problem on Jefferson County peppermint. Some infestations persist following treatment. (Rudd, July 31).

## POTATOES, TOMATOES, PEPPERS

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Nearly perfect weather of past few weeks encouraged second-brood emergence at Lenawee and Livingston County stations July 22, ten days earlier than in 1969. Indications of heavier than average population this season. Few eggs deposited July 30. Expect explosive larval populations on peppers next 10-14 days. (Newman).

POTATO TUBERWORM (Phthorimaea operculella) - MICHIGAN - Infestation reported last week in 2-acre potato field in Monroe County now controlled. (Newman, Aug. 3).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Unusually serious on potatoes in Cache County. (Burtenshaw). NEW JERSEY - Some second-generation larval damage in scattered fields of potatoes and tomatoes. (Ins.-Dis. Newsltr.). MAINE - Some adults emerged and feeding on vines. Larvae still generally present in southern Aroostook County and in Penobscot County. (Simpson).

POTATO FLEA BEETLE (Epitrix cucumeris) - MONTANA - Few to none in potato areas. (Pratt).

MARGINED BLISTER BEETLE (Epicauta pestifera) - TENNESSEE - Damage moderate to tomatoes in central and western areas. (Bogard).

POTATO APHIDS - MAINE - Infested 51 percent of untreated potatoes in counts by 3-leaf method at Presque Isle, Aroostook County. Macrosiphum euphorbiae (potato aphid) 6.7 percent parasitized, fungus killed 2.4 percent. Many winged summer dispersal forms. Colony size 1-11. Aphis nasturtii (buckthorn aphid) - some winged summer dispersal forms. Colony size 1-8. Myzus persicae (green peach aphid) - some winged summer dispersal forms; nymphs with wing pads increasing. Colonies 1-5. Only one Acyrtosiphon solani (foxglove aphid) on 350 plants. (Simpson).

GREEN PEACH APHID (Myzus persicae) - PENNSYLVANIA - Increased rapidly on potatoes and peppers statewide past several weeks. Satisfactory control difficult to maintain. (Gesell). WASHINGTON - Much less abundant on potatoes in eastern area than any year since 1955. (Landis).

## BEANS AND PEAS

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Second-brood emergence increased in Lenawee and Livingston Counties to July 22 due to ideal weather; 10 days earlier than in 1969. Indicates heavier than average population this season. Few eggs deposited July 30. Expect explosive larval populations on snap beans next 10-14 days. (Newman).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Damaging to near damaging numbers in some fields of colored beans in Ingham and Clinton Counties. Less damage on white beans. (Ruppel, McQueen, Aug. 3). Blacklight collections increased at all stations, particularly in bean areas. (Newman, Aug. 3).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEBRASKA - Damaged field beans in Scotts Bluff and Box Butte Counties, averaging about 3 adults per plant. Oviposition proceeding rapidly and control activity well underway. (Hagen, Evertson).

ONION MAGGOT (Hylemya antiqua) - MICHIGAN - In roots of red kidney beans in Kent County. Beans planted where alfalfa plowed under earlier in spring. Damage extensive, especially in low areas of field where moisture accumulated. (Cress, Aug. 3).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Becoming very troublesome on crucifers. Moths increased sharply in blacklight trap collections, particularly in Salem and Cumberland Counties. Growers should tighten control schedules. (Ins.-Dis. Newsltr.). WISCONSIN - Adults increased. Larval damage to cabbage increasing in Walworth, Dane, Portage, Winnebago, Wood, and Columbia Counties. (Wis. Ins. Sur.).

DIAMONDBACK MOTH (Plutella xylostella) - NEW YORK - Prevalent on cole crops. Treatment encouraged, particularly on brussels sprouts. (N.Y. Wkly. Rpt., Aug. 3).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - Increasing in western area. (N.Y. Wkly. Rpt., Aug. 3).

STRIPED FLEA BEETLE (Phyllotreta striolata) - NEW YORK - Still a problem. Seriously damaged small plants, particularly directly seeded ones. (N.Y. Wkly. Rpt., Aug. 3).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Third-generation fly emergence began at Geneva, Ontario County, and should peak in 10-14 days. Will probably be final emergence peak for summer. Activity should decline latter part of August. (N.Y. Wkly. Rpt., Aug. 3).

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Winged forms heavy in fields of various crucifers in southern counties. (Ins.-Dis. Newsltr.).

#### GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - NEW JERSEY - Collected on asparagus in Monmouth, Ocean, Cumberland (Centerton), and Gloucester (Swedesboro and Mullica Hill) Counties. Determined by L.M. Russell. These are new county records. (Ins.-Dis. Newsltr.). Specimens collected July 30 in Salem County determined by L.M. Russell for new county record. Now known to occur in 7 counties, including Middlesex and Burlington. (PPD).

ASPARAGUS BEETLE (Crioceris asparagi) - WASHINGTON - New adults, second-generation eggs, and young larvae of this and C. duodecimpunctata (spotted asparagus beetle) prevalent at Pullman, Whitman County. (Johansen).

BEEET WEBWORM (Loxostege sticticalis) - COLORADO - Third-generation adults heavy on beets in Weld, Larimer, Boulder, and Morgan Counties. (Johnson, Urano).



ASIATIC GARDEN BEETLE (Maladera castanea) - PENNSYLVANIA - Developed rapidly over past few years in central area. Some damage to vegetables and flowers. Averaged 20 per night in light trap past week. (Gesell).

ONION THRIPS (Thrips tabaci) - IDAHO - Increased in onion fields where sprays delayed or stopped in Canyon County. (Waters).

#### HAWAII INSECT REPORT

Turf, Pasture - Damage by a GRASS WEBWORM (Herpetogramma licarsisalis) light, spotty in 200 acres of Kikuyu grass at Hana, Maui. Larvae averaged one per square foot in infested spots. Similar activity at Haiku and Kaupakulua, Maui. Adults of Casinarina infesta (an ichneumon wasp) very noticeable in pastures; parasitism 6, 8, and 33 percent respectively, in these areas. H. licarsisalis adults averaged 7 and 4 per sweep, respectively in border mixed stand of grass in golf course and memorial park at Kaneohe, Oahu; larvae trace. Chemical treatment in memorial park intensified since July. Larvae at Kalaheo, Kauai, averaged 15 per square foot in 0.25 acre of Kikuyu grass; Trichogramma sp. (a minute egg parasite) parasitized 88 percent of eggs. (Miyahira et al.).

General Vegetables - BEAN FLY (Melanagromyza phaseoli) larvae and adults heavy, damaged nearly 100 percent of backyard planting of snap and lima beans at Pukalani and Napili, Maui. Following parasites collected on Kauai; From yardlong-beans, Halticoptera patellana (a pteromalid wasp) 28 percent and Opius sp. (a braconid) 32 percent. From cowpeas, Opius sp. 50 percent at Kaumakani, H. patellana 50 percent and Opius sp. 50 percent at Mana, H. patellana 26 percent and Opius sp. 14 percent at Kapaa, M. phaseoli remains trace in most commercial plantings of snap beans throughout Oahu. (Sugawa et al.).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) colonies moderate on 30 percent of fronds on 40 coconut trees in memorial park at Kaneohe. Increasing on 25 coconut trees at Koko Head, Oahu; adults of Telsimia nitida (a lady beetle) trace. A. destructor remains generally light in 21 stools of banana plants, moderate to heavy on some older leaves, at Pearl City, Oahu. Many nymphs and adults of Lindorus lophanthae (a lady beetle) preying on colonies of scales. (Kawamura).

Ornamentals - ORCHID WEEVIL (Orchidophilus aterrimus) adults heavy in about 5 percent of total planting of 100,000 Vanda plants at Wailuku, Maui. (Ah Sam, Miyahira).

Forest and Shade Trees - GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) adults heavy on needles of Monterey pine in central Molokai Forest Reserve, Molokai; damage severe to terminal needle clusters of top and lower branches. (Davis).

Man and Animals - MOSQUITOES - Aedes vexans nocturnus 37 and Culex pipiens quinquefasciatus 1,646 in 56 light traps on Oahu during June. Aedes catches up to high of 8 and Culex up to high of 463 at Waipahu. (Mosq. Cont. Br., Dept. of Health).

Beneficial Insects - A PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) affected 53 percent of 115 internodes of Tribulus terrestris at Puunene and 10 percent of 57 internodes of T. cistoides at Kihei, Maui. (Miyahira).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - UTAH - Moderate to damaging in Grant and San Juan County apple orchards. (Jones). WASHINGTON - Second-brood adults peaked week ending July 21 on apple and pear in Yakima Valley, up to 57 males per sex lure trap. (Johnson). First second-brood entries July 27 in scattered orchards near Tieton, Yakima County. (Johnson, Allan). MAINE - Injured average of 25-30 percent of apples in unsprayed block at Monmouth, Kennebec County. (Forsythe).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - Third-brood adults peaked week ending July 21 in synthetic sex pheromone and bait traps in lower Yakima Valley. (Johnson).

FALL WEBWORM (Hyphantria cunea) - OREGON - Tents in walnut and apple trees peaked at Eugene, Lane County. Number per tree ranged 1-12. (Tinker, July 31). WEST VIRGINIA - Webbing heavy in Ohio County on wild cherry July 29. On 10 percent of wild cherry in Hancock County July 28. (Tustin, Hacker). DELAWARE - Infested many wild and unsprayed apple trees. (Boys, Aug. 5).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Boring into peaches past 4-5 weeks. Infested peach samples from Eau Claire, Berrien County, July 27. Fully grown larva and moths from 4 pupae determined this species. (Newman).

A SAP BEETLE (Glischrochilus quadrisignatus) - OHIO - Infested ripe peaches in Knox County. (Miller, Roach).

APPLE LEAFHOPPER (Empoasca maligna) - WASHINGTON - First second-generation nymphs on prune; 98 percent of first generation in adult stage at Parker Heights, Yakima County, July 30. (Johnson).

APPLE APHID (Aphis pomi) - MAINE - Still persisting at high levels on some apple trees at Monmouth, Kennebec County. (Forsythe).

A CICADA (Diceroprocta apache) - ARIZONA - Oviposition extensively damaged tips on apricot, peach, and plum trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

APPLE MAGGOT (Rhagoletis pomonella) - MINNESOTA - Adults reported again from Rochester, Olmsted County, after absence of 3 weeks. Also reported from North St. Paul, Saint Paul County. (Minn. Pest Rpt.). MAINE - Adult emergence from cages at Monmouth, Kennebec County, decreased from 116 on July 30-31 compared with 42 August 3-4. (Forsythe).

SPIDER MITES - NEW MEXICO - Light to heavy on apples at Farmington and vicinity of San Juan County. Heavy in untreated orchards. (Heninger). UTAH - Tetranychus spp. buildup conspicuous in some central and northern area apple and pear orchards, after low spring occurrence. (Knowlton). NEW YORK - Tetranychus sp. and Panonychus ulmi (European red mite) heavy in many orchards in Ulster, Dutchess, and Orange Counties. Bronzed foliage in Columbia County. Controls applied in Columbia and Niagara Counties. (N.Y. Wkly. Rpt., Aug. 3). MASSACHUSETTS - P. ulmi per 50 apple leaves in Hampshire County: 1,585 on Delicious and 295 on McIntosh with no dormant oil or treatment; 1,240 on Delicious and 496 on McIntosh with dormant oil but no treatment. (Jensen). MAINE - P. ulmi still on increase in some blocks of apples at Monmouth, Kennebec County; averaged 37.5-54.1 per leaf July 31 to August 4. (Forsythe).

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Still heavy on pecans in Marshall and Pontotoc Counties. (Okla. Coop. Sur.).

FILBERTWORM (Melissopus latiferreanus) - OREGON - Past second high peak of season at Eugene, Lane County. Catch of 98 moths July 24-26 in blacklight trap in untreated orchard. (Tinker).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Second-generation larval damage moderate to scattered pecan trees checked in Payne County. (Okla. Coop. Sur.). NEW MEXICO - Light on pecan trees at Carlsbad, Eddy County. (Mathews).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Adults averaged 2 per tree on pecans checked in Payne County. (Okla. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - OREGON - Built up July 22-23 at Roseburg, Douglas County. Unusually heavy, about 200 flies in trap at Riddle since July 26. Some sprays will begin August 1. Eight trapped August 4, ten miles east of Sutherlin, Douglas County; emergence 2 weeks later than at Riddle, Glide, Winston, and Garden Valley. (Passon).

APHIDS - NEW MEXICO - Myzocallis caryaefoliae (black pecan aphid) and Monellia costalis (black-margined aphid) heavy on pecans at Carlsbad, Eddy County. (Marek). OKLAHOMA - M. costalis commonly 0-10, occasionally up to 50, per leaflet on Payne County pecans. (Okla. Coop. Sur.).

A SPIDER MITE (Tetranychus sp.) - CALIFORNIA - All stages heavy on almonds at Turlock, Stanislaus County. (Cal. Coop. Rpt.).

#### CITRUS

Citrus Insect Situation in Florida - End of July - CITRUS RUST MITE (Phyllocop-truta oleivora) infested 88 (norm 63) percent of groves; economic in 67 (norm 44) percent. Population above normal, in high range, and at summer peak. Decrease expected but will continue to be high through August. All districts high. CITRUS RED MITE (Panonychus citri) in 69 (norm 63) percent of groves; economic in 42 (norm 36) percent. In high range and slightly above normal. Decrease began at mid-July and will continue until population reaches low level in September. Only scattered infestations will be important. Highest districts west and south. TEXAS CITRUS MITE (Eutetranychus banksi) in 64 (norm 69) percent of groves; economic in 38 (norm 43) percent. Continued below summer normal and did not attain high level. Will decrease through August and be unimportant through September. GLOVER SCALE (Lepidosaphes gloverii) in 86 (norm 76) percent of groves; economic in 17 (norm 26) percent. Near normal and in high range but will decrease to unimportant level by September. Highest district south. PURPLE SCALE (L. beckii) in 81 (norm 68) percent of groves; economic in 8 (norm 6) percent. Above normal but has held to moderate level. Very few infestations will be important. Highest district north. CHAFF SCALE (Parlatoria pergandii) will continue at low level in all districts. BLACK SCALE (Saissetia oleae) in 83 (norm 81) percent of groves; economic in 59 (norm 63) percent. Attained seasonal peak in July below normal level. Will gradually decrease through September and be of little concern in 1970. YELLOW SCALE (Aonidiella citrina) in 65 (norm 63) percent of groves; economic in 19 (norm 8) percent. Highest for July in 18 years of record but remained at low to moderate level except in north district. Decrease expected. An ARMORED SCALE (Unaspis citri) more abundant in July than in any prior month. Moderate or heavy in 15 percent of groves. Increase expected. WHITEFLIES in 76 (norm 54) percent of groves; economic in 39 (norm 22) percent. All stages highest for any month in 18 years of record. Decrease expected. All districts high. MEALYBUGS in 72 (norm 66) percent of groves; economic in 30 (norm 20) percent. Above normal and in high range. Decrease that began at mid-July will drop population into low range in August. Highest districts south, west, and east. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Adults moderate on 5 percent of 10,702 grapefruit trees and severe on 300 temple orange plants in nursery at Clermont, Lake County, July 28. Adults currently moderate on 7 percent of 8,000 nursery sweet orange trees and on 30 percent of 900 nursery grapefruit trees at Clermont. Adults moderate on 75 percent of 218 sweet orange plants in another nursery at Clermont. (DeWolf). Moderate on 90 percent of 1,600 citrus nursery plants at Plymouth, Orange County. (Speaker).

#### SMALL FRUITS

A SCOLYTID (Phloeotribus frontalis) - WEST VIRGINIA - Infested red mulberry in Grant County July 1, 1970. Determined by A.E. Cole. This is a new State record. (Hacker).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Adult emergence in timing cages began August 1-2. (Earl).

BLUEBERRY MAGGOT (Rhagoletis mendax) - MAINE - Adult emergence at Jonesboro, Washington County, essentially completed; only 14 collected July 22-27. (Forsythe).

A LARGID BUG (Largus cinctus californicus) - CALIFORNIA - Damage heavy to strawberry plants at Lakeport, Lake County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Phyllocoptes wisconsinensis) - OHIO - Infested 90-acre commercial elderberry planting in Columbiana County and 30-acre planting in Jefferson County. Severely distorted leaves and killed terminal tips. (Srill, Buriff).

#### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - TENNESSEE - Continues to cause damage across State. Several larvae fully grown. (Kenner). OHIO - Fully grown and tied cases on sweetgum in Franklin County. No pupation yet. (Davidson). MARYLAND - Larval activity heavy statewide. Heavily damaged isolated roadside trees along Baltimore-Washington Parkway in Prince Georges County. Defoliated 30-40 percent of roadside stand of 22 sycamores 50-60 feet tall near Churchville, Harford County. (U. Md., Ent. Dept.).

SPIDER MITES - NEW MEXICO - Heavy on evergreens, snowball bushes, roses, ivies, violets, greenhouse plants and African Bermuda grass. Discolored and webbed all plants. Most troublesome year in 1 nursery at Farmington, San Juan County. (Heningner).

HOLLYHOCK WEEVIL (Apion longirostre) - WYOMING - Adults collected on hollyhock at Wheatland, Platte County, August 4 and Lingle, Goshen County, August 5 for new county records. (Parshall).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TENNESSEE - Not expected to be threat in eastern area following subzero temperatures in January 1970. No activity this season. In 1969, destroyed about one acre of 16-year-old shortleaf pine plantation on Catoosa Wildlife Management Area in Morgan County. First report of pest on Cumberland Plateau. Previously known in State only east of plateau. (Tenn. For. Pest Monitor, July). Morgan is new county record. (PPD).

CONIFER SAWFLIES (Neodiprion spp.) - TENNESSEE - Defoliation by N. taedae linearis more widespread than in 1969. Area found this spring east of Chattanooga north to Athens in addition to areas delineated in west and central parts of State in 1969. Defoliation by N. pratti pratti more widespread than last year; severe throughout most areas affected. Damage heaviest from Cookeville north to State line; scattered larval colonies found in Knox, Union, White, and Van Buren Counties.

Scattered defoliation by Neodiprion lecontei (red-headed pine sawfly) in many areas; may preclude much heavier than normal late-season populations. (Tenn. For. Pest Monitor, July). VIRGINIA - N. lecontei damage severe to few pines in Botetourt and Fairfax Counties. (Allen).

A PINE APHID (Eulachnus agilis) - OHIO - Entered second seasonal peak. Scotch pine Christmas tree plantings will be hardest hit. Treatment should be considered early this month, especially if no controls applied prior to first peak earlier this summer. (Balderston).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - WEST VIRGINIA - Galls heavy on blue spruce and Douglas-fir in Marshall County July 29. (Cole).

A NOCTUID MOTH (Xylomyges dolosa) - OREGON - Single adult in cabbage looper sex attractant trap near Carver, Clackamas County. Collected by C.E. Deonier week of May 22, 1970. Host plant is quaking aspen (Populus tremuloides). Identified by W. Bauer. (Every). This is a new State record. (Penrose).

MIMOSA WEBWORM (Homadula anisocentra) - OKLAHOMA - Heavy on mimosa in Latimer County. Moderate to heavy in Tulsa County. Generally moderate in Payne County. (Okla. Coop. Sur.). ALABAMA - Larvae built up to extreme numbers on 25-40 percent of mimosa trees on lawns, city streets, and highway plantings from central area extending to Tennessee State line. Seemed heavier than last season. (Landers et al.). WEST VIRGINIA - Damage heavy, 80-90 percent webbing, on honeylocust and mimosa in Kanawha, Ohio, and Monongalia Counties July 27. Larvae currently damaged 90-100 percent of honeylocust foliage in Putnam and Mason Counties. (Hacker).

FALL WEBWORM (Hyphantria cunea) - WEST VIRGINIA - Webbing heavy on Ohio County elm July 29. (Tustin, Hacker). OREGON - Tents moderate on various trees, especially cottonwood and ash, along Interstate Highway 80 in eastern Multnomah and western Hood River Counties August 3. (Westcott, Penrose). Tents fewer than in past 3 years at Salem, Marion County. Larvae in second stage. (Westcott).

SADDLED PROMINENT (Heterocampa guttivitta) - VERMONT - Scattered throughout State. Heavy in southern half. (Nielsen, Aug. 4).

ELM LEAF BEETLE (Pyrrhalta luteola) - UTAH - Damage widespread in State this season. (Knowlton). NEBRASKA - Heavy, nearly stripped leaves from Chinese and American elms at Franklin, Franklin County. All stages present. (Keith et al., July 31). IOWA - Fed on Siberian elms in Taylor County August 3. This is a new county record. (Iowa Ins. Sur.). MAINE - Most larvae finished feeding on elm. Seeking pupation quarters and some adults appeared at Orono, Penobscot County. Many entering houses to pupate. (Simpson).

LOCUST LEAF MINER (Xenochalepus dorsalis) - WEST VIRGINIA - Damage browned 80-90 percent of black locust foliage in Kanawha County. Damaged 10-20 percent of foliage in Raleigh and Summers County. (Hacker).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Adults heavy on acacia trees at Concord, Contra Costa County. (Cal. Coop. Rpt.).

A SAWFLY (Macremphytus tarsatus) - NEW HAMPSHIRE - Defoliated smooth bark dogwood in Strafford County. Larvae nearly full grown. (Conklin).

TERMITES - NEVADA - Following heavy rains at Las Vegas, Clark County, on August 5, heavy swarms of Gnathamitermes perplexus (a desert termite) and Paraneotermes simplicicornis (a damp-wood termite) throughout city and adjacent areas. (Nev. Coop. Rpt.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Two cases reported in U.S. August 2-8 as follows: TEXAS - Brewster; NEW MEXICO - Luna. Total of 24 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 20, Chihuahua 4. Total of 22 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 66,738,000; New Mexico 6,950,000; Arizona 10,910,000; Mexico 81,010,000. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - NEVADA - Light on beef cattle at Lamoille, Elko County. Determined by R.C. Bechtel. (Nichols). This is a new county record. (Bechtel). NEBRASKA - Remained nearly stable in east. Ranged 11-16 (averaged about 13) per face on 2 herds near Lincoln, Lancaster County. (Jones, Hermanussen). Ranged 10-25 per head on 3 valley herds in Lincoln County. Ranged 3-4 per head in 1 sandhills herd. (Campbell). IOWA - Still major fly problem of pastured beef cattle. Eye diseases spreading in many herds. (Iowa Ins. Inf., Aug. 3). WISCONSIN - Severely annoying cattle in Clark County; moderate in most counties. (Wis. Ins. Sur.). MARYLAND - As high as 50-75 per head of unsprayed cattle in Buckeystown and Frederick, Frederick County. Ranged 6-20 per head of sprayed cattle. (U. Md., Ent. Dept.). VERMONT - Extremely annoying during 90° F. weather. (Nielsen, Aug. 4).

HORN FLY (Haematobia irritans) - WYOMING - Averaged 80 per head in Platte County herd. (Parshall). NEBRASKA - Ranged 400-500 per head on 3 valley herds and up to 600 per head on herd in sandhills of Lincoln County. (Campbell). OKLAHOMA - Averaged 800 per head of cattle in Noble County. Heavy in Mayes and Craig Counties. (Okla. Coop. Sur.). WISCONSIN - Annoyance to cattle moderate in most counties, severe in Clark County. (Wis. Ins. Sur.). OHIO - Numerous on dairy and beef cattle in southwestern area. About 100-150 flies per head. Weather warm and cloudy with little breeze. (Roach). VERMONT - Declined on most farms. (Nielsen, Aug. 4).

HOUSE FLY (Musca domestica) - WISCONSIN - Numerous in and around cattle barns in all areas; spraying underway. (Wis. Ins. Sur.). VERMONT - Numerous in many areas. (Nielsen, Aug. 4).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Heavy, but annoyance to cattle reduced due to cooler weather; expected to increase if weather warms. (Wis. Ins. Sur.). MARYLAND - Increased over last week. Heaviest levels on cattle encountered in Frederick County with up to 25-50 per unsprayed head at Frederick, Mount Airy, and Woodsboro. Sprays reduced levels to average of 5 per head. (U. Md., Ent. Dept.). VERMONT - Numerous in many areas. (Nielsen, Aug. 4).

MOSQUITOES - NEVADA - Aedes nigromaculis adults medium to heavy in several areas of Carson Valley, Douglas County. (Bechtel, Martinelli). MINNESOTA - Aedes vexans accounted for 83 percent, Culiseta minnesotae 4.8 percent, Coquillettidia perturbans 4.6 percent, and Culex tarsalis 2.6 percent of light trap catch at Minneapolis and St. Paul week ending July 31. A. vexans in 62 percent, A. cinereus 4.7 percent, A. dorsalis 3.6 percent, and Culex tarsalis 12.9 percent of larval collections. Five species of Culex common in permanent water sites. A. vexans accounted for 190, A. excrucians 8, and Culex tarsalis 1 of 207 mosquitoes in 26 evening bite collections. A. vexans 596, A. trivittatus 43, A. triseriatus 26, Coquillettidia perturbans 17 of 777 mosquitoes in 75 daytime collections. Last of A. vexans brood completed development August 5. Modest increase expected in trap collections week beginning August 10. (Minn. Pest Rpt.). WISCONSIN - Light in most areas. Increased in Waushara County; localized problems at dusk in Douglas, Iron, Vilas, Sauk, Fond du Lac, Calumet, Wood, Portage, and Walworth Counties. (Wis. Ins. Sur.). OHIO - Anopheles punctipennis 13, Aedes triseriatus 1, A. trivittatus 2, A. vexans 40, Culex restuans 3, and C. pipiens 8 in 4 light traps in Franklin County July 27, 28, and 30. (Ohio Dept. of Health).

TABANID FLIES - VERMONT - Deer flies and Tabanus atratus (black horse fly), T. quinquevittatus, and T. similis very annoying to livestock. (Nielsen, Aug. 4). WISCONSIN - Deer Flies very heavy near water in some areas; annoyance to man severe on warmer days. (Wis. Ins. Sur.).

TICK SURVEILLANCE - Survey throughout the U.S. is to show seasonal distribution of potential vectors and hosts of livestock diseases, and to detect exotic species. These are some of the more interesting determinations for July. Amblyomma americanum (lone star tick) ALABAMA - cows; LOUISIANA - cows; TEXAS - cattle. A. maculatum (Gulf Coast tick) ALABAMA - cattle; LOUISIANA - cattle; TEXAS - cows. Anocentor nitens (tropical horse tick) TEXAS - horse. Boophilus annulatus (cattle tick) TEXAS - cows. Dermacentor occidentalis (Pacific Coast tick) CALIFORNIA - cow. D. variabilis (American dog tick) ALABAMA - cattle, dog; CALIFORNIA - cow; NEBRASKA - dog; TEXAS - cow. Rhipicephalus sanguineus (brown dog tick) ALABAMA - cattle, dog. (Anim. Health Div.).

LONE STAR TICK (Amblyomma americanum) - ARKANSAS - Many heavy infestations in yards in Little Rock area, Pulaski County. Recommended controls ineffective. (Barnes).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - COLORADO - Bit woman at Rocky Ford, Otero County. Identified by H.W. Levi. This is a new State record. (Fronk).

#### BENEFICIAL INSECTS

LADY BEETLES - DELAWARE - Hippodamia convergens (convergent lady beetle) adults and larvae very abundant on sweet pepper plants infested with Myzus persicae (green peach aphid) in Sussex County. (Burbutis et al.). NEW JERSEY - Lady beetles controlled heavy infestations of green peach aphid in sweetpotato field in Lumberton County. (Ins.-Dis. Newsltr.). NEW HAMPSHIRE - H. convergens larvae very numerous, feeding on potato aphids in Merrimack County August 5. (Fenton, Conklin). MAINE - Coccinella transversoguttata (transverse lady beetle) more abundant than Hippodamia tredecimpunctata on potatoes. (Gall). WASHINGTON - Stethorus picipes feeding July 23 on mites and mite eggs on pear at Cowich, Yakima County. (Gregorich).

A CARABID BEETLE (Calosoma scrutator) - MICHIGAN - On July 31, preyed on late instars of Heterocampa guttivitta (saddled prominent) infesting roadside beech, birch, and maple along State Highway 22 near Benzie and Manistee County line. Countless specimens crushed by traffic littered sides of road. (Hanna).

A BRACONID (Apanteles electrae) - OREGON - Many adults emerged in laboratory week of July 24 from larvae of Coloradia pandora (pandora moth) collected July 16 near China Hat, Deschutes National Forest, Deschutes County. Most abundant and effective insect parasite in area surveyed. Identified by C.F.W. Muesebeck. (Penrose).

A PHYTOSEIID MITE (Zetzellia mali) - WASHINGTON - Adults and immature forms seen preying on Panonychus ulmi (European red mite) eggs and nymphs for first time on pear July 29 in Yakima County. (Johnson, Gregorich).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Continued to increase in High Plains area. Heaviest in Kent and Dickens Counties; punctured 30 percent of squares in few fields. Federal survey teams detected about 20 infested fields above Caprock. Infested 4 fields in Dawson County, 1 in Lynn County, and 1 in Gaines County. (Rummel, Clymer, Aug. 3). For Boll Weevil in other areas see page 582.

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Eggs through second instars, mostly first instars, week of July 20. Expected to be serious in Monroe County this season. (N.Y. Wkly. Rpt.).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Larvae, pupae, and adults plentiful at Blaine, Whatcom County. About 13 larvae per square foot feeding in lawns; up to 20-25 males and females in flight at one time. (Jackson, Holland).

GRASSHOPPERS - NEVADA - Camnula pellucida, Melanoplus bivittatus, and M. sanguinipes 10-25 per square yard on 160 acres of grass seed in Reese River Valley, Lander County; treatments applied. M. sanguinipes and M. bivittatus 5-15 per square yard on 300-400 acres of alfalfa seed in same area; treatments applied. (Hilbig). ARIZONA - Melanoplus sp. averaged 20 per 100 sweeps in alfalfa field at Yuma Valley, Yuma County. (Ariz. Coop. Sur.). UTAH - Light to moderate in western Millard County alfalfa. (Wayland). NEBRASKA - Ranged 5-15 per square yard week of July 31 in roadside ditches and waste areas, and borders of corn, sorghum, and soybeans in Cuming, Saunders, Lancaster, Gage, Jefferson, Thayer, Webster, and Franklin Counties. M. differentialis, M. bivittatus, and M. femurrubrum most abundant July 31. Currently heavy in field margins, roadside ditches, and waste areas in east, southeast, and parts of central districts. Ranged 6-20 per square yard in most areas. Recent rains slowed movement into adjacent corn and sorghum, but damage visible in many fields, particularly in east and southeast. (Keith, Berogan). NORTH DAKOTA - Adults 12-20 per square yard on alfalfa and sweetclover wildlife habitat plantings in northeast Grant and southern Emmons Counties; stripped 50-100 percent of leaves. M. bivittatus, M. packardii, and M. differentialis dominant. Noneconomic in other areas except for light infestations in southern Burleigh and northwest Emmons Counties; counts per square yard up to 7 within fields, 15 in margins; M. sanguinipes dominant in area. Adults 6-30 per square yard in margins in southeast Cass County; M. bivittatus dominant. Adults 5-30 per square yard in northeast Ransom County; M. sanguinipes, M. bivittatus, and M. femurrubrum dominant. Infested areas not so large as in 1969 but more heavily infested. (Brandvik, Grasser). IOWA - M. differentialis 10 per square yard in margins of soybean fields near Modale, Harrison County, and 12 per square yard in field margins in Cherokee County week of July 27. (Iowa Ins. Sur.). WISCONSIN - Weather slowed development; 10 percent of M. femurrubrum fully grown with third and fourth instars still common; few second instars in southernmost counties. Some spraying in Dunn County where population heavy in margin of alfalfa field. Damage heavy in 8-acre clover field in Rusk County. (Wis. Ins. Sur.).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Still laying eggs in Orange County. Expect heavy population in 1971 due to excessive numbers of egg masses. (N.Y. Wkly. Rpt., Aug. 3). VERMONT - Laying eggs at Burlington, Chittenden County. (Nielsen). VIRGINIA - Adult in trap on maple tree at residence at Daugherty, Accomack County, for a new county record. Collected by J.A. Chapman July 29. Determined by E.L. Todd. (PPD).

JAPANESE BEETLE (Popillia japonica) - TENNESSEE - Damaged field and sweet corn in Sullivan and Johnson Counties. Damaged maples and tobacco in Johnson and Sullivan Counties. Extension of known infestation in southeast Roane County. (PPD). INDIANA - Adults heavy on soybeans and corn in Newton, Starke, and Benton Counties and on corn in La Porte County. (Gould). OHIO - Much heavier in 1970 than in 1969 in nurseries in Stark, Summit, Mahoning, and Columbiana Counties. Many nurseries considering spraying for adults in addition to regular soil treatment. Adults in 1 nursery had defoliated or were defoliating 100 birch trees, 10 pussy willows, 2 grape, 100 plum, 100 cherry, 200 tallhedge, and 100 linden. Lighter feeding on about 1,000 oaks. Heavier numbers may be due to good soil moisture in summer or lack of summer dry spell. (Kelly). WEST VIRGINIA - Adult damage heavy on ornamentals and flowers in Kanawha, Fayette, Cabell, Marshall, Ohio, and Brooke Counties. (Hacker, July 29). Adult damage heavy, about 25-30 percent, on soybean foliage. Adults averaged 2 per soybean plant in Putnam County. Adult damage to sassafras, maple, and other ornamentals ranged 60-70 percent in Kanawha County, 50 percent in Putnam and Mason Counties, and 70-80 percent in Summers County. (Hacker). PENNSYLVANIA - Adults in Centre County declining after reaching highest population level of past 10 years. (Gesell).



NEW YORK - Japanese beetles on grapevines and appearing on roses in Orange County. (N.Y. Wkly. Rpt., Aug. 3). NEW HAMPSHIRE - Some turf damage, but mainly adults on very young plantings and ornamentals August 5 in southern area. (Mason, Neiring). VERMONT - Adults defoliated ornamentals at Burlington, Chittenden County. (Nielsen, Aug. 4).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Seven adults trapped past 2 weeks in San Diego area, San Diego County. Trapping increased and fruit cutting started. (PPD).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Sterile moths released July 31 to August 6: Coachella (terminated August 3) 1,738,500, total 81,849,700; Bakersfield 2,690,000, total to date 21,916,700. ARIZONA - Sterile moths released at Redington, Pima County, 67,500, total to date 922,300. (PPD). Percent of bolls infested: Safford, Graham County, 0-16, Yuma, Yuma County, 5-80, Salt River Valley, Maricopa County, 0-25, northern Pinal County 3-20, Marana and Avra Valley, Pima County, 2-2.6. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSISSIPPI - Cysts on soybeans for new county records. Collected at Michigan City, Benton County, by Gregory and Wilson July 20. At Charleston, Tallahatchie County, by McCartney and Bloodworth July 31. Determined by V.H. Owens; confirmed by A.M. Golden. (PPD). TENNESSEE - Cysts on Pickett soybeans week ending August 1 in Fayette, Tipton, Henry, Benton, and Weakley Counties. (State, PPD).

#### DETECTION

New State Records - A SCARAB (Aphodius haemorrhoidalis) OREGON - Collected on Turkey farm in Benton County by B. Turnbow March 1970. Identified by L. Russell. (Richter, Penrose). BROWN RECLUSE SPIDER (Loxosceles reclusa) COLORADO - Otero County (p. 591). A NOCTUID MOTH (Xylomyges dolosa) OREGON - Clackamas County (p. 589). A SCOLYTID (Phloeotribus frontalis) WEST VIRGINIA - Grant County (p. 588).

New County Records - ASPARAGUS APHID (Brachycolus asparagi) NEW JERSEY - Monmouth, Ocean, Cumberland, Gloucester, Salem (p. 584). ELM LEAF BEETLE (Pyrhalta luteola) IOWA - Taylor (p. 589). EUROPEAN CORN BORER (Ostrinia nubilalis) ALABAMA - Escambia (p. 578). FACE FLY (Musca autumnalis) NEVADA - Elko (p. 590). GREENBUG (Schizaphis graminum) ARKANSAS - Jackson (p. 576). GYPSY MOTH (Porthetria dispar) VIRGINIA - Accomack (p. 592). HOLLYHOCK WEEVIL (Apion longirostre) WYOMING - Goshen, Platte (p. 588). A SALTGRASS SCALE (Circulaspis fistulella) FLORIDA - Levy (p. 580). SOUTHERN MASKED CHAFER (Cyclocephala immaculata) WEST VIRGINIA - Wood (p. 580). SOYBEAN CYST NEMATODE (Heterodera glycines) MISSISSIPPI - Benton, Tallahatchie (p. 593). SOUTHERN PINE BEETLE (Dendroctonus frontalis) TENNESSEE - Morgan (p. 588). WESTERN CORN ROOTWORM (Diabrotica virgifera) MINNESOTA - Otter Tail (p. 579).

#### CORRECTIONS

CEIR 20(31):546 - PINK BOLLWORM (Pectinophora gossypiella) - ... Collected by L. Lee and R. Crout should be L. Lee and R. Crout. (Ariz. Coop. Sur.).



LIGHT TRAP COLLECTIONS

| Locality      | Date         | Precipitation (inch) | Temp. (F) | Wind dir. | Wind sp. | Relative humidity (%) | Crops |       |    |     |
|---------------|--------------|----------------------|-----------|-----------|----------|-----------------------|-------|-------|----|-----|
|               |              |                      |           |           |          |                       | Area  | Yield |    |     |
| TEXAS         |              |                      |           |           |          |                       |       |       |    |     |
| Waco 7/31-8/6 |              |                      |           |           |          |                       | 26    | 14    | 40 | 483 |
| VIRGINIA      |              |                      |           |           |          |                       |       |       |    |     |
| Charlotte     |              |                      |           |           |          |                       |       |       |    |     |
| Courthouse    | 7/29-8/4     |                      |           |           |          |                       |       |       |    |     |
| Holland       | 7/29-8/4     |                      |           |           |          |                       |       |       |    |     |
| Peters        | 7/27, 29, 31 |                      |           |           |          |                       |       |       |    |     |
| Warsaw        | 7/29-8/4     |                      |           |           |          |                       |       |       |    |     |
| WISCONSIN     |              |                      |           |           |          |                       |       |       |    |     |
| Hancock       | 7/29-8/4     |                      |           |           |          |                       |       |       |    |     |
| Madison       | 7/29-8/4     |                      |           |           |          |                       |       |       |    |     |
| Nenno         | 7/28-8/3     |                      |           |           |          |                       |       |       |    |     |
| Platteville   | 7/28-8/4     |                      |           |           |          |                       |       |       |    |     |

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REPORT**



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**PLANT PROTECTION DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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 reports and inquiries pertaining to this release, including the mailing list, should be sent to:

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

CORN EARWORM moths increasing in Kansas. Larvae damaged corn in Texas, sweet corn in Tennessee; ear infestations increased in Eastern Shore of Maryland. GREENBUG declined in several States; parasites and predators controlling populations. (p. 603).

EUROPEAN CORN BORER moth flights increased in Nebraska, Wisconsin, and Michigan. Second-generation larvae numerous in corn and peppers in Delaware (pp. 605, 614, 616). FALL ARMYWORM larvae severe on corn in Virginia, heavy on grasses in Georgia, South Carolina, and Alabama. (pp. 604, 606). CORN ROOTWORM larval damage heavy in parts of South Dakota. SPIDER MITES damaged corn in Colorado, Wyoming, and Texas. (p. 605). ENGLISH GRAIN APHID and BARLEY THRIPS damaged barley in northeastern North Dakota. (p. 606).

BOLLWORM moth catches and egg laying increased in Texas and Alabama, egg laying heavy in south Georgia. Larvae increased in south Alabama and damaging in west Tennessee. (pp. 607-608).

APPLE MAGGOT infestations heavier than previous years in Indiana; emergence heavy in Michigan. APPLE RUST MITE important on several commercial blocks in southeast New York. (p. 609).

ELM LEAF BEETLE troublesome on elms in several Southern States. FOREST TENT CATERPILLAR infestations at highest level since 1963 in southeastern Louisiana. Defoliation heavy in southwestern Alabama; populations epidemic in parts of Kentucky. SADDLED PROMINENT defoliated thousands of acres of woodland in Maine. (p. 610).

HORN FLY troublesome to cattle in several States. STABLE FLY annoying cattle in Wisconsin. (p. 611).

Light trap collections of interest - EUROPEAN CORN BORER, CORN EARWORM, HORNWORMS, and ARMY CUTWORM. (pp. 614-615).

Detection

New State records include an ARMORED SCALE from West Virginia (p. 609); an ERIOPHYID MITE from Pennsylvania, NORTHERN PINE WEEVIL and PALES WEEVIL from Missouri, and WHITE-PINE WEEVIL from South Carolina. (p. 610).

For new county records see page 613.

Special Reports

Techniques to Determine Losses. Selected References 1942-1949. Part VI. (pp. 616-617).

Witchweed Quarantine Map. Centerfold.

Reports in this issue are for week ending August 14 unless otherwise indicated.

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#### WEATHER BUREAU'S 30-DAY OUTLOOK

#### MID-AUGUST TO MID-SEPTEMBER 1970

The Weather Bureau's 30-day outlook for mid-August to mid-September is for temperatures to average above seasonal normals over the western half of the Nation except for near normal along the west coast. Elsewhere temperatures are expected to average near normal except for below normal in the Southeast and the Ohio Valley. Precipitation is expected to exceed normal over the northeast coast, the Ohio Valley, the Southeast and the central and southern Plateau. Subnormal totals are indicated for the Great Plains and California. 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.

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#### WEATHER OF THE WEEK ENDING AUGUST 17

HIGHLIGHTS: Summer heat continued last week over most of the Nation. Severe flash flooding occurred in western North Carolina. Drought intensified in many areas.

PRECIPITATION: Early in the week, a quasi-stationary front extended from the southern Great Plains to the southern Atlantic coast. Heavy downpours, up to 10 inches or more, fell in the Appalachians north of the front. Mortimer, North Carolina, received 11.10 inches of rain in 48 hours ending at 2 p.m., Monday, August 10. Severe flooding occurred in the central and southern Appalachians. Moderate to heavy thundershowers occurred along the gulf coast during the first half of the week. Lighter, more scattered showers dotted the Rocky Mountains and adjoining Great Plains. Weekend showers occurred over the northern and central Great Plains, and along the gulf and Atlantic coasts. Wide areas from the Pacific coast to the western edge of the northern and central Great Plains received no rain last week. Many smaller scattered areas in the Central and East were missed by the showers. Drought intensified in many areas.

Weather of the week continued on page 618.

**SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

**ARMYWORM** (*Pseudaletia unipuncta*) - CALIFORNIA - Larvae heavy in soil in 200 acres of corn at Madera, Madera County. (Cal. Coop. Rpt.).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - NORTH DAKOTA - Up to 150 per plant in half-ripe and green barley in Pembina, Walsh, Grand Forks, and northern Traill Counties. Up to 500 per head, along with *Macrosiphum avenae* (English grain aphid) in wheat. Heaviest populations in bearded wheat. (Kaatz). ILLINOIS - *R. maidis* decreased rapidly on field corn, apparently due to disease. Negative in many fields and others show dying populations. Very few (less than one percent) serious, or heavy. (Ill. Ins. Rpt.). MARYLAND - Populations below economic levels statewide. (U. Md., Ent. Dept.). TENNESSEE - Heavy on sweet corn in central area. (Batey, Jennings).

**CORN EARWORM** (*Heliothis zea*) - IDAHO - Infestations 90 percent on July 28, 10 percent on August 6, and 50 percent on August 10, in mature sweet corn plots near Parma, Canyon County. Extensive damage by July 28 and most larvae had left ears. First and second instars by August 10 and damage confined to ear tips. (Scott). UTAH - Light in sweet corn in Fort Duchesne, Uintah County (Mathews), and Wayne and Piute Counties (Chapman); moderate in Sevier County (Rickenbach). KANSAS - Light trap catches show moths increasing. Larvae averaged 0.5 per ear in cornfield in Brown County; about 1 per ear in 2 fields in Geary County; and 0.9 per ear in field in Stafford County. (Bell). Averaged 1 per row foot in field in Cherokee County. (Brooks). OKLAHOMA - Moderate in sorghum in Coal County and in peanuts in Bryan County. Very light in sorghum heads in northeast area. (Okla. Coop. Sur.). TEXAS - Larval damage heavy to corn foliage and ears in Culberson County. (Neeb). ARKANSAS - Infesting soybeans, mainly in southeast area. Counts vary but heavy in some cases. Heaviest (larvae 10 per row foot) in Ashley County. Infestations earlier than usual. (Boyer). TENNESSEE - Damaged sweet corn in central area. (Batey, Jennings). GEORGIA - Light to heavy on peanuts, and light to moderate on soybeans in south area. (French, Aug. 7). MARYLAND - Ear infestations increasing slightly on Eastern Shore. (U. Md., Ent. Dept.).

**GREENBUG** (*Schizaphis graminum*) - COLORADO - Ranged 0-2,000 per sorghum plant in Arkansas Valley. Heaviest in Otero and Crowley Counties; counts increasing in Prowers and Bent Counties. (Burchett). ARIZONA - Averaged 50 per sorghum plant at Kansas Settlement, Cochise County. (Ariz. Coop. Sur.). NEW MEXICO - Decreased on grain sorghum in Luna and Hidalgo Counties. Some isolated fields will need controls. (N.M. Coop. Rpt.). TEXAS - Declining in grain sorghum in High Plains. Predators abundant and parasites increased. About 64 percent greenbug reduction in grain sorghum at Lubbock July 23-30. Light on grain sorghum in Martin and Midland Counties. Heavy in fields of young preboot grain sorghum in Midland County. Light to moderate in El Paso, Reeves, and Pecos Counties. Light to moderate on grain sorghum in Haskell and Knox Counties. (Rummel et al.). OKLAHOMA - Very light to absent in most sorghum checked in northeast area. Ranged 100-150 per plant in occasional younger fields (just beginning to bloom), especially in Ottawa County; numbers declining even in these fields. Parasites and predators important in some fields, but hot, dry weather and plant maturity probably more important in many fields. Greenbug heavy in sorghum in Coal County. (Okla. Coop. Sur.). KANSAS - Remains heavy in some fields even though predators appear abundant, while in many fields populations declining and attributed to predation and parasitism. Based on population found July 30 in field of sorghum in Riley County, parasitism accounted for about 35 percent of decrease. (Bell). NEBRASKA - Greenbug continues to decline in east, southeast, south, and central districts. Negative in many fields. (Leininger et al.). Damage to grain and forage sorghums continues in north and northeast districts, parasitism still low (less than 10 percent). (Ehlers, Thomas). Heavily infested plantings of barley at Halsey, Thomas County, nearly destroyed; parasitism increasing, currently near 50 percent. (Sexson). SOUTH DAKOTA - *S. graminum* heavy on sorghum, controls required near Redfield and Frankfort, Spink County; at Wagner, Charles Mix County; and near Mitchell, Davison County. (Kantack, Aug. 7).

PICKLEWORM (Diaphania nitidalis) - MISSISSIPPI - Heavy on squash in Oktibbeha County. (Sartor, Aug. 7).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Heaviest in podded lima bean fields, as high as 3 per leaf in Rock and Walworth Counties. Counts of 1 per 3 leaves in fields still in blossom. Bud drop evident in some fields. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - COLORADO - Up to 1,000 (average 150) per 100 sweeps of alfalfa in Pueblo, Otero, Bent, and Prowers Counties. (Burchett). WYOMING - Averaged 3 per 10 sweeps in third-crop alfalfa field near Hawk Springs, Goshen County. (Parshall). OKLAHOMA - Averaged 200 per 10 sweeps of alfalfa in Tulsa County. (Okla. Coop. Sur.). KANSAS - Found in all fields checked. Counts per sweep averaged 7.5 in one field in Reno County, 35 and 40 in 2 fields in Sedgwick County, 1 in one field in Sumner County, 1 in one field in Kingman County, 4 in one field in Barber County, 30 and 70 in 2 fields in Comanche County (Bell); ranged 250-350 per sweep in test plots of Buffalo alfalfa, averaged 40 per sweep in Cody alfalfa plot and 5 per sweep in Kanza alfalfa in Stafford County (Bell, Lundquist); and 2.5 and 5 per sweep in two fields in Meade County (Bell). WISCONSIN - Increasing in alfalfa on sandy areas; counts as high as 50 per sweep in some fields. (Wis. Ins. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on soybeans in south area. (French, Aug. 7).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Second generation heavy in some fields; all larval stages and few pupae present. (Redding). NEBRASKA - Moths remain abundant at light traps in east and northeast districts. Infested less than 1 percent of corn plants in 8 fields in Lincoln County. (Campbell). ILLINOIS - Survey completed for first generation. Statewide populations unusually low. Average percent plants infested by section as follows: Northwest 7, northeast 7, west 6, central 2, east 1, west-southwest 4, east-southeast 8, southwest 7, and southeast 2. (Ill. Ins. Rpt.). WISCONSIN - Moth flights continue to increase. Few pupae still found but most emerged in southern counties. Egg masses 4-5 per 25 sweet corn plants in Walworth County, 2 per 25 in Rock and Iowa Counties; few second instars present in some ear tips. Infested ears averaged 1 per 25 in Rock and Iowa Counties. All sweet corn fields examined treated. First to fourth instars in Brown, Manitowoc, Marinette, Kewaunee, Oconto, Outagamie, Door, and Culumet Counties. (Wis. Ins. Sur.). MICHIGAN - Adults increasing at all blacklight stations. Egg laying progressing and many larvae hatched. Blacklight counts at Lenawee County station totaled 174 moths week ending August 7 with lower counts at Montcalm Experiment Station. (Newman). INDIANA - Moths still present in northern district corn. Second-generation larvae observed, most early stages in silks, occasionally penetrated cob. (Meyer). OHIO - Surveys of Miami County sweet corn indicated average of 15 plants out of 100 had egg masses; some appeared to be nonviable. Moths observed in fields. No new-generation larvae found; some egg masses presumed hatched. (Miller, Roach). DELAWARE - Egg masses and early second-generation larvae numerous in corn and sweet peppers in most areas. Moths still abundant in blacklight traps throughout State. (Boys, Aug. 12). NEW YORK - Hatching on corn in Hudson Valley area; entering whorls, tassels, and silk throats. (N.Y. Wkly. Rpt., Aug. 10).

FALL ARMYWORM (Spodoptera frugiperda) - VIRGINIA - Larvae severe in several fields of corn in Nottoway County August 7. (Allen, Cassell). OKLAHOMA - Moderate on sorghum in Coal County. (Okla. Coop. Sur.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - NEBRASKA - Larvae infested 13 percent of ears in cornfield near Aurora, Hamilton County. Third to fifth instars. (Munson et al.).



**CORN ROOTWORMS** (*Diabrotica* spp.) - SOUTH DAKOTA - *D. virgifera* (western corn rootworm) adults averaged 10 per plant on corn near Brookings, Brookings County. Populations expected to increase next 7-10 days. Heavy *Diabrotica* spp. larval damage observed in Grant, Marshall, Brown, and Spink Counties. Insecticide applications for adult control made near Oral, Fall River County, and in Davison and Union Counties. (Jones, Kantack, Aug. 7). ILLINOIS - Adult averages per 100 corn plants by section as follows: Northwest 123, northeast 66, west 16, central 52, east 12, west-southwest 9, east-southeast 15, and south-east 30. (Ill. Ins. Rpt.). WISCONSIN - Ranged 2 per corn ear tip in Grant and Iowa Counties to 15 per ear in Rock and western Walworth Counties. Some sweet corn infested. (Wis. Ins. Sur.). PENNSYLVANIA - Small numbers of *D. atripennis* found on corn silks in Lycoming County August 6 along with *D. longicornis* (northern corn rootworm). This is a new county record for *D. atripennis*. (Adams).

**NORTHERN CORN ROOTWORM** (*Diabrotica longicornis*) - INDIANA - Adults moderate to heavy in 3 of 30 cornfields in northern district; 1 of 3 showed gooseneck symptoms. In this field, adults still numerous even though silks brown; up to 15 found in tip of husk where silks still moist, and nearly every ear had some adults. (Meyer).

**WESTERN CORN ROOTWORM** (*Diabrotica virgifera*) - INDIANA - Adults taken in 5 fields in Lake County on August 12 by Smead, and 5 adults found at one site in Kosciusko County on August 11. These are new county records. (Meyer). WYOMING - Adults up to 12 (averaged 4) per corn plant in Goshen and Platte Counties. (Parshall). About 800 acres sprayed in these counties. (Theiman).

**SORGHUM MIDGE** (*Contarinia sorghicola*) - TEXAS - Increased in High Plains area. About 50 percent emergence from grain sorghum head samples occurred August 3-7. During period, 56 flies emerged from several hundred head samples collected in Lamb, Hale, Floyd, and Crosby Counties. Over 50 percent emergence from head samples collected in Foard County. (Rummel, Clymer).

**BANKS GRASS MITE** (*Oligonychus pratensis*) - COLORADO - Light on corn in Bent and Prowers Counties, very heavy damage to many fields in Pueblo, Otero, and Crowley Counties. (Burchett). WYOMING - Light damage in most corn checked in Goshen and Platte Counties. Two fields in Platte County "burned" 4-5 leaves up on plant; mites on 9-10 leaves. (Parshall). TEXAS - *Oligonychus* sp. caused moderate to heavy damage in isolated fields of post-boot grain sorghum in Pecos, Reeves, and El Paso Counties. Heavy damage on forage corn in El Paso County. Foliage 50-90 percent desiccated on forage corn in post-tasselling stage where pest very heavy (10-40 mites and eggs per square inch of leaf surface). Damaged forage corn in Hudspeth and Culberson Counties. Light to heavy on corn in Bailey, Lamb, and Castro Counties. (Rummel et al.).

**CHINCH BUG** (*Blissus leucopterus*) - OKLAHOMA - Present in most sorghum checked in Washington, Nowata, Craig, and Ottawa Counties. Ranged 0-15 per plant in most fields, up to 30 per plant in few. (Okla. Coop. Sur.).

#### SMALL GRAINS

**HESSIAN FLY** (*Mayetiola destructor*) - ILLINOIS - Populations light as compared to 10-year average. Surveyed 7 sections, one approached average for period. Southwest section slightly higher at 6.2 puparia per 100 tillers compared to average of 5.4 puparia per 100 tillers last 10 years. Central and west sections averaged lowest as over ten-year period, and southwest section averaged highest as opposed to west-southwest section which was highest for ten-year period. State average 3.3 puparia per 100 tillers (compared to 6.2 puparia for 10 years). Highest individual counties were Jefferson at 12.8, Randolph at 11.2, and Jackson at 10.4. State average slightly higher (3.3 puparia per 100 tillers) than 1969 (2 puparia per 100 tillers). (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - NORTH DAKOTA - Heavy and widespread in northeast counties on green and half-ripe wheat, barley, alfalfa, and peas. Up to 300 per head on wheat and up to 100 per plant on barley in northern Trail, Pembina, Walsh, and Grand Forks Counties. Barley in many fields ruined. Controls applied to 10,000+ acres. (Kaatz).

BARLEY THRIPS (*Limothrips denticornis*) - NORTH DAKOTA - Adults up to 40 per plant in late-seeded barley in northern Pembina County. Damage evident. (Kaatz).

#### TURF, PASTURES, RANGELAND

FALL ARMYWORM (*Spodoptera frugiperda*) - SOUTH CAROLINA - Heavy on common Bermuda grass lawn in Jasper County; first report of season. (Thompson, Nettles, July 29). Spreading to pastures and other grass areas throughout State. (Nettles, Aug. 5). GEORGIA - Populations heavy and defoliating Coastal Bermuda grass, millet, and grain sorghum throughout State. (Nolan, Aug. 7). ALABAMA - Damaged grass hay in one large field in Wilcox County, and several fields in Dale County. Larvae in several fields of Coastal Bermuda grass in Covington County, and heavy in a field of sorghum-sudan hybrid in Dallas County. (Farquhar et al.).

CHINCH BUG (*Blissus leucopterosus*) - OKLAHOMA - Moderate in St. Augustine grass lawns in Bryan County. (Okla. Coop. Sur.).

#### FORAGE LEGUMES

PEA APHID (*Acyrtosiphon pisum*) - UTAH - Light to moderate, averaged 35 per 10 sweeps, in Duchesne and Uintah County fields. (Knowlton, Mathews). Serious in some Sevier County alfalfa. (Rickenbach). NORTH DAKOTA - Up to 100 per tip in alfalfa in Pembina County. Some crop loss on peas in Pembina and Walsh Counties. About 500 acres treated. (Kaatz). OHIO - Ranged 50-100 per 10 sweeps of alfalfa in northeastern area. Nymphs and adults found but no winged forms. Damage to most fields not evident, some showed signs of yellowing. (Roach). MASSACHUSETTS - Averaged 104 per 100 sweeps of alfalfa in 4 Berkshire County fields. (Miller).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - MASSACHUSETTS - Averaged 33 per 100 sweeps of alfalfa in 4 Berkshire County fields. (Miller). WISCONSIN - Still dominant in alfalfa; as high as 60 per 10 sweeps in Brown County. Adults increasing. (Wis. Ins. Sur.). WYOMING - Adults and nymphs averaged 13 per 10 sweeps of alfalfa in Goshen and Platte Counties. (Parshall).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MISSOURI - Adult collected from alfalfa in Saline County. This is a new county record. (Hanning).

TARNISHED PLANT BUG (*Lygus lineolaris*) - OKLAHOMA - Averaged 9 per 10 sweeps in alfalfa in Tulsa County. (Okla. Coop. Sur.). ARIZONA - *Lygus* sp. averaged 800 per 100 sweeps in alfalfa seed fields at Yuma, Yuma County. Controls applied. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - OKLAHOMA - Averaged 12 per 10 sweeps of alfalfa in Tulsa County. (Okla. Coop. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - MASSACHUSETTS - Adults averaged 3 per 100 sweeps of alfalfa in 4 Berkshire County fields. (Miller). WISCONSIN - Adults averaged 1 per 10 sweeps of alfalfa in Rock and Walworth Counties and 1 per 50 sweeps in Grant County. Parasitism by *Bathyplectes curculionis* (an ichneumon) 50 percent in Outagamie County, 33 percent in Brown County, 25 percent in Calumet County, 4 percent in Winnebago County, and zero in Oconto, Marinette, Wood, and Portage Counties. (Wis. Ins. Sur.).

GRASSHOPPERS - WISCONSIN - Ranged 3-30 per square yard of alfalfa in south and southwest areas. *Melanoplus differentialis* (differential grasshopper) nymphs dominant in some fields. *M. femurrubrum* dominant in most, about 75 percent adults. *M. sanguinipes* moving into soybeans and margins of corn in sandy areas. Expect more migration if weather continues dry. Ranged 4-15 per 10 sweeps in northeastern areas. (Wis. Ins. Sur.).

LEAF MINER FLIES (Agromyza spp.) - MASSACHUSETTS - Damage heavy in 4 Berkshire County alfalfa fields. (Miller).

#### SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - OKLAHOMA - Averaged 1 per row foot in field in Craig County, very light in most northeast area fields. (Okla. Coop. Sur.).

BEEET ARMYWORM (Spodoptera exigua) - SOUTH CAROLINA - Larvae severe on soybeans in Marion and Clarendon Counties. (Nettles, Aug. 5).

GREEN CLOVERWORM (Plathypena scabra) - KANSAS - Averaged about 5 per 3 row feet in all fields checked in Cherokee County. (Brooks).

GREEN STINK BUG (Acrosternum hilare) - OKLAHOMA - Adults light in fields setting pods in northeast area. (Okla. Coop. Sur.).

#### PEANUTS

NOCTUID MOTHS - GEORGIA - Light to moderate larval infestations of Spodoptera exigua (beet armyworm), S. frugiperda (fall armyworm), Prodenia eridania (southern armyworm), and Feltia subterrana (granulate cutworm) throughout peanut-growing area. Stegasta bosqueella (red-necked peanutworm) light to moderate in Tift County. (French, Aug. 7). ALABAMA - F. subterranea larvae damaging and difficult to control in 400 acres of peanuts on farm in Henry County. Few larvae in most fields of peanuts throughout southeast area. Second infestation this season of S. exigua in large peanut field in Coffee County. Controls planned. (Bond et al.).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, punctured squares averaged 2.4 (maximum 8.6) percent in 21 treated fields; averaged 5.5 (maximum 23) percent in 8 untreated fields. (Cowan et al.). For Boll Weevil in High Plains see page 612. OKLAHOMA - Moderate to heavy on cotton in Coal County. (Okla. Coop. Sur.). ARKANSAS - Normal increase. Of 6,308 fields scouted 1,117 needed treatment. (Barnes et al.). LOUISIANA - In Madison Parish, no weevils found in 34 wing traps. Infested squares ranged 8-55 (averaged 21.1) percent in 94 of 95 treated plots and fields. (Cleveland et al.). MISSISSIPPI - Generally light in delta counties, some "hot spots." Found 2 weevils in 12 fields; punctured squares averaged 5.5 percent in 1 field. (Pfrimmer et al.). Infestations averaged 3.93 percent in 12 counties. (Sartor). TENNESSEE - Second-generation weevils at peak. Infestations more general throughout regular infested area. Square counts ranged 4-78 percent (averaged 14) in fields found infested. Conditions ideal for further buildup. One field increased from 4 percent punctured squares to 32 percent in 7-day period. (Locke). ALABAMA - Weevil numbers remain heavy in south and central areas. Controls somewhat general and successful. Numbers continue to remain light in north area. Only few fields reached damaged square counts above 10 percent. Numerous parasites on weevil larvae in squares in field in Colbert County. (Landers et al.). GEORGIA - Adults migrating from "cut out" cotton throughout south area. (Womack). Punctured squares 11 percent in treated fields, 36 percent in untreated fields in Spalding County. (Beckham, Aug. 7).

BOLLWORMS (Heliothis spp.) - ARIZONA - H. zea infestations range 0-3 percent per 100 terminals at Safford, Graham County. (Afiz. Coop. Sur.). NEW MEXICO - H. zea damage light in Luna, Hidalgo, and Dona Ana Counties. Some isolated fields required treatment. Eggs remain light in all fields checked. (N.M. Coop. Rpt.). TEXAS - Moths increased in McLennan and Falls County light traps. Eggs laying increased. Infestations in few irrigated fields in area. Injured squares averaged 5 (maximum 12) percent in 21 treated fields; averaged 7.9 (maximum 14.5) percent in 8 untreated fields. Injured bolls averaged 2.2 (maximum 4.5) percent in 22 treated fields; averaged 4.6 (maximum 8.2) percent in 7 untreated fields.

H. virescens comprised 70 percent of 359 larvae collected on cotton this period. (Cowan et al.). LOUISIANA - In Madison Parish, damaged squares ranged 1-9 (averaged 2.4) percent in 83 of 95 treated plots and fields. Damaged bolls averaged 2.7 percent in 54 of 66 treated plots. Blacklight trap collection for 3 days totaled 51 H. zea and 2 H. virescens. (Cleveland et al.). ARKANSAS - H. virescens remains at relatively low level compared with total Heliothis population. Collections made mainly in southeast and east-central areas with small numbers from other areas. Total determinations 3,953; 102 or 2.6 percent being H. virescens. (Boyer et al.). MISSISSIPPI - Moth flights near normal in delta counties. Injured squares averaged 1.58 (maximum 6.5) percent in 8 of 12 fields checked. Expect increase following rain. (Pfrimmer et al.). H. zea infestation averages ranged 1-4 percent in fields checked in 9 counties. (Sartor). TENNESSEE - H. zea still causing much damage throughout west area. Larval and egg counts ranged 1-17 per 100 terminals; averaged 3 for those fields infested. (Locke). ALABAMA - Increased in most cotton in south and central areas. Moth flight and egg laying heavy. Larvae remain minor problem in north area. (McQueen). GEORGIA - Egg laying still heavy, about 80 percent of late instars H. virescens in south area. (Womack, Aug. 7).

CABBAGE LOOPER (Trichoplusia ni) - TENNESSEE - Increasing throughout west area, especially in rank late cotton. (Locke). MISSISSIPPI - Moths and eggs increasing in delta counties. Injury light. (Pfrimmer et al.).

BEE T ARMYWORM (Spodoptera exigua) - TENNESSEE - Several fields with pigweed found infested. Most larvae feeding on pigweed, expected to move to cotton later. (Locke).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - OKLAHOMA - Moderate to heavy populations caused much damage in Coal County. (Okla. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

POTATO FLEA BEETLE (Epitrix cucumeris) - NORTH DAKOTA - Shotholes ranged 50-60 per leaf on potatoes in Walsh and Pembina Counties. Controls underway. (Kaatz).

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) - CALIFORNIA - Adults 2 per leaf in potato planting at Yreka, Siskiyou County. (Cal. Coop. Rpt.).

POTATO APHIDS - MAINE - Survey at Presque Isle, Aroostock County, showed 66.6 percent of untreated potatoes infested. Macrosiphum euphorbiae (potato aphid) colonies ranged 1-37, parasitism 2.6 percent, and 2.3 percent killed by fungus. Summer dispersal forms present. Aphis nasturtii (buchthorn aphid) colonies ranged 1-81, few summer dispersal forms. Myzus persicae (green peach aphid) colonies ranged 1-9, no parasitized forms. No Acyrtosiphon solani (foxglove aphid) infestations found. (Gall).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Continues to build up in some potato fields in Otero County. Controls necessary in some cases. (Burchett).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Larvae averaged 1 per broccoli plant in untreated research plots at Rutgers University. Egg populations also 1 per plant. Treatments suggested. (Ins.-Dis. Newsltr.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW JERSEY - Moth populations heavy; newly hatched borers easy to find on several crops. Scheduled treatment advised for peppers. (Ins.-Dis. Newsltr.).

ONION THRIPS (Thrips tabaci) - COLORADO - Ranged 0-50 per onion plant in fields checked in Arkansas Valley. (Burchett).

## DECIDUOUS FRUITS AND NUTS

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Emergence still heavy in Fennville area of Allegan County. Emergence seems more prolonged than normal. (Howitt, Aug. 10). INDIANA - Infestations heavier in central area this year than in past years. (Clark).

CODLING MOTH (Laspeyresia pomonella) - WISCONSIN - Moths continue heavy in Madison County blacklight trap. High degree of infestation in untreated apples apparent near blacklight trap. (Wis. Ins. Sur.).

RED-HUMPED CATERPILLAR (Schizura concinna) - WASHINGTON - Late instars defoliating apple, ornamental crab apple, plum, Siberian pea (Caragana), and Norway maple in residential areas of Pullman, Whitman County. (Johansen).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Infestations reported throughout State. (Jensen, Shade).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - MICHIGAN - Second generation very active and near peak. (Howitt, Aug. 10).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Counts per 50 apple leaves in Hampshire County: 130 on McIntosh and 5,680 on Delicious with no dormant oil or no treatment; 2,105 on McIntosh and 5,840 on Delicious with dormant oil but no treatment. (Jensen).

APPLE RUST MITE (Aculus schlechtendali) - NEW YORK - Infestations important on several commercial blocks in Ulster, Dutchess, and Orange Counties. (N.Y. Wkly. Rpt., Aug. 10).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Moderate on pecans in Hughes County. Emergence continues light in parts of Payne County. (Okla. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Medium populations emerging; first control treatments applied. Continued warm to hot weather may result in heavy infestations where treatment timing off. (Cal. Coop. Rpt.). OREGON - Trapping data indicates peak numbers in Medford area of Jackson County August 3-5. Controls recommended by August 10. (Berry). Post spray check of 3 traps August 11 and 12 in Riddle area, Douglas County, showed total of 40 flies. Second spray may be needed to maintain control. (Passon).

YELLOW-NECKED CATERPILLAR (Datana ministra) - KANSAS - Feeding on leaves of 50 percent of pecan trees checked in Cherokee and Neosho Counties. (Redding).

## SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - Damaging grape foliage in Blanding area of San Juan County. (Jones). Determined by W.J. Hanson. Caused some damage in this area about 20 years ago. (Knowlton).

## ORNAMENTALS

AN ARMORED SCALE (Lepidosaphes yanagicola) - WEST VIRGINIA - Found on Euonymus elatus in one nursery in Cabell County by J. Adkins July 30, 1970. Determined by G.B. Slesman. This is a new State record. (W. Va. Ins. Sur.). FLORIDA - Found on Florida butterfly orchid, Epidendrum tampense, at Naples, Collier County, June 9 by W.T. Walsh. This is a new county record. (Fla. Coop. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Caused heavy damage to evergreen shrubs in Wilbarger, Lubbock, and Hockley Counties. (Boring, Green).

## FOREST AND SHADE TREES

WHITE-PINE WEEVIL (Pissodes strobi) - SOUTH CAROLINA - Specimens collected from terminals of white pine at Pickens, Pickens County, during June 1970 by F.M. Flemming. Determined by R.C. Fox. This is a new State record. (Nettles).

NORTHERN PINE WEEVIL (Pissodes approximatus) - MISSOURI - Adult collected from Scotch pine in Boone County, May 27, 1970, and determined by W.H. Kearby. This is a new State record. (Hanning).

PALES WEEVIL (Hylobius pales) - MISSOURI - Adult collected from Scotch pine by W.S. Craig in St. Charles County May 1, 1948. This is a new State record. Adults collected by W.H. Kearby in Montgomery County July 9, 1970, from Scotch pine. This is a new county record. Determinations by W.H. Kearby. (Hanning).

AN ERIOPHYID MITE (Setoptus jonesi) - PENNSYLVANIA - Found under sheath of white pine needle by Wertz in Lebanon County June 15, 1970. Determined by C.C. Hall. This is a new State record. (Simons).

ELM LEAF BEETLE (Pyrrhalta luteola) - ALABAMA - Damage to lawn and street elms heavier than during last 2-3 years in central to north areas. Serious damage caused almost complete defoliation in Demopolis and Thomaston area of Marengo County. (Miller et al.). MISSISSIPPI - Larvae and adults caused heavy damage to Chinese elms in Oktibbeha, Lowndes, and Calhoun Counties. (Sartor, Aug. 7). TEXAS - Damaging Chinese elms in Wilbarger, Wichita, Lubbock, Hockley, Bailey, Winkler, Midland, Martin, Glasscock, Ector, Pecos, Upton, Ward, Reagan, and El Paso Counties. (Boring et al.). ARKANSAS - More damaging to Chinese Elm in extreme northwest area than in many areas. Extremely low rainfall in July 1969, and in June, July, and early August 1970, coupled with this beetle, resulted in most elms being in very poor condition. (Boyer). UTAH - Moderate on foliage at Roosevelt and Myton, Duchesne County. Damage unusually severe to some trees at Logan, Cache County. (Knowlton, Roberts).

FOREST TENT CATERPILLAR (Malacosoma disstria) - KENTUCKY - Epidemic populations caused defoliation of 1,200-acre area in Hopkins, McLean, Mecklenberg, and Ohio Counties. ALABAMA - Defoliated total of 45,820 acres of water tupelo in the Mobile and Tensaw River Basins in southwestern area; about 24,360 acres classed as heavy defoliation. LOUISIANA - Infestations reached heaviest level since 1963 in southeastern area; total of 477,000 acres of water tupelo forest damaged. Infestation declined from 10,000 acres in 1969 to 2,500 acres in Mermentau River Basin. (For. Pest Rptr., June).

SADDLED PROMINENT (Heterocampa guttivitta) - MAINE - Defoliated thousands of acres of woodland in southern Oxford County. (Clark). VERMONT - Defoliation of mountain top trees noted in Bennington County. (Nielsen, Aug. 10).

SATIN MOTH (Stilpnotia salicis) - CALIFORNIA - Adult collected in gypsy moth trap on August 4 at Burney, Shasta County, by J. Weber. Determined by W. Bauer. This is a new county record. Now known in Siskiyou, Modoc, Lassen, and Shasta Counties. (Cal. Coop. Rpt.).

A CICADA (Diceroprocta apache) - ARIZONA - Caused heavy tip damage on ash, bottle-brush, bottle tree, carob, mimosa, and other deciduous shade trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Four cases reported in U.S. August 9-15 as follows: TEXAS - Brewster, Jeff Davis; NEW MEXICO - Grant 2. Total of 57 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 28, Chihuahua 26, Nuevo Leon 2, Tamaulipas 1. Total of 20 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where

THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:

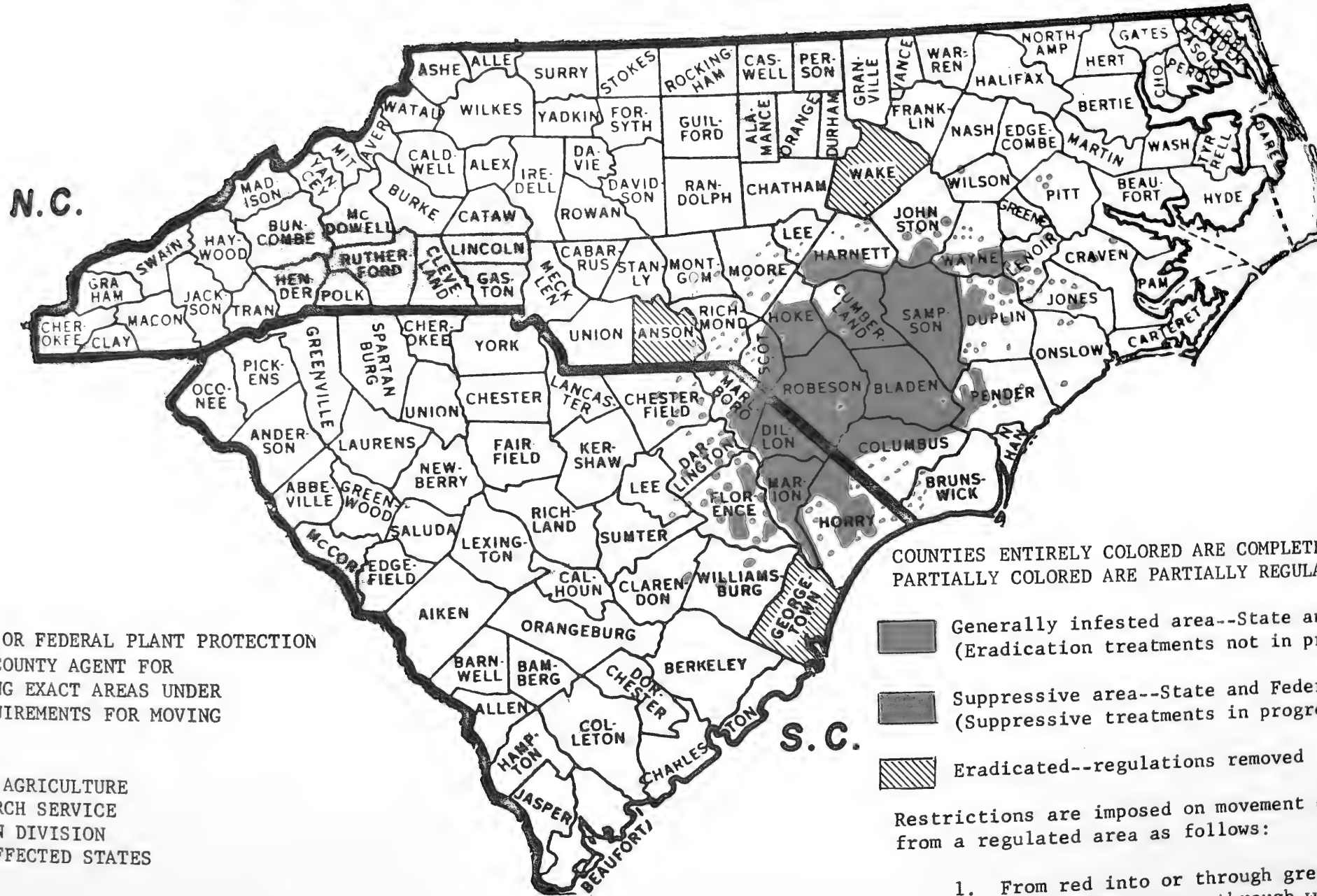
1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things; sand; and gravel.  
Soil samples of any size shipped to U.S. Army Corps of Engineers soil laboratories within the conterminous United States are exempt.
2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants.
6. Root crops, except those from which all soil has been removed.  
Root crops are exempt if moving to a designated processing plant.\*
7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.
8. Small grains and soybeans.  
Small grains are exempt\*\* if such grains and any containers for the grains did not come in contact with the soil during harvesting, or if they have been cleaned at a designated facility.\*
9. Soybeans are exempt\*\* if such beans and any containers for the beans did not come in contact with the soil during harvesting and if such beans are moving forthwith to a designated oil mill or facility\* for crushing or cleaning, or if they have been cleaned with an air-blast cleaner having a capacity of 2,500 cubic feet per minute.
9. Hay, straw, fodder, and plant litter of any kind.
10. Seed cotton, cotton lint, cotton linters, and gin trash.  
Seed cotton is exempt if moving to a designated gin.\*
11. Stumpwood.
12. Long green cucumbers, cantaloupes, peppers, squash, tomatoes, and watermelons, except those from which all soil has been removed.
13. Pickling cucumbers, string beans, and field peas.  
Pickling cucumbers, string beans, and field peas are exempt\*\* if washed free of soil with running water.





# WITCHWEED QUARANTINE

## COOPERATIVE FEDERAL / STATE QUARANTINES



CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION 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 PROTECTION DIVISION  
 COOPERATING WITH AFFECTED STATES

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES

14. Cabbage, except firm heads with loose outer leaves removed.
15. Leaf tobacco, except flue-cured leaf tobacco.
16. Ear corn, except shucked ear corn.  
Ear corn in the shuck is exempt\*\* if harvested without coming in contact with the soil.
17. Used crates, boxes, burlap bags, cotton picking sacks, and other used farm-products containers.
18. Used farm tools and implements.  
Used farm tools and implements are exempt\*\* if cleaned free of soil.
19. Used mechanized cultivating equipment and used harvesting machinery.  
Used mechanized cultivating equipment and used harvesting machinery are exempt\*\* if cleaned and repainted.
20. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\* if cleaned and repainted.
21. Any other products, articles, or means of conveyance, of any character whatsoever, not covered by the above when it is determined by an inspector that they present a hazard of spread of witchweed and the person in possession thereof has been so notified.

\*Information as to designated facilities, gins, oil mills, and processing plants may be obtained from an inspector.

\*\*Exempt if not exposed to infestation after cleaning or other prescribed handling.

eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 55,978,000; New Mexico 9,010,000; Arizona 11,576,000; Mexico 93,028,000. (Anim. Health Div.).

**FACE FLY (*Musca autumnalis*)** - UTAH - Reported very numerous in Fort Duchesne area of Uintah County. (Matthews). WYOMING - Averaged 6 per face on one cattle herd in Platte County. (Parshall). NEBRASKA - Ranged 12-15 per face on calves in 3 herds in Lincoln County. (Campbell). WISCONSIN - Severe on cattle in Chippewa County. Elsewhere annoyance to cattle varies from light to moderate. Populations reported heavy in Bayfield County. (Wis. Ins. Sur.). MISSISSIPPI - Averaged 17.5 per face on 300 cattle checked in Monroe County. (Sartor). VERMONT - Heavy on pastured cattle, especially during past hot weather. (Nielsen, Aug. 10).

**MOSQUITOES** - MINNESOTA - *Aedes vexans* accounted for 87.7 percent of 7,802 females in light traps at Minneapolis and St. Paul week ending August 7. Counts decreased except at Lino Lakes and Forest Lake traps. In 81 larval collections, *A. vexans* in 35 percent, *Culex tarsalis* in 18 percent. Of 123 mosquitoes in 17 evening bite collections 105 were *A. vexans* and 9 *A. trivittatus*. Of 996 females in 117 daytime bite collections, 812 were *A. vexans*, 51 *A. trivittatus*, 27 *A. triseriatus*, and 25 *A. dorsalis*. (Minn. Pest Rpt.). WISCONSIN - Severe on cattle in Chippewa County, moderate in Trempealeau and Calumet Counties. Annoyance to man continues moderate to severe in scattered sites over State. Annoying populations encountered more frequently in northern counties. (Wis. Ins. Sur.). ARKANSAS - *Anopheles quadrimaculatus* increased in Lonoke County; light trap catches averaged 250 per night. (Weisch).

**HORN FLY (*Haematobia irritans*)** - UTAH - Severe in Fort Duchesne area of Uintah County; numerous on cattle elsewhere in Uintah and Duchesne Counties. (Knowlton, Matthews). Serious on unsprayed herds in Sevier County (Rickenbach); moderate throughout Wayne and Plute Counties (Chapman), and Cache County (Burtenshaw). WYOMING - Ranged 150-400 per head on 4 cattle herds in Goshen and Platte Counties. (Parshall). MONTANA - Averaged 150 per range animal (400 on bulls) in Madison County; averaged 50 per range animal (400+ on bulls) in 1 herd in Gallatin County. (Pratt). NORTH DAKOTA - Built up on untreated animals in west-central district. Ranged 150-800 (averaged 545) per animal on range cows in McKenzie County. Up to 5,000+ per head on several bulls. (Brandvik). NEBRASKA - Ranged 600-800 per animal in 3 untreated herds near North Platte, Lincoln County. (Campbell). WISCONSIN - Severe on cattle in Chippewa County. Annoyance to cattle elsewhere varies light to moderate. (Wis. Ins. Sur.). OKLAHOMA - Ranged up to 1,500 per head on cattle herd in Payne County, up to 200 per head on herd in Mayes County. Heavy in Hughes County, moderate in Cleveland County. (Okla. Coop. Sur.). MISSISSIPPI - Average adult counts per animal: 700 on 1,000 untreated head and 250 on another 70 untreated head in Yazoo County; 24 on 176 head in Hinds County; and 20 on 80 head in Pike County. (Sartor). FLORIDA - Adults averaged 399 (maximum 800) per untreated beef cow August 4; averaged 820 (maximum 1,200) per untreated beef animal at Gainesville, Alachua County, August 9. (Butler).

**STABLE FLY (*Stomoxys calcitrans*)** - WISCONSIN - Counts heavy and annoyance to cattle severe in Bayfield, Chippewa, Crawford, Columbia, Wood, and Calumet Counties. Slight annoyance to cattle reported from Outagamie County. Annoyance moderate in Clark County. (Wis. Ins. Sur.).

**TABANID FLIES** - UTAH - Unusually numerous and troublesome to horses, cattle, and man in Rich, Uintah, Wasatch, and Duchesne Counties, and in some areas of Weber, Box Elder, Tooele, and Cache Counties (Knowlton); very troublesome in Sevier County (Rickenbach). OKLAHOMA - *Tabanus* spp. averaged 3 per head on cattle checked in Payne County. Light numbers of *T. atratus* (black horse fly) noted on cattle in Mayes County. (Okla. Coop. Sur.).

**BROWN RECLUSE SPIDER (*Loxosceles reclusa*)** - MISSOURI - Specimen collected in Harrison County by D. Anderson. This is a new county record. (Hanning).

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1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things; sand; and gravel.  
Soil samples of any size shipped to U.S. Army Corps of Engineers soil laboratories within the conterminous United States are exempt.
2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants.
6. Root crops, except those from which all soil has been removed.  
Root crops are exempt if moving to a designated processing plant.\*
7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.  
8. Small grains and soybeans.  
Small grains are exempt\*\* if such grains and any containers for the grains did not come in contact with the soil during harvesting, or if they have been cleaned at a designated facility.\*  
Soybeans are exempt\*\* if such beans and any containers for the beans did not come in contact with the soil during harvesting and if such beans are moving forthwith to a designated oil mill or facility\* for crushing or cleaning, or if they have been cleaned with an air-blast cleaner having a capacity of 2,500 cubic feet per minute.
9. Hay, straw, fodder, and plant litter of any kind.
10. Seed cotton, cotton lint, cotton linters, and gin trash.  
Seed cotton is exempt if moving to a designated gin.\*
11. Stumpwood.
12. Long green cucumbers, cantaloupes, peppers, squash, tomatoes, and watermelons, except those from which all soil has been removed.
13. Pickling cucumbers, string beans, and field peas.  
Pickling cucumbers, string beans, and field peas are exempt\*\* if washed free of soil with running water.
14. Cabbage, except firm heads with loose outer leaves removed.
15. Leaf tobacco, except flue-cured leaf tobacco.
16. Ear corn, except shucked ear corn.  
Ear corn in the shuck is exempt\*\* if harvested without coming in contact with the soil.
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18. Used farm tools and implements.  
Used farm tools and implements are exempt\*\* if cleaned free of soil.
19. Used mechanized cultivating equipment and used harvesting machinery.  
Used mechanized cultivating equipment and used harvesting machinery are exempt\*\* if cleaned and repainted.
20. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\* if cleaned and repainted.
21. Any other products, articles, or means of conveyance, of any character whatsoever, not covered by the above when it is determined by an inspector that they present a hazard of spread of witchweed and the person in possession thereof has been so notified.

\*Information as to designated facilities, gins, oil mills, and processing plants may be obtained from an inspector.

\*\*Exempt if not exposed to infestation after cleaning or other prescribed handling.



## BENEFICIAL INSECTS

ALFALFA LEAF-CUTTER BEE (Megachile rotundata) - IDAHO - Second generation begun at Parma, Canyon County, week ending August 3. At some locations up to 10 percent of 1970 capped holes showed second-generation emergence. (Waters).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults and nymphs averaged 13 per 10 sweeps in alfalfa of Goshen and Platte Counties. (Parshall).

LACEWINGS - CALIFORNIA - Chrysopa californica (a green lacewing) and Ermochrysa californica (a brown lacewing) noticeably absent this season. Apparently some upset in reproduction. (Cal. Coop. Rpt.).

A WEEVIL (Smicronyx interruptus) - WASHINGTON - Larvae heavy in galls on dodder patches in alfalfa field near Lowden, Walla Walla County; larvae collected July 21, emerged as adults in laboratory August 6. (Eves, Johansen).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations began to increase in late July. Currently economic infestations present in few fields in Kent and Hall Counties. Survey continues to reveal light infestations on High Plains near the Caprock. Increased weevil movement can be expected about mid-August. (Rummel, Clymer, Aug. 10). For Boll Weevil in other areas see page 607.

CARRIBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Surveys indicate increase in numbers trapped using torula yeast and borax lure. Catches in 190 McPhail traps indicate ratio of 5 females to 1 male at Key West, Dade County. (PPD South. Reg., July).

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Larval damage survey indicates general buildup over much of State. Oatfields with highest populations located in east-central counties and several northwestern counties. Extreme northeastern counties had very low larval populations. (Treece).

GRASSHOPPERS - WASHINGTON - Arphia pseudonietana conspicuous with mixed populations of Melanoplus sanguinipes, M. bivittatus, and M. femurrubrum west of Addy in Stevens County. Averaged 25 per square yard over 600-1,000 acres. Anabrus spokan (a tettigoniid) averaged 3 per square yard on 300 acres. Infestation associated with mixed grasshopper population west of Addy. (Thomas). UTAH - Counts of 20 per square yard spotty on Cedar Mountain, Iron County. Cannula pellucida dominant, followed by M. sanguinipes and M. borealis. In Kane County, C. pellucida, Aulocara elliotti, and M. infantalis averaged 30 per square yard on range along Podunk Creek. (Thornley). NEW MEXICO - Ranged 15-25 per 25 sweeps of alfalfa in Grants area, Valencia County. (Henigen). NEBRASKA - About 5,000 acres sprayed at Clay Center, Clay County, for Melanoplus spp. Pretreatment counts ranged 0-75 (averaged 25) per square yard. Controls 85 percent effective, reducing populations well below economic level. (Bell). MINNESOTA - Infestations economic, 12-35 per square yard, in Meeker, Kandiyohi, Stearns, Todd, Morrison, and Cass Counties. Melanoplus femurrubrum dominant species in most fields. M. bivittatus dominant in some heavily infested fields in Todd County. M. sanguinipes and M. packardii observed in scattered locations. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Moths trapped at Mahoning Township, Montour County, July 30 by D. Munsen. Determined by E.L. Todd. This is a new county record. (PPD).

JAPANESE BEETLE (Popillia japonica) - KENTUCKY - Adults collected in Jeffersonville, Montgomery County, during July by J. Henderson; at Augusta, Bracken County, by W.A. Smith July 20; and at Greenwood, McCreary County, July 28 by H.E. Hurst. Determined by R.D. Gordon. These are new county records. (PPD). INDIANA - Adults heavy in area of about 22 square miles in Jackson and Washington

Counties; control necessary in latter county. (Clark). Corn and soybeans also treated in Jackson County. (Matthew). OHIO - Adults heavy in mixed alfalfa and red clover field in Holmes County. Adults averaged 6 per 10 sweeps. About 10 percent of leaf surface destroyed. (Roach). MAINE - Damage and outbreaks reported in several local areas at Lewiston, Cumberland County. (Gould).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released August 7-13. CALIFORNIA - Bakersfield 4,548,760, total to date 26,465,460. No native moths trapped in Kern County; sterile moth drops increased in area where 2 native moths previously trapped. ARIZONA - Redington, Pima County, 67,500; total to date 989,800. Survey in Redington yielded no rosetted blooms. One native and 22 sterile moths trapped in treatment field; total to date, 19 native and 182 sterile moths trapped. (PPD). Treatments applied by 6 growers at Safford; infestations ranged 0-32 percent in Graham County. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ARKANSAS - Specimens taken in soil sample from farm in Ashley County August 10 by B.F. Goolsby. Determined by A.M. Golden. This is a new county record. (PPD).

#### DETECTION

New State Records - AN ARMORED SCALE (Lepidosaphes yanagicola) WEST VIRGINIA - Cabell County (p. 609). AN ERIOPHYID MITE (Setoptus jonesi) PENNSYLVANIA - Lebanon County; NORTHERN PINE WEEVIL (Pissodes approximatus) MISSOURI - Boone County; PALES WEEVIL (Hylobius pales) MISSOURI - St. Charles County; WHITE-PINE WEEVIL (Pissodes strobi) SOUTH CAROLINA - Pickens County (p. 610).

New County Records - AN ARMORED SCALE (Lepidosaphes yanagicola) FLORIDA - Collier (p. 609). BROWN RECLUSE SPIDER (Loxosceles reclusa) MISSOURI - Harrison (p. 611). A CORN ROOTWORM (Diabrotica atripennis) PENNSYLVANIA - Lycoming (p. 605). GYPSY MOTH (Porthetria dispar) PENNSYLVANIA - Montour (p. 612). JAPANESE BEETLE (Popillia japonica) KENTUCKY - Montgomery, Bracken, McCreary (p. 612). MEADOW SPITTLEBUG (Philaenus spumarius) MISSOURI - Saline (p. 606). PALES WEEVIL (Hylobius pales) MISSOURI - Montgomery (p. 610). SATIN MOTH (Stilpnotia salicis) CALIFORNIA - Shasta (p. 610). SOYBEAN CYST NEMATODE (Heterodera glycines) ARKANSAS - Ashley (p. 613). WESTERN CORN ROOTWORM (Diabrotica virgifera) INDIANA - Lake, Kosciusko (p. 605).







TECHNIQUES TO DETERMINE LOSSES

Selected References 1942-1949 1/ 2/

Part VI

Additional copies of Parts I through VI of this bibliography are available from Economic Insect Survey and Detection.

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Weather of the week continued from page 602.

TEMPERATURE: Typical midsummer temperatures continued over most of the Nation with little change. Cool weather persisted along the Pacific coast and the mercury dropped to or near freezing in the northern and central Rocky Mountains on 1 or 2 mornings. Big Piney, Wyoming, registered 27° Monday morning, August 10. Early morning chill also occurred in the Northwest, and across the northern border States to the Northeast. Afternoon temperatures across the South ranged from hot in the southwestern deserts to quite warm in the Southeast. Daggett, California, recorded 113° Monday afternoon. Afternoon readings in the 90's were common over the western Great Plains. Some Texas stations warmed to 100° or higher on several days. East of the Mississippi, the highest temperatures remained mostly in the 80's until the weekend when the Northeast and the Deep South warmed to the 90's. Concord, New Hampshire, registered 96° Sunday afternoon. Higher humidity and increased pollution accompanied the return of hot weather to the East. Weekly mean temperatures were below normal from the central Great Plains to the middle and southern Atlantic coast and above normal over most of the rest of the Nation. (Summary supplied by Environmental Data Service, ESSA.)







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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

EUROPEAN CORN BORER light trap collections heavy in Indiana, Iowa, Tennessee, Virginia, and Wisconsin. (pp. 633-634). Larvae damaged corn in Tennessee, Maryland, Indiana, and Minnesota. Larval problems expected in corn in Michigan. (p. 622). FALL ARMYWORM larvae heavy on corn locally in Mississippi and Maryland, and damaged corn and grasses in Alabama. (pp. 622, 623).

LESSER CORNSTALK BORER larvae damaged peanuts in southeast Alabama. (p. 625).

BOLL WEEVIL increasing in Arkansas, Tennessee, Mississippi, north Alabama, and South Carolina. BOLLWORMS damaging in west Tennessee; moths heavy in southern Arkansas, expected to be heavy in northern part of State. Egg laying increased in Mississippi, continues heavy in Alabama. (p. 625). WHITEFLIES building up on cotton in Red River Valley of Louisiana. (p. 626).

GREEN CLOVERWORM larvae damaging beans in Wisconsin. CABBAGE LOOPER troublesome on cole crops in Michigan, Ohio, and on crucifers on Eastern Shore of Maryland. (p. 627).

LYGUS BUGS caused "cat-facing" on peaches in Michigan; more severe than in several years. (p. 628).

SADDLED PROMINENT and associated species defoliated hardwoods in Maine and Massachusetts. (p. 628).

Detection

An ANTHICID BEETLE reported for the first time from Hawaii. Previously known only from Micronesia, India, and Japan. This is a new Western Hemisphere record. Apparently a microscavenger. (p. 632).

A PYEMOTID MITE reported for the first time from Hawaii. This is a new State record. (p. 632).

For new county and island records see page 631.

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WEATHER OF THE WEEK ENDING AUGUST 24

**HIGHLIGHTS:** Typical summer heat continued over most of the Nation last week. The East became more comfortable over the weekend. Little rain fell in the West. Most of the eastern half of the Nation received 1 inch or more with heavy thunder-showers dumping 2 to 8 inches in spots.

**PRECIPITATION:** At the beginning of the week, a storm center lay over the central Great Plains. Quasi-stationary fronts stretched from this storm center northward across the Red River of the North Valley and eastward to the middle Atlantic coast. A tropical depression was centered about 40 miles off the Carolina coast. Thunderstorms developed along the front that stretched eastward from Kansas to Virginia. Some of the thunderstorms were accompanied by strong winds, heavy rain, and hail. Up to 4.50 inches of rain fell in parts of northern Missouri in the 24-hour period ending at 2 p.m., Tuesday. Kirksville, Missouri, registered 4.53 inches during that period, and Slater, Iowa, 4.20 inches. Scattered thunderstorms also soaked portions of the gulf coast. Midweek brought widely scattered thunderstorms to many parts of the Nation. In general, they were spread from the central and southern Rocky Mountains in the West to southern New England and northern Florida in the East. Many stations from northern Missouri to Pennsylvania received over an inch of rain in the 24-hour period ending at 8 a.m., Thursday. Several stations in Pennsylvania received from 2 to more than 4 inches during that period. Some totals in the Texarkana, Arkansas, area also exceeded 4 inches. The weekend brought clear weather to much of the Central and East. Rains continued along the gulf and Atlantic coasts. A few light rains also occurred in the Puget Sound area in Washington.

**TEMPERATURE:** Seasonally warm weather occurred over the western half of the United States early in the week. Miles City, Montana, registered 102° Monday afternoon when temperatures reached 100° or higher in western South Dakota, from central Kansas to central Texas, and in the Far Southwest. Burwell, Nebraska, recorded 102° and Russell, Kansas, 108° Tuesday afternoon. Hot humid weather continued over the southeast quarter of the Nation, with temperatures in the 90's as far north as Richmond, Virginia. At midweek, a high-pressure area centered in southern British Columbia brought cooler temperatures to the northern Great Plains. The maximum temperature at Minot, North Dakota, Wednesday afternoon was 71° in contrast to 95° recorded Monday. Early morning readings in the northern and central Rocky Mountains dropped to near freezing. Big Piney, Wyoming, registered 31° Thursday morning. The Northeast continued seasonally mild with maximums mostly in the 80's. The cool spell was short-lived, however. A quick warmup occurred in the northern Great Plains shortly after midweek. Weather of the week continued on page 631.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - Adults 2 in 100 sweeps of 24-inch alfalfa at Gainesville, Alachua County. (Mead).

BET LEAFHOPPER (Circulifer tenellus) - WYOMING - No curly top symptoms in 14 sugar beet fields of Washakie and southern Big Horn Counties. No leafhoppers found. (Petersen, Parshall).

CORN EARWORM (Heliothis zea) - MAINE - Present in 10 percent of corn silks. (Gall). NEW YORK - In Hudson Valley area, 2 blacklight traps collected 3 moths July 31-August 14. Survey negative for silk tip feeding by larvae up to August 14. Out of 550 tips checked 2 percent infested. (N.Y. Wkly. Rpt.). DELAWARE - Moths increased in blacklight traps but very light compared to previous years. (Burbutis et al.). MARYLAND - Small larvae infested late snap and lima beans on Eastern Shore. Moths averaged 18 per night in blacklight trap at Salisbury, Wicomico County. (U. Md., Ent. Dept.). ALABAMA - Larvae light but widespread and feeding on young soybean pods on several thousand acres in Gallion and Jefferson communities, Marengo County. (Yates). ARKANSAS - Egg survey in soybeans negative in many fields in southeast area. Highest count about 1 per row foot. Larval infestations absent to light; highest count 9 on 30 row feet. Moth activity heavy. Eggs heavy in cotton; soybeans should be watched next 14 days. (Boyer). WISCONSIN - Counts in blacklight traps increased about August 13. No larvae in ear tips yet, but expect appearance soon. (Wis. Ins. Sur.). KANSAS - Moth collections in light traps still heavy in Riley and Brown Counties. Larval counts of 1-2 per ear in one field of late irrigated corn in Stafford County. (Bell). NEW MEXICO - Larvae 0-2 per ear, mainly in ensilage corn in Chaves County. (Mathews).

CORN LEAF APHID (Rhopalosiphum maidis) - CALIFORNIA - Counts of 300 per tassel on 80 acres of corn at Artois, Glenn County. (Cal. Coop. Rpt.). NEW MEXICO - Light to moderate on grain sorghum and corn in Roswell area, Chaves County. (Mathews). UTAH - Light in Brigham and Tremonton area of Box Elder County. (Roberts). WISCONSIN - Treated 1,000+ acres of corn in Waukesha County as of August 1. (Wis. Ins. Sur.). NEW YORK - Declining; sooty mold and leaf burn on sweet corn in Hudson Valley area. (N.Y. Wkly. Rpt., Aug. 17).

GREENBUG (Schizaphis graminum) - SOUTH DAKOTA - Heavy on grain sorghum north of Midland, Haakon County. Lower leaves killed. (Jones). KANSAS - Generally decreasing in most sorghum surveyed. In 2 fields rechecked in Geary County, populations remain heavy despite heavy predator counts. Predators and occasionally parasites generally heavy in infested fields. (Bell). NEW MEXICO - Ranged 0-10 per leaf in grain sorghum in Roswell area, Chaves County. (Mathews). ARIZONA - Averaged 40 per leaf on late-planted sorghum at Safford, Graham County. Treatments required. One 20-acre field at San Simon averaged 20 per leaf in Cochise County. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Adults and nymphs ranged 3-50 per sweep in 6 alfalfa fields in Kent and Queen Annes Counties. (U. Md., Ent. Dept.). WISCONSIN - Light, ranged 3-7 per 10 sweeps, in most alfalfa. Counts up to 35 per sweep in blooming alfalfa or alfalfa grown on sandy areas. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Continues to increase on alfalfa in sandy areas. Counts of about 300 per sweep in southern Trempealeau County; alfalfa showed wilted appearance. Ranged 30-90 per sweep in other fields in area. (Wis. Ins. Sur.). KANSAS - Generally light in most fields checked in northeast, east-central, southeast, south-central, and central crop districts. Predators generally abundant in alfalfa surveyed. (Bell). NEW MEXICO - Ranged 25-100 per 25 sweeps in Chaves County alfalfa. (Mathews).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - COLORADO - Larval infestation ranged 3-5 percent in corn checked in Kiowa Valley, Weld County. (Johnson). KANSAS - Second-generation pupae found; light trap catches indicate some second-generation moths emerging. (Bell). TENNESSEE - Moths heavy in blacklight trap past 14 days. Heavy damage to late corn in many areas. Larval boring heavy in corn ears. (White et al.). MARYLAND - Stalk infestations increasing in all sections; ranged 13-100 percent in maturing corn in Frederick, Kent, and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Second-generation larvae mostly in late stages in southern districts. Infestations ranged up to 100 percent in ears and stalks in about half of fields checked. (Meyer). MINNESOTA - Canning companies indicate second-generation populations heavy and control generally necessary. Some stalk breakage in field corn in southwest district. (Minn. Pest Rpt.). MICHIGAN - Weather ideal with peak adult counts at all blacklight stations. Lenawee County station recorded 823 moths and Livingston County station 764, indicating larval problems will occur in 10-14 days if current weather patterns continue. Cooler weather could delay this peak for few days. (Newman, Aug. 17). WISCONSIN - Egg laying about at peak. Fresh egg masses on up to 20 percent of plants in one sweet corn field at New Richmond, Saint Croix County. Older sweet corn in area had 4 percent eggs as did sweet corn in Trempealeau County. Few second instars in ear tips and fourth instar, probably second brood, in field corn. Adults swept from alfalfa although flight at blacklight traps declined. Few pupae still in southern Dane County. (Wis. Ins. Sur.).

NEW JERSEY - European corn borer egg masses averaged 26 per 100 plants in Rutgers University Research Center plots August 17. First and second instars easy to find in whorls of late-planted corn. (Ins.-Dis. Newsltr.). NEW YORK - Spotty on sweet corn in west areas. Moths abundant in shade of weeds; egg masses and early instars on whorls and ears of tasselling corn at harvest time in Hudson Valley area. (N.Y. Wkly. Rpt., Aug. 17). MAINE - Found in 25-40 percent of field corn. (Gall).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - All stages heavy, larvae 15+ per corn plant in several young corn fields in pretassel stage in Cherokee County. (Butler et al.). MISSISSIPPI - Larval outbreak in young milo whorls in Holmes County. (Sartor). MARYLAND - Infested 46 percent of plants in 12 acres of late corn near Frederick, Frederick County; damage heavy. (U. Md., Ent. Dept.).

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - KANSAS - Half-grown larvae averaged about 1 per 20 plants in late-silking irrigated corn in Stafford County. All larvae feeding on ear tips. (Bell).

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - COLORADO - Larvae light on corn in Weld and Morgan Counties. Infestations in Hudson and Roggen area, Weld County, ranged 0-2 per 50 row feet. Ranged 8-10 per 50 row feet in one field in Bijou Hill area. (Johnson).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - INDIANA - Adults about gone from corn silks in southern district. Populations in State comparable to 1969 and much lower than 1968. Heavy in occasional fields in northern and central districts, but fields widely separated and only few showed serious root damage. (Meyer). OHIO - Severely damaged 80-acre cornfield in Champaign County. Heavy silk feeding earlier in summer resulted in many unfilled ears. Chemical soil treatment used during spring. (Flemming). NEW JERSEY - Adults abundant on field and sweet corn in western Hunterdon County. Adult counts of 10 and 20 per ear in several fields; controls not advised since pollination already occurred. In other fields, averaged 1-2 per ear. (Ins.-Dis. Newsltr.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - COLORADO - Adults ranged 0-4 per corn plant in Weld, Morgan, Larimer, and Boulder Counties. Damage light in most fields, heavy lodging in few fields. (Johnson).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Moderate in ears of field corn in western area. D. longicornis (northern corn rootworm) outnumbered D. virgifera (western corn rootworm) in ratios of 3 to 1 up to 100 to 1. This is area where D. virgifera found in State. Much silk feeding on sweet corn in many areas; some controls. (Wis. Ins. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - ARKANSAS - Very light in blooming sorghum in Chicot County; occasional midge found. (Boyer). Very heavy populations in some fields just blooming in Randolph County. Treatment underway in some fields. All late-planted sorghum should be watched during bloom stage. (Jones).

BANKS GRASS MITE (Oligonychus pratensis) - WYOMING - Light on bottom 1-5 leaves of corn in Fremont, Hot Springs, Big Horn, Washakie, and Park Counties. Some yellowing on bottom 1-2 leaves in few fields. (Parshall).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - Corn damage light to very heavy in Weld, Boulder, Larimer, and Morgan Counties. (Johnson).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - NORTH DAKOTA - Ranged 5-35 per head in green wheat near Langdon, Cavalier County. (Kaatz).

#### TURF, PASTURES, RANGELAND

SOD WEBWORMS (Crambus spp.) - COLORADO - C. mutabilis larvae, 3-4 per square yard, caused severe damage to lawns in Fort Collins area, Larimer County. Controls recommended. (Thatcher). ARIZONA - Treated 60 acres of Tigreen Bermuda grass for Crambus sp. at Tolleson, Maricopa County. (Ariz. Coop. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larvae damaged large field of Coastal Bermuda grass in Lee County. (Teague).

A MEALYBUG (Phenacoccus eriogoni) - CALIFORNIA - Counts of 20 per stem on weeds in Elk Creek, Glenn County. Collected by W.R. Duckworth. Determined by R.F. Wilkey. This is a new county record. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Averaged 1,000 per limb on bitterbrush (Purshia tridentata) on scattered plants along Highway 99 north of Mt. Shasta, Siskiyou County. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - WYOMING - Heavy; averaged 3,600 per 10 sweeps of alfalfa in Fremont County. Many fields treated. Some treating in Washakie County; infestations scattered. Light, averaged 70 per 10 sweeps of alfalfa in Sweetwater, Hot Springs, Park, and Big Horn Counties. (Parshall). UTAH - Ranged 15-150 per 10 sweeps in Cache County alfalfa. (Knowlton). MARYLAND - Counts per sweep averaged 150 in 10 acres of alfalfa in Frederick County and 20 in 15 acres in Talbot County. (U. Md., Ent. Dept.).

ALFALFA WEEVIL (Hypera postica) - IDAHO - Larvae averaged 26 per 50 sweeps in alfalfa field south of Moscow, Latah County. (Saad). WYOMING - Few larvae in alfalfa of Sweetwater, Fremont, Hot Springs, Washakie, Park, and Big Horn Counties. Heaviest count larvae 6 and adults 3 per 10 sweeps in field in Big Horn County. (Parshall).

ALFALFA CATERPILLAR (Colias eurytheme) - WASHINGTON - Adults numerous over alfalfa in Franklin County. (Hokanson). UTAH - Larvae 1-2 per 10 sweeps in Cache County alfalfa. (Knowlton). WYOMING - Larvae ranged 1-7 per 10 sweeps in 5 alfalfa fields in Fremont County. Many moths in these fields. (Parshall). ARIZONA - Averaged 35 per 100 sweeps of alfalfa in Yuma and Gila Valleys in Yuma County; one field at Dome Valley treated. Larvae 40 per 100 sweeps on 80-acre field at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Ranged 20-120 per 100 sweeps of alfalfa in Yuma Valley, Gila Valley, and on Yuma Mesa in Yuma County. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - WISCONSIN - Larvae ranged 1-3 per sweep in most alfalfa in western area from Trempealeau County northwards to St. Croix County. Counts of 1-2 per linear foot on soybeans. (Wis. Ins. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WYOMING - Ranged 0-5 per 10 sweeps in alfalfa of Fremont, Hot Springs, Park, Big Horn, and Washakie Counties. (Parshall). WISCONSIN - Nymphs and adults still heavy in alfalfa. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - UTAH - Ranged 2-9 in 10 sweeps of Cache County alfalfa. (Knowlton). ARIZONA - Counts of 1,400 per 100 sweeps in field of seed alfalfa in Gila Valley, Yuma County. Adults averaged 30 per 100 sweeps in 80-acre field in Pinal County. (Ariz. Coop. Sur.). NEW MEXICO - Adults and nymphs ranged 10-25 per 25 sweeps in Chaves County alfalfa. (Mathews). FLORIDA - L. lineolaris (tarnished plant bug) nymphs 27, adults 22 in 100 sweeps of 24-inch alfalfa at Gainesville, Alachua County. (Mead).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - FLORIDA - Adults 16 in 100 sweeps of 24-inch high alfalfa at Gainesville, Alachua County. (Mead).

A LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Nymphs 10, adults 18 in 100 sweeps of 24-inch alfalfa at Gainesville, Alachua County. (Mead).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Nymphs 50, adults 15 (one nymph parasitized) in 100 sweeps of 24-inch alfalfa at Gainesville, Alachua County. (Mead).

GRASSHOPPERS - WISCONSIN - Melanoplus femurrubrum (red-legged grasshopper) generally heavy throughout northwest area. Counts up to 40 per square yard in alfalfa in La Crosse, southern Trempealeau, Pierce, and St. Croix Counties; damage noticeable. About 80 percent adults; 1 percent of females developing eggs. Damage to soybeans becoming evident near margins of fields; some corn also damaged. M. bivittatus (two-striped grasshopper) next most prevalent species in Pierce and St. Croix Counties; about 2 percent adults. (Wis. Ins. Sur.).

#### SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - INDIANA - Heavily damaged few fields in southwest district. Serious damage appeared less widespread than in 1969; fields completely defoliated last year retained half or more of leaves in 1970. (Meyer).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Adults averaged 2 per 3 row feet in 5 fields in Oktibbeha County, 1 per row foot in field in Sharkey County. (Sartor).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Larvae of this species and Pseudoplusia includens (soybean looper) heavy on several hundred acres of soybeans in Dallas and Escambia Counties. (Knowles, Justice).

GRASSHOPPERS - OHIO - Various species infested fields in northwest area. All fields inspected showed definite loss of foliage which decreased toward center of field. Damage estimated at 3-5 percent in fields with few weeds; where many weeds in and around fields, damage estimated at 5-10 percent. Mostly nymphs. (Roach).



## PEANUTS

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Larvae of this species and Pseudoplusia includens (soybean looper) feeding heavily in peanut field in Henry County and in 44-acres in Escambia County. Larvae not affected following several insecticide applications in Escambia County. (Bond, Knowles).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Larvae still in peanut fields examined throughout southeast area. Damaging numbers still in many Geneva County fields. (Reynolds et al.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larval damage at and below ground line more noticeable and widespread in peanuts throughout south-east area. Larvae remaining in soil pose threat to following small grain crops. (Bond et al.).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - ARKANSAS - Emergence rapid in infested fields. Increase in infestations due to decrease in squaring rates caused some alarm. (Boyer, Barnes). TENNESSEE - Continues to increase in regularly infested portion of cotton-growing area. Migrating to uninfested areas. Most weevils attracted to late rank cotton. Much small boll damage in southern tier of counties. Punctured squares ranged 10-94 percent. Weather conditions and rank cotton making control difficult in many instances. (Locke). MISSISSIPPI - Increasing in many areas. Percent infestation ranged 1-15 in 5 counties. (Sartor). Increasing throughout delta counties. Still light in some fields, watch closely. Punctured squares averaged 7.5 (maximum 60) percent in 6 of 11 fields. (Pfrimmer et al.). LOUISIANA - In Madison Parish, punctured squares ranged 1-52 (averaged 25.7) percent in 116 fields and plots. (Leggett et al.). ALABAMA - Remains heavy in central and south areas. Weevils increased in extreme northern counties. Third generation emerging in older cotton, will emerge in younger cotton soon. Some controls in heavier infested fields. (McQueen). GEORGIA - Punctured squares ranged 6-75 (averaged 26) percent in 40 treated fields in south area, 100 percent in some untreated fields (Womack); 6 percent in treated and 31 percent in untreated fields in Spalding County (Beckham, Aug. 15). SOUTH CAROLINA - Increasing slowly in Florence County. (Taft et al., Aug. 12).

BOLLWORMS (Heliothis spp.) - ARIZONA - H. zea very light at Safford, Graham County. Few larvae on short-staple cotton in Maricopa County. (Ariz. Coop. Sur.). LOUISIANA - In Madison Parish, damaged squares ranged 0-10 (averaged 1.2) percent in 75 of 116 fields and plots. In blacklight traps recovered 113 H. zea and 3 H. virescens. (Leggett et al.). ARKANSAS - H. zea moths very numerous across southern half of State, Eggs throughout plants; young larvae appearing. Heaviest moth flight of year in northern area expected about August 25, but many fields not attractive. Controls generally effective. (Barnes et al.). Determinations showed H. virescens still low but increased to 5.5 percent of total this period. (Wall, Boyer). TENNESSEE - Heliothis spp. continue to cause damage throughout west area. Late rank fields still attractive to moths and should be watched. Many infestations completely out of control. Further increase expected. (Locke). MISSISSIPPI - In delta counties, moth flights doubled as indicated by light traps and field activity. Egg deposition increased, particularly on dried blooms. Early instars found on small bolls under dried blooms. Injured squares averaged 1.36 (maximum 3) percent in 8 of 11 fields. (Pfrimmer et al.). Egg laying heavy in areas of Washington, Coahoma, Sharkey, and Tunica Counties. Percent average larval infestation by county: Quitman 4, Tunica 5, and De Soto 6. (Sartor). ALABAMA - H. zea egg laying still heavy on cotton (except older cotton) throughout State. Larvae ranged 5-15 per 100 terminals on cotton in northern area. Control for bollworms underway even though boll weevil infestations below 10 percent. (Holloway et al.). GEORGIA - Eggs ranged 8-185 (averaged 29) and larvae up to 18 (averaged 4) per 100 terminals in 40 treated fields in south area. (Womack, Aug. 15). SOUTH CAROLINA - In Florence County light traps, recovered 1,839 H. zea and 25 H. virescens. Increasing slowly. (Taft et al., Aug. 12).

BEEF ARMYWORM (Spodoptera exigua) - ALABAMA - Larvae heavy on several hundred acres of cotton in Forrest Home area of Butler County, controls ineffective. Prediator and parasite populations light. (Boutwell et al.). Larvae feeding on bolls, squares, and leaves in 3 large fields in Russell County. (Benefield).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Heavy in Dome Valley area, Yuma County. (Ariz. Coop. Sur.).

WHITEFLIES - LOUISIANA - Unspecified species building up in Red River Valley from Arkansas line south to Natchitoches Parish in many fields to extent that defoliation showing. Present throughout State where ever cotton grown, currently causing damage only in area noted. (Tynes, Aug. 18).

#### SUGAR BEETS

BEEF WEBWORM (Loxostege sticticalis) - WYOMING - Larvae ranged 18-58 per 100 squares and damaged few scattered sugar beet fields in Washakie County. Some sprayed. (Petersen, Parshall). Ranged 0-20 per 100 sweeps in Park, Big Horn, and Fremont Counties. (Parshall).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - ARIZONA - Adults collected feeding on eggplants at Willcox and soybeans at Elfrida, Cochise County, by S. Kozloski. Determined by T. Halstead. This is a new county record. (Ariz. Coop. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - TENNESSEE - Moderate to heavy on beans in most areas. Controls effective when applied. (Gordon).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - CALIFORNIA - Adults 4 per leaf on acre of tomato plants at Salyer, Trinity County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Moths abundant in light traps throughout State. Larvae infesting about 70 percent of untreated peppers, egg masses common. (Boys, Aug. 19).

GREEN PEACH APHID (Myzus persicae) - OHIO - Troublesome on peppers in Wayne County; probably throughout State. Principal damage caused by honeydew on fruit and subsequent dark sooty fungus. (Sleesman). COLORADO - Ranged 50-200 per leaf on potatoes in Morgan County. Damage light to moderate. (Johnson). IDAHO - Trap pan surveys in eastern potato producing areas recovered 2 aphids at Blackfoot, 2 at Rockford, Bingham County; and 2 at Ashton, Fremont County, August 9-15. (Kuta).

POTATO APHIDS - MAINE - Surveys by 3-leaf method indicated 94 percent of untreated potato plants infested at Presque Isle, Aroostock County. Macrosiphum euphorbiae (potato aphid) colony size ranged 1-24, parasitized 1.2 percent, 8.5 percent attacked by fungus; increase expected next 14 days. Many alate dispersal forms noted. Myzus persicae (green peach aphid) colonies ranged 1-7. Aphis nasturtii (buckhorn aphid) colonies ranged 1-35. Fall migrants appearing, few return migrants full-grown. Fungus attacked small percentage. Acyrtosiphon solani (foxglove aphid) trace. (Simpson).

POTATO TUBERWORM (Phthorimaea operculella) - MICHIGAN - Seven fields and numerous cull piles surveyed August 14 in Monroe and Lenawee Counties negative. Field lightly infested few weeks ago, negative for third consecutive week. (Newman).

TOMATO PINWORM (Keiferia lycopersicella) - ARIZONA - Infesting greenhouse tomato nursery stock at Peoria, Maricopa County. (Ariz. Coop. Sur.).

## BEANS AND PEAS

GREEN CLOVERWORM (Plathypena scabra) - WISCONSIN - Larvae ranged 2-6 per linear foot on snap and navy beans in Pepin and St. Croix Counties. Most larvae half to nearly full grown; defoliation noticeable. Older beans most heavily infested. Canning companies treating. Counts on lima beans in Trempealeau County comparable. (Wis. Ins. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARKANSAS - Severely damaged 50-60 acres of field peas in Lincoln County. Determined by E.P. Rouse. (Boyer).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - IDAHO - First report of larvae feeding on bean pods at Twin Falls, Twin Falls County, August 11. (Sutherland).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Heavy in some beans in Kent and Sussex Counties. (Boys, Aug. 19). NEW MEXICO - Severely damaged bean foliage in home gardens in Espanola Valley, Rio Arriba and Santa Fe Counties. (Heninger).

TARNISHED PLANT BUG (Lygus lineolaris) - WISCONSIN - Nymphs ranged 3-5 per linear foot on beans throughout northwestern area. Moderate blossom and leaf drop in some fields. (Wis. Ins. Sur.).

## COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - MICHIGAN - Moths increasing at all blacklight stations. Larvae will be serious field problem in cabbage and cole crops until frost. Major feeding damage in Monroe and Lenawee Counties August 14. One field of recently planted cabbage 80 percent destroyed by larvae of this pest and Pieris rapae (imported cabbageworm). Pupae and first instars of both species collected. (Newman). OHIO - T. ni building up on cabbage and other cole crops in Wayne County. All instars and some pupae present. Damage noticeable on untreated plants. (Sleesman). MARYLAND - T. ni larvae troublesome on crucifers on lower Eastern Shore. (U. Md., Ent. Dept.).

## CUCURBITS

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Eggs totalled 115 and larvae 98 per 100 broccoli plants August 17. Most first instars. (Ins.-Dis. Newsltr.).

## GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW YORK - Early instars and eggs in most fields checked in Ontario, Yates, and Orleans Counties. (N.Y. Wkly. Rpt., Aug. 17). WISCONSIN - Moths increased as indicated by Hancock, Waushara County, blacklight trap; collected 28 moths. (Wis. Ins. Sur.). COLORADO - Larvae averaged 1 per plant on untreated cabbage at Fort Collins, Larimer County. (Hantsbarger).

CARROT WEEVIL (Listronotus oregonensis) - MISSOURI - Larvae collected from carrots in Ralls County July 12, 1968. Carrots 90 percent infested with 1-2 per plant. Adults reared indoors. Determinated by R.E. Warner. This is a new county record. (Hanning).

A STINK BUG (Pitiedia uhleri) - CALIFORNIA - Adults infested 180 acres of asparagus in Wasco, Kern County, and 300-acres in Tulare, Tulare County. (Cal. Coop. Rpt.).

ASPARAGUS APHID (Brachycolus asparagi) - NEW JERSEY - Adults taken from wild asparagus at Rocky Hill, Somerset County, by R.R. Jackowski August 6. Determined by L.M. Russell. This is a new county record. (PPD).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - OREGON - Larvae light in commercial walnut orchard in Eugene area, Lane County. No economic damage to walnuts in Willamette Valley to date. (Larson, Penrose). CALIFORNIA - Averaged one larva per apple fruit locally at Yreka, Siskiyou County. (Cal. Coop. Rpt.). UTAH - Heavy on apples at Blanding, San Juan County. (Jones). WISCONSIN - Moths still moderate in Madison County blacklight trap. (Wis. Ins. Sur.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - OREGON - Adult in bait pot in peach orchard near Phoenix, Jackson County, week of August 7. First adult this year in bait pot survey of area. (Larson).

LYGUS BUGS (Lygus spp.) - MICHIGAN - Much "cat-facing" observed on harvested peaches. Problem more severe than in several years. Probably related to removal of more persistent insecticides from spray schedule. (Carpenter, Aug. 17).

APPLE MAGGOT (Rhagoletis pomonella) - MINNESOTA - Occasional flies observed in La Crescent area, Houston County; some caught in traps. Some growers spraying. Flies reported in North St. Paul area, Ramsey County; heavy in orchard near Rochester, Olmsted County. (Minn. Pest Rpt.).

CHERRY FRUIT FLY (Rhagoletis cingulata) - OREGON - Generally lighter in Willamette Valley this year including areas where no controls applied. (Jones).

SPIDER MITES - UTAH - Infestations and damage increased on apples and pears during recent hot weather in central and northern areas. (Knowlton). MASSACHUSETTS - Panonychus ulmi (European red mite) counts per 100 apple leaves in Hampshire County: 935 on McIntosh and 5,880 on Delicious with dormant oil only. (Jensen).

PECAN WEEVIL (Curculio caryae) - MISSISSIPPI - Pecan orchards checked in Lowndes and Hinds Counties indicate weevil emergence has peaked. (Sartor).

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Infesting walnuts in Ogden and Slaterville area of Weber County. (Knowlton).

## ORNAMENTALS

ASPEN BLOTCH MINER (Lithocolletis tremuloidiella) - MONTANA - Defoliated ornamental poplars at various locations over State. (Pratt).

AN ERIOPHYID MITE (Trisetacus juniperinus) - WASHINGTON - Severely stunting and destroying buds and new growth of Juniperus procumbens. About 80 percent of buds infested at Tumwater, Thurston County. (Barstow).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - FLORIDA - All stages moderate on 1,000 dieffenbachia plants at Perrine, Dade County, August 13. (Knowles). Control not effective. (Fla. Coop. Sur.).

BROWN GARDEN SNAIL (Helix aspersa) - MICHIGAN - Adults, subadults, and eggs intercepted during early August on container-grown Euonymus and Juniperus plants originating out of State. Controls applied. (Hanna).

## FOREST AND SHADE TREES

SADDLED PROMINENT (Heterocampa guttivitta) - MAINE - This pest and associated species severe with up to 100 percent defoliation on about 12,000 acres of beech, sugar maple, birch, and other hardwoods in Oxford County. Pupation complete. (Clark, Dearborn). MASSACHUSETTS - Larvae of this species and Anisota rubicunda (green-striped mapleworm) heavy on maple, with defoliation estimated to be 75-95 percent in some areas of Franklin County. (Blair, Aug. 14).

FALL WEBWORM (Hyphantria cunea) - CALIFORNIA - Larvae 10 per leaf on alder trees along part of Ash Creek Road on Klamath River, Siskiyou County. (Cal. Coop. Rpt.). WISCONSIN - Infesting black walnut, hickory, apple, tag alder, and pin cherry from Grant County to Vilas County. In Buffalo County, larvae half-grown and heaviest in walnut trees near Mississippi River. (Wis. Ins. Sur.). MARYLAND - Webs conspicuous on various trees, especially along roadsides, Statewide. (U. Md., Ent. Dept.).

ELM LEAF BEETLE (Pyrrhalta luteola) - UTAH - Still damaging in many localities (Knowlton); very severe at Moab, Grand County, and some San Juan County communities (Jones). NEW MEXICO - Heavy and skeletonized elms at Lincoln, Lincoln County, and at Tularosa, Otero County. Many damaged leaves fallen. (Hare). Light on American elms at Los Alamos, Los Alamos County, and Santa Fe, Santa Fe County. Foliage brown, leaves falling from Siberian elms in Rio Arriba and Santa Fe Counties. (Heninger).

COTONWOOD LEAF BEETLES (Chrysomela scripta complex) - MONTANA - Defoliated poplars in Toole, Daniels, Carter, and Yellowstone Counties. (Pratt).

ELM FLEA BEETLE (Altica ulmi) - MAINE - Extremely heavy, feeding on American elms in central and southern areas. (Simpson).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - MISSOURI - Adults on oak at scattered locations in Phelps and Texas Counties. Feeding damage ranged 5-40 percent of leaves on effected trees. (Hanning).

A SAWFLY (Nematus desmodioides) - MONTANA - Heavier than usual on willows at Shelby, Toole County. Reported heavy in Kalispell, Flathead County, and at Helena, Lewis and Clark County. (Pratt).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Two cases reported in U.S. August 16-22 as follows: TEXAS - Brewster. ARIZONA - Cochise. Total of 72 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 41, Chihuahua 28, Nuevo Leon 2, Tamaulipas 1. Total of 49 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 62,558,000; New Mexico 4,380,000; Arizona 7,850,000; Mexico 102,018,000. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - IOWA - Counts per head ranged 10-50 (averaged 27) on untreated beef cattle in Jasper County and 8-25 (averaged 16) on untreated herd in Dallas County. (Stockdale, Aug. 14). MARYLAND - Adults ranged 43-125 per head on unprotected dairy cattle in Frederick County. (U. Md., Ent. Dept.).

MOSQUITOES - MINNESOTA - Aedes vexans accounted for 242 of 249 evening bite collections at Minneapolis and St. Paul. Of 860 specimens in daytime bite collections, A. vexans 754, A. trivittatus 47, and A. triseriatus 27. (Minn. Pest Rpt.). OHIO - Five light traps operated in Franklin County nights of August 10, 11, and 13. Total of 337 mosquitoes collected for average of 24 (range 2-104) per trap night; Anopheles punctipennis 12, Aedes trivittatus 2, A. vexans 149, Culex restuans 1, C. pipiens 166, Culex sp. 1, Coquillettidia perturbans 3, Psorophora ciliata 1, P. confinnis 2. (Roach).

HORN FLY (Haematobia irritans) - IOWA - Counts per head ranged 10-200 (averaged 42) on untreated beef cattle in Jasper County and 15-75 (averaged 35) on untreated herd in Dallas County. (Stockdale). MARYLAND - Averaged 150 per head on 20 beef animals at Burkettsville, Frederick County. (U. Md., Ent. Dept.).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Averaged 112 per head on 64 dairy cows near Woodsboro, Frederick County. (U. Md., Ent. Dept.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - IOWA - Collected in office at Bedford, Taylor County, August 18. This is a new county record. (Iowa Ins. Sur.). ALABAMA - Numerous specimens collected from home in Colbert County. Still numerous in homes found infested earlier in Alsboro Community of Colbert County. Specimen collected from home in Franklin County. Numerous specimens found in Morgan County. (Rose et al.).

#### STORED PRODUCTS

A DERMESTID (Trogoderma variabile) - IDAHO - Heavy in farm-stored rye seed at Twin Falls, Twin Falls County, August 10. Determined by H.W. Smith. (Pollard).

#### BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Ranged 0-40 per 10 sweeps of alfalfa in Sweetwater, Fremont, Hot Springs, Washakie, Big Horn, and Park Counties. Heaviest in Fremont County. (Parshall). ARIZONA - Hippodamia convergens (convergent lady beetle) adults averaged 35 per 100 sweeps of alfalfa in Cochise County. (Ariz. Coop. Sur.).

A MELYRID BEETLE (Collops vittatus) - ARIZONA - Adults averaged 44 per 100 sweeps on experimental cotton in Maricopa County. (Ariz. Coop. Sur.).

FLOWER BUGS (Orius spp.) - FLORIDA - O. insidiosus adults 40 in 100 sweeps of 24-inch alfalfa at Gainesville, Alachua County. (Mead). ARIZONA - Orius sp. nymphs and adults averaged 35 per 100 sweeps of alfalfa in Cochise County. (Ariz. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - ARIZONA - Adults averaged 30 per 100 sweeps of alfalfa in Cochise County. (Ariz. Coop. Sur.). FLORIDA - Nymphs 4, adult 1 in 100 sweeps of 24-inch alfalfa at Gainesville, Alachua County. (Mead).

BIG-EYED BUGS (Geocoris spp.) - ARIZONA - Nymphs averaged 50 per 100 sweeps of alfalfa in Cochise County. (Ariz. Coop. Sur.). FLORIDA - G. punctipes adults 33 in 100 sweeps of 24-inch alfalfa at Gainesville, Alachua County. (Mead).

HONEY BEE (Apis mellifera) - TENNESSEE - American foulbrood found in colonies in Davidson, Lincoln, and Bedford Counties during July. (Little).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - MINNESOTA - Annual survey completed. Economic, ranged 9-30 per square yard, in southern Pine, northern Chisago, north-central Benton, and throughout Sherburne Counties. Melanoplus femurrubrum dominant in most fields; M. bivittatus dominant in some fields in Sherburne County. Large numbers of M. differentialis observed in some Sherburne County fields; M. sanguinipes and M. packardii also noted. Some movement into soybeans and corn; feeding damage observed. Counts generally very low in southwest districts; highest count 10 per square yard, but mostly 1-5. M. femurrubrum dominant. In west-central district, highest counts in Wadena and Hubbard Counties with 15-18 per square yard in scattered locations. M. femurrubrum dominant. Economic, ranged 9-81 per square yard in southern Dakota, southeast Houston, western Rice, and western Scott Counties. Noneconomic in northwest district. In Houston County one field with 27 per square yard; highest count 81 per square yard in alfalfa field. (Minn. Pest Rpt.). COLORADO - M. bivittatus, M. differentialis, and Melanoplus spp. ranged 0-8 per square yard in field margins in Morgan, Weld, Larimer, and Boulder Counties. Populations scattered, some movement into adjacent fields. Damage light in most field crops but heavy in gardens in urban areas. (Johnson). NEW MEXICO - Heavy numbers defoliated vegetable and flower garden plants in Espanola Valley of Rio Arriba and Santa Fe Counties. (Heninger). NEVADA - M. sanguinipes ranged 5-10 per square yard on 500-600 acres of wheat in Reese River Valley, Lander County. (Peters).

GYPSY MOTH (*Porthetria dispar*) - VIRGINIA - Adult trapped at Lacey Spring, Rockingham County, by C.H. Frocher August 11. NEW YORK - Adult male collected in Brasher Township, St. Lawrence County, by R. Boudreau August 11. Determinations by E.L. Todd. These are new county records. (PPD).

PINK BOLLWORM (*Pectinophora gossypiella*) - Sterile moths released August 14-20 as follows: CALIFORNIA - Bakersfield 5,483,091, total to date 31,948,551. No native moths trapped in Kern County since July 24. ARIZONA - Redington, Pima County, 45,000, total to date 1,034,800. Six sterile but no native moths trapped in treatment field; total to date, 19 native and 188 sterile moths. (PPD). Infestations appear very spotty in most areas. Third generation about complete and fourth beginning. Many fields statewide, under some type of spray program. (Ariz. Coop. Sur.). NEW MEXICO - Moths in hexalure traps remained low through second week in August; 8 collected in 10 traps during this period in Eddy County. No infested bolls found. (Mathews).

#### DETECTION

New Western Hemisphere Record - AN ANTHICID BEETLE (*Formicomus imperator* (LaFerte)) HAWAII - Oahu Island (p. 632).

New State Record - A PYEMOTID MITE (*Siteroptes reniformis*) HAWAII - Oahu Island (p. 632).

New County and Island Records - ASPARAGUS APHID (*Brachycolus asparagi*) NEW JERSEY - Somerset (p. 627). BROWN RECLUSE SPIDER (*Loxosceles reclusa*) IOWA - Taylor (p. 630). CARROT WEEVIL (*Listronotus oregonensis*) MISSOURI - Ralls (p. 627). COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) ARIZONA - Cochise (p. 629). ENCYRTID WASPS (*Neodusmetia sangwani* and *Anagyrus antoninae*) HAWAII - Hawaii (p. 632). GYPSY MOTH (*Porthetria dispar*) VIRGINIA - Rockingham, NEW YORK - St. Lawrence (p. 631). A MEALYBUG (*Phenacoccus criogoni*) CALIFORNIA - Glenn (p. 623).

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Weather of the week continued from page 620.

Miles City, Montana, recorded 93° Thursday afternoon, 13° warmer than the previous day. The afternoon maximums at Williston, North Dakota, Tuesday to Thursday, were 86°, 76°, and 86°. The Southwest continued hot with the mercury reaching 108° at both Imperial and Palm Springs, California, Thursday afternoon. The front which, early in the week, stretched from the central Great Plains to the middle Atlantic coast, moved southward over the weekend. This resulted in cooler maximum temperatures and lower humidities over a much larger area in the East. (Summary supplied by Environmental Data Service, ESSA.)

HAWAII INSECT REPORT

New State Records - Seven specimens of an ANTHICID BEETLE (Formicomus imperator (LaFerte)) collected February 19, 1968, in soil at Honolulu International Airport grounds by G. Funasaki. Determined by F. Werner. Distribution includes Micronesia, India, and Japan; and it is apparently a microscavenger. (Funasaki). This is a new Western Hemisphere record. (PPD). Specimens of a PYEMOTID MITE (Siteroptes reniformis) collected July 20, 1970, by R. Namba and F. Haramoto on rice plants grown under glass at Honolulu, Oahu. Determined by F. Haramoto. This species first described by G.W. Krantz in Oregon. (Haramoto).

General Vegetables - CHINESE ROSE BEETLE (Adoretus sinicus) damage light to foliage in 0.25 acre of edible ginger (Zingiber officinale) at Kahaluu, Oahu; light damage in one acre of soybeans at Waimanalo, with about one-third of all leaves showing 20 percent feeding. Light foliar damage in small planting of peanuts at Kahului, Maui. (Miyahira, Kawamura). Larval mines of LEAF MINER FLIES (Liriomyza spp.) in 80 percent of foliage in 0.25 acre of yardlongbeans at Waimanalo, Oahu; adults and mines light in eighth acre of eggplant at Kahului, Maui; Trialeurodes vaporariorum (greenhouse whitefly) heavy in this planting. Liriomyza spp. larval mines heavy in older leaves of 0.75 acre of zucchini, adults up to 35 per leaf at Kahului; T. vaporariorum moderate. (Miyahira, Kawamura). SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults caused moderate damage to one acre of Vanda joaquim blossoms at Waimanalo. COCKERELL SCALE (Phenacaspis cockerelli) heavy on 25 coconut trees at Lahaina, Maui; many leaflets with over 100 scales. Heavy on roadside oleander at Kahului, and on same host at Fort DeRussy, Oahu; as many as 80 per leaf. Light to moderate (average 7 per leaf) to medial freeway strip oleander at Honolulu, Oahu. (Funasaki, Ah Sam).

Forest and Shade Trees - BLACK TWIG BORER (Xylosandrus compactus) heavy in Waianae Mountains, Oahu, on twigs of mehamehame, Drypetes phyllanthoides, rare and endemic species; this is new host record. (Gagne, Aug. 14). ACACIA PSYLLID (Psylla uncatoides) trace in survey of Acacia confusa trees at Mt. Tantalus, Oahu; adults or nymphs 2 per 3 sweeps. (Funasaki).

Beneficial Insects - ENCYRTID WASPS (Neodusmetia sangwani and Anagyrus antoninae) emmered in moderate numbers in June 1970 from Antonina graminis (Rhodesgrass scale) which was heavily infesting California grass at Hilo, Hawaii. N. sangwani formerly reported only from Oahu and Molokai. A. antoninae previously reported only from Oahu, Molokai, and Lanai. (Funasaki).

Miscellaneous Pests - Collected and destroyed 431 GIANT AFRICAN SNAIL (Achatina fulica) specimens, mostly juveniles, during July at Poipu; one at Wahiawa, Kauai. On Hawaii, during same period, no live snails detected in section provided with new surveillance trails where 12 snails discovered during April; chemical bait application continues in this area. (Sugawa, Yoshioka, Aug. 14). Specimens of a PLANT BUG (Rhinacloa forticornis) recovered on islands of Kauai, Molokai, and Lanai; these are new island records; found on various host plants from sea level to tree line. (Gagne).



**LIGHT TRAP COLLECTIONS**

| State              | County              | Locality | Date           | Time | Trap | Specimens | Spiders | Other | Total |  |    |
|--------------------|---------------------|----------|----------------|------|------|-----------|---------|-------|-------|--|----|
| FLORIDA            | Gainesville 8/14-20 | BL       |                |      | 1    | 3         | 26      |       | 11    |  |    |
|                    |                     | BL       | 61             |      |      |           |         |       | 105   |  |    |
|                    |                     | BL       | 222            |      |      |           |         |       | 148   |  |    |
|                    |                     | BL       | 2              |      |      |           |         |       | 16    |  |    |
|                    |                     | BL       | 5              |      |      |           |         |       | 7     |  |    |
|                    |                     | IOWA     | Castana 8/9-15 | BL   | 1    |           |         |       |       |  | 3  |
|                    |                     |          |                | BL   | 26   |           |         |       |       |  | 8  |
|                    |                     |          |                | BL   | 26   |           |         |       |       |  | 20 |
|                    |                     |          |                | BL   |      |           |         |       |       |  | 14 |
|                    |                     |          |                | BL   |      |           |         |       |       |  | 8  |
| MINNESOTA          | Crookston 8/12-18   | BL       |                |      | 12   |           |         |       | 14    |  |    |
|                    |                     | BL       |                |      | 3    |           |         |       | 26    |  |    |
|                    |                     | BL       |                |      |      |           |         |       | 8     |  |    |
|                    |                     | BL       |                |      |      |           |         |       | 14    |  |    |
| MISSISSIPPI        | Stoneville 8/14-20  | BL       | 7              |      | 34   | 8         | 473     |       | 8     |  |    |
|                    |                     | BL       | 32             |      |      |           |         |       | 16    |  |    |
| NEW JERSEY         | Evesboro 8/17, 18   | BL       | 8              |      |      |           |         |       | 32    |  |    |
|                    |                     | BL       | 3              |      |      |           |         |       | 17    |  |    |
|                    |                     | BL       | 8              |      |      |           |         |       | 21    |  |    |
|                    |                     | BL       | 8              |      |      |           |         |       | 1     |  |    |
|                    |                     | BL       | 8              |      |      |           |         |       | 2     |  |    |
|                    |                     | BL       | 8              |      |      |           |         |       | 2     |  |    |
|                    |                     | BL       | 5              |      |      |           |         |       | 2     |  |    |
|                    |                     | BL       | 5              |      |      |           |         |       | 6     |  |    |
|                    |                     | BL       | 2              |      |      |           |         |       | 3     |  |    |
|                    |                     | BL       | 14             |      |      |           |         |       | 30    |  |    |
| TENNESSEE (County) | Hardeman 8/13-19    | BL       | 33             |      |      | 113       |         |       | 44    |  |    |
|                    |                     | BL       | 56             |      |      | 59        |         |       | 15    |  |    |
|                    |                     | BL       | 38             |      |      | 30        |         |       | 73    |  |    |
|                    |                     | BL       | 11             |      |      | 9         |         |       | 29    |  |    |
|                    |                     | BL       | 5              |      |      | 13        |         |       | 71    |  |    |
|                    |                     | BL       | 5              |      |      | 13        |         |       | 4     |  |    |
|                    |                     | BL       | 5              |      |      | 4         |         |       | 17    |  |    |
| TEXAS              | Waco 8/13-20        | BL       | 17             |      | 146  | 9         | 97      |       | 20    |  |    |
|                    |                     | BL       |                |      |      |           |         |       | 13    |  |    |





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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Economic Insect Survey and Detection  
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**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

CORN EARWORM moth catches in light traps increased in Virginia, Delaware, and Nebraska. Moths increased in some fields in New Jersey; increase expected in soybeans in Tennessee. Larvae heavy on soybeans in South Carolina. GREENBUG heavy on sorghum in some areas of Colorado. Decreased in Panhandle of Texas. (p. 637).

EUROPEAN CORN BORER heaviest in irrigated corn in Nebraska. Moth counts moderate in blacklight traps in Michigan and heavy in Delaware. Stalk infestations increased in Maryland. (pp. 638, 649, 650).

FALL ARMYWORM situation in South Carolina; also damaged grasses in Alabama and Georgia. (p. 640).

BOLL WEEVIL increased in South Plains of Texas, Arkansas, Tennessee, Louisiana, Alabama, and South Carolina. BOLLWORMS economic in limited area of New Mexico. Egg laying heavy in Texas, Mississippi, Alabama, and South Carolina. (pp. 642-643).

CABBAGE LOOPER troublesome on various crops in Arizona, Texas, Mississippi, Alabama, and New York. Light trap collections heavy in several States. (pp. 643, 644, 649, 650).

VARIABLE OAK LEAF CATERPILLAR damaged birch in North Dakota and basswood and oak in Minnesota. (p. 646).

Detection

For new county records see page 648.

Reports in this issue are for week ending August 28 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING AUGUST 31

HIGHLIGHTS: Summer heat continued over the West and most of the Northern States. Texas in the southeast averaged cooler than normal. Mid-America received no rain or only light widely scattered showers. Generous rain fell along the gulf.

PRECIPITATION: Early last week, showers occurred along and in the moist air south of a slow moving front near the gulf and Atlantic coasts. Daily totals ranged to 1 or 2 inches and weekly totals were 3 to 4 inches or more. Lighter showers fell in northern Great Plains, the Great Lakes region, and in New England. Light scattered showers also fell in the northern and central Rocky Mountains. Heavy thundershowers with hail occurred at Las Vegas, Nevada, on Wednesday and over 4 inches of rain fell at Elko, Nevada, on Thursday. High pressure stretched along mid-America from New Mexico to New York producing cloudless skies and no rain or only light sprinkles from Arizona to Ohio and from Montana to Oklahoma. Only a few light sprinkles fell in Kentucky, Virginia, and North Carolina except along the coast of the latter States. Frontal activity produced weekend showers in the Northeast. Scattered showers also continued along the gulf coast and widely scattered thundershowers occurred in the Great Basin and the Rocky Mountains.

TEMPERATURES: Hot weather was present throughout most of the West last week. Temperatures averaged above normal except slightly below along the coast as far south as San Francisco. On most days, maximums reached the 90's as far north as southern Washington and 100° or higher in the southwestern deserts. Thermal and El Centro, California, registered 100° Saturday afternoon. Temperatures were warmer than normal from the northern and central Great Plains, east across the Great Lakes to Massachusetts. A large area from Texas to central North Carolina averaged cooler than normal. The Atlantic coast areas and most of the Florida Peninsula averaged slightly above normal. A large High brought comfortable temperatures to much of the East last week. Early morning temperatures dropped to the 40's and 50's in the Northeast. Nights were clear and days were sunny. Afternoons were noticeably cooler and less humid than in the previous week. Temperatures of mid-America climbed to 100° or more on 1 or 2 days at midweek, reaching 103° at Bismarck, North Dakota, Chadron and North Platte, Nebraska, on Wednesday. Cooler air moved into the northern Great Plains and Thursday temperatures remained in the 70's over most of North Dakota with 90's in Nebraska. Early morning fog occurred over much of the East early in the week. It was especially widespread on Wednesday morning extending from Missouri to Maine, and from Lower Michigan to northern Georgia. Weather of the week continued on page 650.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae 1 per 3 row feet of soybeans near Gainesville, Alachua County. (Whitcomb et al.). ALABAMA - Larvae infesting soybean pods in southern area; reported light to medium in many Geneva County fields. Cotton, corn, and peanuts maturing in area; soybeans more attractive for egg laying. Moth flights heavy. (Reynolds et al.). Larvae of *H. zea*, *Spodoptera frugiperda* (fall armyworm), and *Feltia subterranea* (granulate cutworm) light to medium and widespread throughout Covington County. Similar infestations throughout 9-county peanut area. (Pike et al.). SOUTH CAROLINA - Up to 25 larvae per row foot on pods and blooms of early planted soybeans and on leaves and blooms of younger plants in coastal Plain area. (Thomas). TENNESSEE - Increased moth activity in soybeans expected. Corn and cotton becoming less attractive; soybeans should be watched. (Gordon). VIRGINIA - Damaged 40 percent of ears in some Halifax County fields. Larvae averaged 10 per 100 sweeps in 3 Charlotte County alfalfa fields. (Hendrick). Widespread in peanut belt. Average per 100 sweeps and dominant stage by county: Sussex 18, second instar; Southampton 80, third instar; Nansemond 70, third instar; Isle of Wight 28, second instar. No larvae found in peanuts in Prince George County. Surveys of soybeans in Sussex, Southampton, Nansemond, Isle of Wight, and Prince George Counties indicate few larvae and less than 1 percent of soybeans in any field cut. Reports from southern Piedmont area indicate damage levels to soybeans similar. Based on blacklight catches, expect Nansemond County and surrounding areas to experience much damage next few weeks. Adult catches doubled at each light trap location, corn has dried in southern Piedmont and Tidewater areas. This will force moths to peanuts and soybeans in these areas. (Allen).

MARYLAND - Corn earworm egg laying starting on soybean stems and pods in Wicomico County. Adults averaged 102 per night in blacklight trap at Salisbury. (U. Md., Ent. Dept.). DELAWARE - Increased, 35-40 per night in blacklight traps in Kent and Sussex Counties. (Burbutis et al.). NEW JERSEY - Adults increasing in corn, beans, and lettuce in most areas. (Ins.-Dis. Newsltr.). MICHIGAN - Still absent in blacklight traps throughout State. Populations should be late in appearing and limited in numbers. (Newman, Aug. 24). NEBRASKA - Increasing rapidly at Lincoln light trap. Sweet corn ears averaged about 70 percent infested with third to fifth instars at Lincoln, Lancaster County. (Berogan, Keith). KANSAS - Ranged up to 0.2 per corn ear in 4 Greeley County fields; light in 4 Wichita County fields. (Bell). OKLAHOMA - Generally light to moderate in southwest area alfalfa, increasing rapidly in some areas. (Okla. Coop. Sur.). COLORADO - Larvae ranged 0-8 per 100 row feet of corn in Cheyenne and Kit Carson Counties. Infestations ranged 5-60 percent; damage light to moderate. (Johnson). UTAH - Very light in Cache County sweet corn. (Thornley). Light infestation developing in Davis County. (Knowlton, Stokes).

CORN LEAF APHID (Rhopalosiphum maidis) - CALIFORNIA - This species and *Dalbulus maidis* (a leafhopper) increasing in corn plantings in some areas of San Joaquin Valley. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - COLORADO - Ranged 0-3,000 per sorghum plant in eastern area. Heavily infested fields scattered in Cheyenne and Kit Carson Counties and in Arkansas Valley. Averaged 250 (range 100-3,000) per plant in untreated fields or where one application made in Arkansas Valley; some plants killed in isolated fields. Ranged 0-2,000 per plant in Kit Carson, Cheyenne, and southern Yuma Counties; damage to sorghum light to heavy. (Johnson, Burchett). NEW MEXICO - Spotted infestations of up to 8 per leaf in grain sorghum in Roswell and Dexter area, Chaves County. (Mathews). TEXAS - Light to moderate in El Paso, Hudspeth, and Reeves Counties. Remained light to moderate in isolated fields in Pecos County; slight increase noted. Parasitized greenbugs in Pecos County remained light. Populations decreased sharply during past 14 days in most Panhandle counties. Parasites greatly reduced population throughout area. (Clymer et al.). KANSAS - Generally light in sorghum surveyed in southwest district. Predators and parasites generally heavy in area. Greenbug ranged 0-225 per plant (boot to soft-dough stage) in 18 fields checked in Stevens County, 0-300 in 6

fields in Morton County, 0-10 in 2 fields in Stanton County, 0-10 in 3 fields in Hamilton County; none found in field in Greeley County. (Bell). NEBRASKA - Few remain in sorghum in east; some in northeast. Ranged 25-75 per lower leaf in 2 Thurston County fields August 25. Parasitism 65-70 percent. (Keith, Berogan).

POTATO LEAFHOPPER (*Empoasca fabae*) - VIRGINIA - Adults 90 per 100 sweeps in one peanut field in Prince George County. (Allen). OHIO - Damaging populations (6 per sweep) built up on alfalfa in August with dry weather. (Flessel). WISCONSIN - Continues variable in alfalfa; more numerous on alfalfa on lighter soils than on heavier soils. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OREGON - Moderate in Vernal alfalfa in Hermiston area, Umatilla County. Averaged 20 per sweep in 1 field. Predators not abundant. Damaged seedling fields earlier this season. None found in Lahontan alfalfa. (Penrose). WYOMING - Averaged 6 per 10 sweeps in 8 scattered alfalfa fields of Weston, Crook, Johnson, Sheridan, and Converse Counties. Johnson and Sheridan are new county records. (Parshall). COLORADO - Increasing in Arkansas Valley; counts ranged 0-1,200 per 100 sweeps. (Burchett). KANSAS - None found in alfalfa field in Morton County; 120 per sweep in field of blooming alfalfa in Stanton County. In latter field, many lower leaves yellowing and some fallen. (Bell). WISCONSIN - Increasing in alfalfa but not in southwest as much as in sandy regions. Ten-fold increase noted over 14-day period in Spring Green area, Sauk County; ranged as high as 150 per sweep. (Wis. Ins. Sur.).

TOBACCO HORNWORM (*Manduca sexta*) - ARIZONA - Larvae damaging tomatoes in Kirkland and Skull Valley areas of Yavapai County. (May).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEBRASKA - Increasing at Lincoln, Lancaster County, light trap; declining at Concord, Dixon County. Second brood apparently not heavy in many fields. First or second brood infested 80-100 percent of plants; second brood averaged 1.7 per plant in about 10 fields checked in Burt, Thurston, Dakota, Dixon, and Wayne Counties. Most second brood in second to fourth instar and feeding mainly in ear tips. Many fields surveyed suffering from drought, probably most important factor in high second-brood egg and larval mortality. Populations heaviest in irrigated corn. (Hill et al.). IOWA - Third generation of moths emerging at Ankeny, Polk County; appeared in blacklight traps August 21. (Iowa Ins. Sur.). NORTH DAKOTA - Larvae ranged 8-176 (averaged 64) per 100 corn plants in Barnes and La Moure Counties. Infested plants ranged 8-44 (averaged 24) percent. First and second-generation larvae present. (Kaatz). WISCONSIN - Adults decreasing. Fresh egg masses still found, so danger not past. Egg masses 1+ per 10 plants in parts of Fox River Valley. Infested sweet corn ears ranged 4-44 percent. Controls generally effective. (Wis. Ins. Sur.). MICHIGAN - Moth counts at all blacklight stations moderate. Recovered 462 moths at Lenawee County station; about half last week's total. Heavy count means larval control period will be extended for another 10-12 days. Larval count 5 per 12 ears of sweet corn in roadside stand in Monroe County. (Newman, Aug. 24). OHIO - Moth flights peaked first 10 days of August; relatively large numbers still active in mid-August. Larval feeding should soon be noticeable with constant increase during September, due to staggered adult activity in August. (Roach).

MARYLAND - European corn borer stalk infestations continue to increase in all sections; ranged 16-48 percent in Kent and Queen Annes Counties. Moths averaged 42 per night in blacklight trap at Salisbury, Wicomico County. (U. Md., Ent. Dept.). DELAWARE - Adults averaged 300 per night in blacklight trap in western Sussex County. (Burbutis et al.). NEW JERSEY - Eggs and larvae easy to find on late sweet corn. (Ins.-Dis. Newsltr.). GEORGIA - Severely damaged corn in Crisp County. (Nix, Aug. 22).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - NEW JERSEY - Adults abundant in several fields of corn in western Hunterdon County. (Ins.-Dis. Newsltr.). OHIO - Numerous adults feeding on silks in Licking County field corn. (Roach).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - ARIZONA - Averaged 1 per plant on 10 acres of corn at Kirkland, Yavapai County. (Ariz. Coop. Sur.). INDIANA - Adults taken in Fulton County by P. Lehker, and in Jasper, Starke, and Marshall Counties by Munter. These are new county records. (Gould).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NORTH DAKOTA - Adults collected from corn in Barnes County for a new county record. (Kaatz).

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - Ranged 1-6 per plant in 10 corn-fields in Burt, Thurston, Dakota, Dixon, and Wayne Counties. (Keith, Berogan). KANSAS - Adults, mostly D. virgifera (western corn rootworm), ranged 2-8 per corn plant in 4 Greeley County fields, 1-3 in 4 Wichita County fields. (Bell).

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Heavy in scattered sorghum fields in Jackson County. (Okla. Coop. Sur.). ALABAMA - Larvae, 2-6 per stalk, destroyed late sweet corn in Lee County gardens. (McQueen). WISCONSIN - First adults appeared August 21. (Wis. Ins. Sur.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - KANSAS - Most larvae in corn in Greeley County about full grown. Larvae averaged 0-1 per ear in 4 Greeley County fields; up to 4 late instars per ear in 1 field. None found in Wichita County fields. (Bell). COLORADO - Larvae ranged 0-20 per 100 row feet in Kit Carson County. Damage light to moderate in fields checked. (Johnson).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARIZONA - Larvae ranged 3-7 per 12-inch sorghum plant in 60-acre field at Coolidge, Pinal County. (Felix).

STOMBLER MOTH (Heliothis stombleri) - CALIFORNIA - Collections in light traps occurring more regularly in Five Points area, Fresno County. (Cal. Coop. Rpt.).

SORGHUM MIDGE (Contarinia sorghicola) - CALIFORNIA - Sorghum plantings in Tulare and Fresno Counties show some damage; numerous adults infested late-planted sorghum in bloom. Heaviest damaged areas adjacent to ditch banks and Johnson grass. (Cal. Coop. Rpt.). TEXAS - Emergence increased sharply in some South Plains counties. Based upon emergence records, population increased greatly in localized areas of Floyd and northeast Lubbock Counties. Emergence from grain sorghum head samples collected in other counties remained light. Surveys in Oldham, Castro, Deaf Smith, Parmer, Armstrong, Briscoe, Randall, and Swisher Counties indicated emergence in Castro and Briscoe Counties only. In samples from these counties only 2 emerged. (Rummel et al.).

SPIDER MITES - COLORADO - Tetranychus urticae (two-spotted spider mite) in northeast area and Oligonychus pratensis (Banks grass mite) in Arkansas Valley continue to cause light to very heavy damage to corn; controls ineffective in some fields. (Burchett, Johnson). OKLAHOMA - Tetranychus sp. severely damaged older sorghum fields in Jackson County. Plants in some fields completely desiccated. Control difficult. (Okla. Coop. Sur.). NEBRASKA - Tetranychus spp. increasing on corn statewide. Most corn dented and approaching maturity, serious damage not expected. (Roselle et al.). Few scattered late-planted fields damaged in Lincoln County; 10 fields examined. (Campbell). TEXAS - Oligonychus spp. remain light to heavy on grain sorghum in El Paso, Hudspeth, Culberson, Reeves, and Pecos Counties; heavy in fields in soft to hard-dough stages. Spotted infestations of O. pratensis (Banks grass mite) in grain sorghum in High Plains area. Infestations generally light throughout area; heavy in localized areas. Oligonychus spp. heavy (for first time in Trans-Pecos area) on forage sorghum in El Paso Valley. Heavy on forage sorghum in preboot stage; observed on only 2 varieties. Heavy on forage corn in El Paso, Hudspeth, and Reeves Counties. (Neeb et al.).

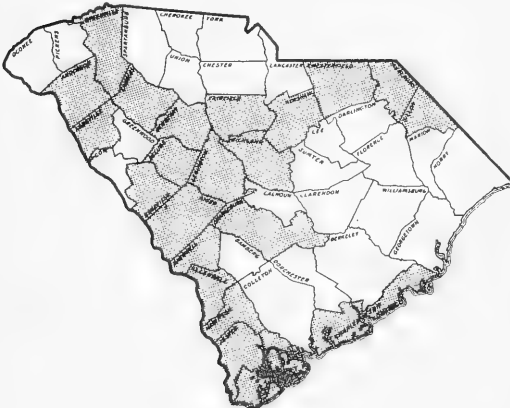
**SMALL GRAINS**

**FALL ARMYWORM (*Spodoptera frugiperda*) - VIRGINIA -** Second instars 40 per 100 sweeps on 5 acres of oats in Nottoway County. (Allen).

**TURF, PASTURES, RANGELAND**

**FALL ARMYWORM (*Spodoptera frugiperda*) - SOUTH CAROLINA -** One of worst economic outbreaks in several years reported over large area. First reported in Jasper County July 22. Within one month, infestations had spread to 22 counties; damage was severe to lawns, pastures, and golf courses. Peak reached about mid-August. Decline of spread and damage attributed to control programs by farmers and other property owners. News media helpful in alerting general public to situation. Highly fertilized areas more susceptible to infestation than other areas. Up to 90 percent defoliation of Bermuda grass reported. No attempt made to determine total acreage infested. Very little damage by *Pseudaletia unipuncta* (armyworm) reported. *S. frugiperda* considered more important species. Because of rapid spread over such large area, *S. frugiperda* moths thought to have been blown in by Hurricane Becky, as outbreak occurred shortly after storm. Outbreak of armyworm (*P. unipuncta*) reported in CEIR 20(33):575 should have been fall armyworm. (PPD), GEORGIA -

Fall Armyworm Situation in South Carolina



Counties with severe damage reported.

Damage light or not reported in unshaded counties.

Larvae destroyed grass of golf greens in Clarke County. (Nolan, Aug. 22). ALABAMA - Damaged several fields of Coastal Bermuda and other grass hay crops in Autauga and Houston Counties. (Kirkpatrick, Roney).

A **BILLBUG (*Sphenophorus venatus vestitus*) - KANSAS -** Averaged 1 per square foot in nursery planting of Midway Bermuda grass in Sedgwick County. (Redding). ALABAMA - Larvae and adults light in Zoysia sod in Montgomery County. Extent of damage difficult to assess because of presence of other pests and disease. (McCabe et al.).

A **SOD WEBWORM (*Pediasia mutabilis*) - KANSAS -** Averaged 10 per square foot in nursery planting of Zoysia in Sedgwick County. (Redding).

**TWO-LINED SPITTLE BUG (*Prosapia bicincta*) - ALABAMA -** Nymphal populations variable in lawn and field grasses throughout south and central areas. (McQueen).

**TAWNY GARDEN SLUG (*Limax flavus*) - CALIFORNIA -** Counts of 10 per square yard on 2-acre lawn at Gridley, Butte County. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - ARIZONA - Averaged 2 larvae and 1 adult per 10 sweeps of alfalfa at Moccasin and Colorado City, Mohave County. (May). NEW MEXICO - Counts per 25 sweeps in alfalfa: Adults 0-5, larvae 1-64 at Corrales, Sandoval County; adults 0-1, larvae 2-3 at Moriarty, Torrance County. (Heninger). COLORADO - Larvae ranged 0-400 per 100 sweeps of alfalfa in Arkansas Valley; some damage in Pueblo County. (Burchett). MARYLAND - Larvae averaged 12 per 10 sweeps in 7 acres of alfalfa in Frederick County. (U. Md., Ent. Dept.).

ASIATIC OAK WEEVIL (Cyrtepestomus castaneus) - MISSOURI - Adults swept from alfalfa in Pike County and taken at lights in Marion County. These are new county records. (Hanning).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WYOMING - Adults and nymphs averaged 7 per 10 sweeps in alfalfa of Niobrara, Weston, Crook, Johnson, Sheridan, and Converse Counties. (Parshall). MISSOURI - Adults and nymphs averaged 75 per 10 sweeps of alfalfa in Pike and Ralls Counties. (Hanning).

SUPERB PLANT BUG (Adelphocoris superbus) - NEW MEXICO - Counts per 25 sweeps of alfalfa ranged 0-3 at Corrales, Sandoval County, and 3-4 at Moriarty, Torrance County. (Heninger).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults per 100 sweeps of alfalfa averaged 200 at Coolidge, Pinal County, and 50 at Fredonia, Coconino County. (Ariz. Coop. Sur.). NEW MEXICO - Counts per 25 sweeps of alfalfa ranged 4-7 at Corrales, Sandoval County, and 15-32 at Moriarty, Torrance County. (Heninger). WYOMING - Adults averaged 6 per 10 sweeps in alfalfa of Niobrara, Weston, Crook, Johnson, Sheridan, and Converse Counties. (Parshall). IDAHO - Late buildup; ranged 6-20+ per sweep in many alfalfa seed fields in southwestern area. (Waters).

ALFALFA CATERPILLAR (Colias eurytheme) - IDAHO - Larvae damaged 30 acres of spring seeded alfalfa at Grandview, Elmore County. Many plants stripped of leaves. Pupae and adults numerous throughout field. No damage apparent in adjacent field of old established plants. (Edwards). NEW MEXICO - Larvae ranged 2-4 per 25 sweeps of alfalfa at Corrales, Sandoval County. (Heninger). ARIZONA - Larvae ranged 300-350 per 100 sweeps on 200 acres of alfalfa at Coolidge, Pinal County. (Felix).

GREEN CLOVERWORM (Plathypena scabra) - WISCONSIN - Larvae not numerous in alfalfa in southwest; ranged 2-3 per sweep. Populations lower in central area. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - UTAH - Light in Davis County alfalfa (Stokes), 15-125 per 10 sweeps in Logan area, Cache County. (Knowlton). WYOMING - Light, averaged 30 per 10 sweeps, in alfalfa of Niobrara, Weston, Crook, Johnson, Sheridan, and Converse Counties. (Parshall). KANSAS - Averaged 60 per sweep of alfalfa in Morton County fields 40 in Stanton County field. (Bell). WISCONSIN - Apparently increasing on alfalfa in southwestern area. Dense succulent growth and cool nights provide favorable environment. (Wis. Ins. Sur.).

GRASSHOPPERS - WISCONSIN - Mainly Melanoplus femurrubrum (red-legged grasshopper) heavy in central sands area and feeding on corn and alfalfa. Mostly adults; 30 percent of females contain eggs; some mating and egg laying observed. (Wis. Ins. Sur.).

## SOYBEANS

SOYBEAN LOOPER (Pseudoplusia includens) - ALABAMA - Larvae of this and Trichoplusia ni (cabbage looper) becoming widespread with much leaf feeding on older soybeans in isolated fields in southern and central areas. Infestations reported throughout Dallas and Covington Counties. (Alsbrook, Linder).

GREEN CLOVERWORM (Plathypena scabra) - MISSOURI - Larvae ranged 0-5 (average 2) per row foot in northeast area. All stages observed. Larvae killed by fungus found in most fields. Larvae ranged 9-13 (average 8) per row foot in 40-acre field in Ralls County. (Hanning).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Averaged 3 per linear foot in 10 acres of soybeans near Wye Mills, Talbot County. (U. Md., Ent. Dept.). MISSISSIPPI - Adults averaged 1 per 3 row feet in 5 Oktibbeha County fields and less than 1 per 3 row feet in 3 Montgomery County fields. (Sartor).

#### PEANUTS

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Moderate to heavy on irrigated peanuts in Marshall County. (Okla. Coop. Sur.).

SPIDER MITES (Tetranychus spp.) - OKLAHOMA - Very heavy on peanuts in Perkins area, Payne County. (Okla. Coop. Sur.).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Increased in South Plains area. Infestations above Caprock generally light and scattered. Few heavily infested fields detected below Caprock, most light. Hot dry weather during summer appears to have suppressed development of weevil populations. Spotted infestations in Martin, Midland, and Glasscock Counties. Punctured squares 25-50 percent in spots throughout fields in eastern Glasscock County. Scattered infestations in eastern Midland County. Increasing percentage of weevil diapause noted in south-central area. (Rummel et al.). OKLAHOMA - Percent punctured squares in scattered fields ranged up to 70 in Caddo County, up to 50 in Washita County, up to 40 in Jackson County, and up to 25 in Jefferson County. Many fields remain free of damage. Heavy counts by third-generation emergence and square reduction due to "cut-out" and "shed" because of hot, dry weather. (Okla. Coop. Sur.). ARKANSAS - Continues to build up; of 6,654 fields scouted, 4,761 now infested. In southern counties bollworm control heavy enough to reduce weevil infestations. (Barnes et al.). TENNESSEE - Continues to increase and conditions remain favorable for further increase. Small boll damage heavy where squares scarce and no controls applied. Migrating weevils showing up in rank cotton not previously infested in west area. (Locke). LOUISIANA - Counts continue to increase, but control adequate. (Tynes, Aug. 24). In Madison Parish, infestations ranged 2-86 (average 20.2) percent in 100 plots and fields. (Cleveland et al.). MISSISSIPPI - Declined in delta counties. Punctured squares in 1 of 16 fields. (Pfrimmer et al.). In 10 counties, infestations ranged 0.2-22 percent. Highest in Yalobusha and Holmes Counties. (Sartor). ALABAMA - Weevils increased statewide following continuous "hatchouts" past 20 days. Cotton maturing in extreme southern area; controls ending. Development of third-generation weevils in northern area brought infested square counts above 10 percent in many fields. Infestations above this level in 80 percent of fields checked in Cherokee County. Necessity for controls continues low in northern area. (McQueen). GEORGIA - Percent punctured squares averaged 47 in treated fields, 71 in untreated fields in Spalding County. (Beckham, Aug. 22). SOUTH CAROLINA - Infestation increasing and borders of treated fields becoming heavily infested in Florence area; indicates migration. Percent larval infestation ranged 8-17 in treated plots, 4-47 in control plots. Adults per acre ranged 0-480 in treated plots, 1,754-2,616 in control plots as of August 19. In Florence County, infestations still increasing as of August 26. (Taft et al.).

BOLLWORMS (Heliothis spp.) - NEW MEXICO - H. zea economic in 3 of 30 fields in Dona Ana County. Damaged larger bolls. (Loomis). TEXAS - Light to moderate in Trans-Pecos area. El Paso, Hudspeth, Culberson, Pecos, Reeves, Midland, and Glasscock Counties reported 2-5 percent bollworms and 1-5 percent damage to squares and bolls. Slight increase in egg counts in most counties during latter part of week. In Panhandle, infestations generally light. Increase in eggs observed. Damaging infestations observed in only few fields. H. virescens larvae heavy on cotton south and west of Sugarland in Fort Bend and Brazoria Counties;

also heavy in Brazos and Burleson Counties. (Neeb et al.). OKLAHOMA - Damage by H. zea ranged 10-15 percent in few fields in Altus area, Jackson County. (Okla. Coop. Sur.). ARKANSAS - Heliothis spp. still active in southern counties but pressures not so great as expected. Control satisfactory. Moth numbers did not become heavy in northern counties, and egg numbers and small larvae remain light in most fields. Treated 2,489 fields this period. (Barnes et al.). TENNESSEE - Continues to cause much damage throughout west area. Most eggs being laid on squares down in plant. Rank cotton remains attractive and should be watched. (Locke). LOUISIANA - Moths abundant in cotton past 2 weeks; egg laying heavy in many fields. Egg laying expected to be continuous as long as cotton growing and squaring. Control good in most cases. (Tynes, Aug. 24). In Madison Parish, damaged squares averaged 1.7 percent in 41 of 100 plots and fields. Damaged bolls averaged 1.5 percent in 17 of 62 plots and fields. Moths increased; recovered 347 H. zea and 18 H. virescens in light trap. (Cleveland et al.). MISSISSIPPI - Heliothis spp. larval infestations in 6 counties ranged 1-2.5 percent. Oviposition heavy in Washington, Sharkey, and Tunica Counties. Moderate in De Soto and Quitman Counties. (Sarter). Moths increased in delta counties. Egg laying heavy in terminals and dried blooms. Injured squares averaged 2.53 (maximum 14.5) percent in 11 of 16 fields. Eggs averaged 4.68 per 100 terminals in 15 of 16 fields. Eggs on dried blooms averaged 12.12 (maximum 24) per 100 blooms in 8 of 8 fields. (Pfrimmer et al.). ALABAMA - Moths, mostly H. zea, continue very heavy throughout State. Egg laying heavy, larvae ranged 3-25 per 100 terminals in many fields. Large numbers of moths attracted to cotton due to lack of corn; cotton apparently more attractive than other available hosts. (McQueen). GEORGIA - Percent damaged squares averaged 1.4 in treated fields, 9 in untreated fields in Spalding County. (Beckham, Aug. 22). SOUTH CAROLINA - Moth numbers decreasing in Florence area but large number of eggs present, especially in young cotton. Percent larval infestation ranged 1-11 in treated plots, 8-20 in control plots as of August 19. Blacklight trap recovered 1,542 H. zea and 87 H. virescens moths period ending August 26. (Taft et al.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Reported heavy in 40-acre field at La Palma, Pinal County. Up to 10 larvae per plant. (Coe, Miller). TEXAS - Moderate to heavy in isolated fields in El Paso, Hudspeth, Reeves, and Pecos Counties. Some difficulty experienced in controlling infestations where treatments made. (Neeb). MISSISSIPPI - In delta counties moth flights still heavy; larvae heavy in 2 of 16 fields (Pfrimmer et al.). ALABAMA - Larvae of this and Pseudoplusia includens (soybean looper) causing 2-50 percent defoliation in numerous fields in southern and central areas. Natural occurring virus spreading rapidly in Lee and Russell Counties; 2-10 dead larvae on many plants. Moth flight very heavy in Lee and Russell Counties. Egg laying very heavy; 5-25 eggs on undersides of leaves on many plants. (McQueen). SOUTH CAROLINA - In Florence County, blacklight trap recovered 471 moths. (Taft et al.).

BEE TARMY WORM (Spodoptera exigua) - ALABAMA - Larvae feeding mostly on leaves of older cotton in Russell, Montgomery, and Butler Counties; caused some damage to blooms, squares, and young bolls. (McQueen).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - TEXAS - Heavy in Bakersfield area of Pecos County. In isolated fields, lower half of plant defoliated. Light in Barilla area of Reeves County. (Neeb).

LYGUS BUGS (Lygus spp.) - ARIZONA - Reported heavy in some fields in Marana and Avra Valley areas, Pima County. Some fields sprayed. (Curtis).

WHITEFLIES - LOUISIANA - Becoming problem in some fields throughout State. Infestations most severe along Red River Valley but problem developing in other areas. (Tynes, Aug. 24).

SPIDER MITES - SOUTH CAROLINA - Continue to increase in Florence area. (Taft et al., Aug. 19). ALABAMA - Tetranychus urticae (two-spotted spider mite) and other spider mites heavily damaged several fields in Lee and Montgomery Counties. Caused early "cut-out" of plants and will reduce potential yields. (Chapman et al.).

#### MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Populations of this aphid and Phorodon menthae (a mint aphid) heavy on peppermint at Othello, Grant County; frequent treatment required. (Landis, Aug. 25).

#### POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - MICHIGAN - First and third instars found in limited numbers in 2 Monroe County potato fields on August 21. Controls applied. (Newman). OHIO - Problem on greenhouse tomatoes in Cuyahoga County. Extensive larval mining to leaves and stems caused one grower to destroy entire tomato crop. Greenhouse infestation difficult to control after larvae enter plant. (Lindquist).

CABBAGE LOOPER (Trichoplusia ni) - NEW YORK - Still most serious problem in Suffolk County peppers and corn; also found throughout Cayuga, Onondaga, Oswego, Oneida, and Madison Counties. (N.Y. Wkly. Rpt., Aug. 24).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Late-generation larvae continue troublesome on tomatoes in Wicomico County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - OREGON - Heavy on potatoes at Hermiston, Umatilla County. (Every).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - NEW JERSEY - Very heavy on planting of eggplant at Vineland, Cumberland County. (Ins.-Dis. Newsltr.).

#### BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Numerous in isolated commercial beans in Kent and Sussex Counties. (Boys, Aug. 26). UTAH - Caused above normal damage in Davis County (Stokes); common in northern area gradens (Knowlton).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Eggs and larvae abundant on crucifers in most areas. Adults increased sharply in blacklight traps in several areas (see page 649). (Ins.-Dis. Newsltr.). NEW HAMPSHIRE - Second to fourth instars averaged 1 per plant in commercial planting of Hillsborough County August 19. Prevalent in home gardens in area. (Fisher). MICHIGAN - Adults increasing nightly at all blacklight stations. High count of 58 at Lenawee County station. Leaf feeding in cabbage and cole crops serious problem. (Newman, Aug. 21). OREGON - Averaged 1 larva per 10 center heads in experimental planting of broccoli near Corvallis, Linn County. (Crowell).

#### CUCURBITS

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Damaged late cucumber vine tips and caused wilting in Cayuga, Onondaga, Oswego, Oneida, and Madison Counties. (N.Y. Wkly. Rpt., Aug. 24).

WHITE GRUBS (Phyllophaga spp.) - IOWA - Larvae up to 25 per plant damaged cantaloup in Muscatine County. Field previously in rye. (Iowa Ins. Sur.).

#### GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - NEW JERSEY - This newly introduced pest of asparagus becoming difficult to find in all areas of State. Parasite activity noted in many fields. (Ins.-Dis. Newsltr.).

ONION THRIPS (Thrips tabaci) - COLORADO - Counts vary 0-40 per onion plant in Arkansas Valley. (Burchett).



## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Laspeyresia pomonella*) - WASHINGTON - First third-brood moths in sex lure traps week ending August 18 in early areas of Yakima Valley. (Johnson).  
WISCONSIN - Moths in Madison County blacklight trap August 19-25 totaled 46. (Wis. Ins. Sur.).

OBLIQUE-BANDED LEAF ROLLER (*Choristoneura rosaceana*) - OREGON - Damaged fresh market prunes and plums in Milton Freewater area, Umatilla County. Eggs, larvae, pupae, and adults present in the orchards week ending August 22. (Burkhardt). Newly emerged adults, 6 per trap, noted in bait traps in Jackson County orchards. (Penrose).

UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) - NEW JERSEY - Larvae heavy in 2 apple orchards near Richwood, Gloucester County. Pest rare in commercial blocks in State. (Ins.-Dis. Newsltr.).

EUROPEAN RED MITE (*Panonychus ulmi*) - RHODE ISLAND - Light on apple in Washington County. (Field).

PECAN WEEVIL (*Curculio caryae*) - OKLAHOMA - Ranged 8-20 per limb on pecan trees in 2 large groves in Rogers County. (Okla. Coop. Sur.). ALABAMA - Adults emerging in Bullock County; moving into pecans to lay eggs. Some controls applied. (Stone).

FALL WEBWORM (*Hyphantria cunea*) - TEXAS - Heavy on pecan trees in Robertson and Brazos Counties. Still problem on pecans in south-central and gulf coast areas. (Green et al.).

HICKORY SHUCKWORM (*Laspeyresia caryana*) - ALABAMA - Small larvae still entering pecan shucks; along with weather and other factors, continue to cause excessive nut drop in Lee, Baldwin, Houston, and Covington Counties. (Bagby et al.).

PECAN NUT CASEBEARER (*Acrobasis caryae*) - TEXAS - Third-generation larvae damaging pecan crops in Ward, Upton, and Robertson Counties. (Neeb et al.).

BLACK PECAN APHID (*Myzocallis caryaefoliae*) - ALABAMA - Increasing and damaging on many pecan trees in Marengo, Houston, and Baldwin Counties. (Stone).

WALNUT HUSK FLY (*Rhagoletis completa*) - OREGON - Adults trapped in untreated walnut orchard near Silverton, Marion County. This is a new county record. (Larson). Fly emergence apparently peaked in The Dalles, August 21, but second and third-stage larvae found in same area of Wasco County August 25. (Penrose).

## CITRUS

Citrus Insect Situation in Florida - Mid-August - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 78 (norm 59) percent of groves; economic in 64 (norm 45) percent. Decreased on leaves but increased on fruit. Indexes in high range and above normal. Decrease expected. All districts high. CITRUS RED MITE (*Panonychus citri*) infested 52 (norm 44) percent of groves; economic in 24 (norm 22) percent. Decreased from high range and will continue to decrease. Near normal for August. Highest districts west and south. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 41 (norm 46) percent of groves; economic in 24 (norm 21) percent. Decreasing and will soon be at normal low level for August. Highest district south. GLOVER SCALE (*Lepidosaphes gloverii*) infested 76 (norm 61) percent of groves; economic in 11 (norm 15) percent. Decreased to normal moderate level for August and will decrease further. Highest district north. PURPLE SCALE (*L. beckii*) infested 63 (norm 56) percent of groves; economic in 7 (norm 3) percent. Decreased from moderate to low level, but still slightly above normal for August. Decrease expected. Highest district north. YELLOW SCALE (*Aonidiella citrina*) infested 42 (norm 55) percent of groves; economic in 10 (norm 6) percent. Declined sharply

and will continue in low range. Highest district north. BLACK SCALE (*Saissetia oleae*) infested 69 (norm 68) percent of groves; economic in 35 (norm 49) percent. Decreased and will soon be at moderate to low level. Will continue below normal. Highest districts east, west, and central. An ARMORED SCALE (*Unaspis citri*) less abundant than in past 3 months. About 9 percent of groves will have moderate to heavy infestations. Little change expected. CHAFF SCALE (*Parlatoria pergandii*) will continue below normal and unimportant in all districts. WHITEFLIES infested 71 percent of groves; economic in 27 percent. Decreased but still at high level and above normal. Little change expected. MEALYBUGS decreased to moderate level and will continue to decrease. Higher than normal for August. (W.A. Simanton, Citrus Expt. Sta., Lake Alfred).

#### SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) - NEVADA - Adults very heavy in Las Vegas area, Clark County; females laying eggs. Populations above normal and somewhat unexpected since spring infestations were light. (Zoller).

#### ORNAMENTALS

HOLLYHOCK WEEVIL (*Apion longirostre*) - WYOMING - Adults collected on hollyhock August 18 in Thermopolis, Hot Springs County. This is a new county record. (Parshall).

#### FOREST AND SHADE TREES

VARIABLE OAK LEAF CATERPILLAR (*Heterocampa manteo*) - NORTH DAKOTA - Larvae heavy and caused up to 100 percent defoliation on 500 acres of native trees on Sullys Hill Game Preserve and Devils Lake Sioux Indian Reservation in Benson County. Same area defoliated by *Malacosoma disstria* (forest tent caterpillar) earlier this season. Heavy and widespread in 10,000-acre area in Killdeer Mountains and Badlands in Dunn County. All paper birch trees completely defoliated. Small infestation in area last season. (Brandvik). MINNESOTA - Larvae defoliated basswood and some oak on total of 5,000 acres in spots in south-central Otter Tail County. Same area defoliated by *M. disstria* earlier in season. (Minn. Pest Rpt.).

RED-HUMPED OAKWORM (*Symmerista canicosta*) - NORTH DAKOTA - Larvae heavy and defoliated small area of bur oak in Badlands in Dunn County. Occurred in same area defoliated by *Heterocampa manteo*. (Brandvik).

ELM LEAF BEETLE (*Pyrrhalta luteola*) - IDAHO - Damage more extensive in Parma, Canyon County, than for past 4 years. Sprayed trees, which in past years showed little damage, show 20-30+ percent damage. (Scott).

#### MAN AND ANIMALS

SCREW-WORM (*Cochliomyia hominivorax*) - Nine cases reported in U.S. August 23-29 as follows: ARIZONA - Cochise, Santa Cruz. NEW MEXICO - Grant 2, Luna 5. Total of 143 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico August 16-23 as follows: Territorio sur de Baja California 3, Sonora 69, Chihuahua 67, Nuevo Leon 1, Tamaulipas 3. Total of 54 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 41,368,000; New Mexico 7,420,000; Arizona 9,234,000; Mexico 97,640,000. (Anim. Health Div.).

FACE FLY (*Musca autumnalis*) - NEVADA - Light on cattle in Wells area, Elko County. (Nichols). This is a new county record. (Bechtel). UTAH - Numerous and troublesome on horses and cattle in Davis County this season. (Knowlton, Stokes). Currently troublesome to livestock in Salt Lake, Weber, and Cache Counties. (Knowlton). Collected at Kamas, Summit County, and at Midway, Washington County. Determined by

W.J. Hanson. These are new county records. (Hanson, Knowlton). NEBRASKA - Light on range cattle in Lincoln County. Heaviest on herds pastured along river and in canyons along valley; averaged 10-15 per head in these areas; populations decreasing slightly. (Campbell).

HORN FLY (Haematobia irritans) - UTAH - Annoying dairy herds in Davis and Salt Lake Counties. (Knowlton). WYOMING - Ranged 20-600 (average 350) on 4 cattle herds in Crook, Weston, and Johnson Counties. (Parshall). NEBRASKA - Ranged 500-600 per head on untreated Lincoln County herd. (Campbell). OKLAHOMA - Heavy on cattle in Cotton County, light to moderate in Cleveland County. (Okla. Coop. Sur.). TEXAS - Increased in many Trans-Pecos area counties. (Neeb). FLORIDA - Declined to average of 500 per animal at Belle Glade, Palm Beach County. (Janes).

MOSQUITOES - ARIZONA - Heavy due to recent rains in Mohave and Yavapai Counties. (May). MINNESOTA - Counts declined 50 percent in light trap collections week ending August 21. Aedes vexans females 78 percent and Culex tarsalis 6 percent. C. tarsalis increasing in light traps and larval collections. A. vexans in 50+ percent and A. dorsalis in 3.5 percent of larval collections. No new broods in water at present. Evening bite collections negative in 10 of 18 samples, only 35 specimens taken. A. vexans 90 percent of daytime bite collections; A. trivittatus and A. triseriatus also taken. Egg diapause not indicated by soil samples examined. (Minn. Pest Rpt.).

#### HOUSEHOLDS AND STRUCTURES

BROWN-BANDED COCKROACH (Supella supellectilium) - UTAH - Infestations increasing in Davis County; difficult to control. (Stokes).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MINNESOTA - One new case reported in area infested several years ago in east St. Paul, Ramsey County. (Minn. Pest Rpt.).

#### STORED PRODUCTS

A DERMESTID (Trogoderma teukton) - MONTANA - Infested stored barley near Fallon, Prairie County. (Pratt).

#### BENEFICIAL INSECTS

A BIG-EYED BUG (Geocorus punctipes) - ARKANSAS - Surveys of past 10 years indicated this species principal predator in soybeans at this time of year; Nabis spp. (damselfly bugs) next. Currently, Chrysopa spp. (green lacewings) very common in soybean fields of Desha County infested with Heliothis zea (corn earworm). (Boyer).

FLOWER BUGS (Orius spp.) - MISSOURI - Adults ranged 1-9 (average 5) per ear on late corn in green silk stage in northeast area. (Hanning).

MELYRID BEETLES (Collops spp.) - OKLAHOMA - Very abundant in dryland cotton in Caddo and Washita Counties. Averaged about 10 per plant. (Okla. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - KANSAS - Ranged 3-4 per square yard along border of sorghum field in Morton County; 1-2 in field of alfalfa. (Bell). NEBRASKA - Ranged 5-15 per square yard and damaged pastures in Keith and Arthur Counties. (Campbell).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released August 21-27 as follows: CALIFORNIA - Bakersfield 5,405,409; total to date 37,353,960. ARIZONA - Redington, Pima County, 67,500; total to date 1,102,300. Recovered 12 sterile but no native moths in release field; total to date 19 native and 200 sterile moths

trapped. Boll survey negative. (PPD). Treated 12 cotton fields at west Safford, Graham County. (Pearson). Infestation 100 percent in field in Gilbert area, Maricopa County. (Miller). TEXAS - Light boll infestations (less than 2 percent) remain in most fields across Trans-Pecos area. (Neeb).

#### HAWAII INSECT REPORT

Turf, Pasture - Adults of a GRASS WEBWORM (Herpetogramma licarsisalis) averaged 5 per sweep in mixed stand of grass at Nuuanu, Oahu. (Nashiwai).

General Vegetables - All stages of SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) moderate to heavy in 4 acres of sweetpotatoes at Hoolehua, Molokai. (Fujimoto). TOBACCO FLEA BEETLE (Epitrix hirtipennis) trace to light (1 adult per 4 leaves) in one acre of young eggplant at Haleiwa, and in 0.25 acre of mature eggplant at Waianae, Oahu. (Kawamura). Field samplings of BEAN FLY (Melanagromyza phaseoli) infested petioles from home yardlongbean plantings from various areas on Oahu showed high percentage of parasitism by Opius spp. (braconids). Percent parasitism by area: Waipahu 93, Ewa 95, Kunia 75, Wailua 99, Waianae 100, Kailua 83, and Kaneohe 67. Incidental parasitism by Halticoptera patellana (a pteromalid wasp) occurred in some areas. Similar samplings taken at these areas in October 1969, revealed heavy M. phaseoli infestation (up to 50 adults emerged per 20 petiole sample). (Au).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) colonies light to moderate on pinnae of 20 percent of coconut tree fronds at Keehi Lagoon Park, Oahu. Adults of Lindorus lophanthae (a lady beetle) trace. Infestations, although generally light on same host at most leeward areas, appear to be spreading. (Kawamura).

Ornamentals - Larval broods of BLACK TWIG BORER (Xylosandrus compactus) found in wild bamboo orchid (Arundina bambusifolia) at Hilo, Hawaii. This is a new host record. (Davis).

Forest and Shade Trees - Surveys of defoliated monkey pod trees (Samanea saman) at various areas on Maui and Kauai revealed higher percentage of larvae of a NOCTUID MOTH (Melipotis indomita) than of MONKEY POD MOTH (Polydesma umbricola). P. umbricola previously dominant pest of this important shade tree. On Maui, larvae collected at random under loose bark were: 124 M. indomita, 19 P. umbricola; on Kauai, 19 M. indomita, 1 P. umbricola. M. indomita now appears to be major cause of unusually heavy defoliation of monkey pod trees this year. (Sugawa, Miyahira).

Beneficial Insects - MELASTOMA BORER (Selca brunella) heavy on young leaf buds of Melastoma bordering 3-mile strip along Kulani Road at Hilo, Hawaii; damage severe. Branches of dying plants also infested with black twig borer (Xylosandrus compactus). (Davis). S. brunella purposely introduced from Malaysia to control Melastoma, a noxious weed. (Kawamura).

#### DETECTION

New County Records - ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) MISSOURI - Marion (p. 641). FACE FLY (Musca autumnalis) NEVADA - Eiko (p. 646), UTAH - Washington (pp. 646, 647). HOLLYHOCK WEEVIL (Apion longirostre) WYOMING - Hot Springs (p. 464). SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) NORTH DAKOTA - Barnes (p. 639). SPOTTED ALFALFA APHID (Therioaphis maculata) WYOMING - Johnson, Sheridan (p. 638). WALNUT HUSK FLY (Rhagoletis completa) OREGON - Marion (p. 645). WESTERN CORN ROOTWORM (Diabrotica virgifera) INDIANA - Fulton, Jasper, Starke, Marshall (p. 639).







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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PROTECTION DIVISION**

### **ECONOMIC INSECT SURVEY AND DETECTION**

**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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**Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

CORN EARWORM catches in blacklight traps indicate continued heavy moth flights in northeast and central Kansas; moths heavy in New Jersey. (p. 653). Moth catches heavy in Mississippi and Virginia. (pp. 664-665).

Third brood of EUROPEAN CORN BORER indicated for Iowa and Kansas. Moth flight decreased in Michigan, but heavy in New York. (pp. 653-654). Moth catches heavy in Indiana, Tennessee, and Wisconsin. (pp. 664-665). CORN ROOTWORMS of concern in some areas. (p. 654).

FALL ARMYWORM continued to damage grasses in Georgia and Alabama. (p. 655).

BOLL WEEVIL increased in Alabama; damage serious in western Tennessee. BOLLWORMS caused much damage to rank cotton in western Tennessee; moth flight heavy throughout Alabama and in delta area of Mississippi; egg laying heavy in southern Georgia and in Alabama. COTTON LEAF PERFORATOR heavy in most cotton in Salt River Valley of Arizona. (p. 657).

TEN-LINED JUNE BEETLE larvae caused heavy loss of cherry seedlings in Washington. (p. 659).

SADDLED PROMINENT caused heavy defoliation in western Massachusetts. (p. 659).

FACE FLY annoying horses and cattle in northern Utah. HORN FLY heavy on cattle in areas of Nebraska and Oklahoma. (p. 660).

Detection

ASPARAGUS APHID reported for first time in Pennsylvania. (p. 658).

For new county and parish records see page 662.

Reports in this issue are for week ending September 4 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

SEPTEMBER 1970

The Weather Bureau's 30-day outlook for September is for temperatures to average below seasonal normals along the Pacific coast and also over the eastern third of the Nation except for near to above normal in Florida. Above normal temperatures are indicated for most of the intermountain region and the Great Plains. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Pacific Northwest, as well as eastern portions of the Great Basin, and in the gulf coast region. Subnormal totals are indicated for the upper and middle Mississippi Valley, the Ohio Valley, and the middle 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.

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WEATHER OF THE WEEK ENDING SEPTEMBER 7

**HIGHLIGHTS:** Rains in the Far Northwest dampened the forest and relieved the dangerous forest fire situation. Soaking rains fell in spots in the Great Plains and in some previously dry areas of the Southeast. Summer heat continued over much of the Nation.

**PRECIPITATION:** As a high pressure area moved eastward from the northern Great Plains early in the week, it was replaced by a low pressure area with a cold front extending southward to Kansas and a warm front extending southeastward to South Carolina. Scattered thunderstorms occurred over much of the Nation except the Pacific Coast States and the Northeast. Heavy rains in southeastern Oklahoma and eastern Texas at midweek caused considerable flooding along many streams in that area. Sugarland, Texas, registered 3.84 inches in the 24-hour period ending at 7:00 a.m. Wednesday, and Tahlequah, Oklahoma, received 3.52 inches in the next 24-hour period. Shortly after midweek, light rains began to dampen the Northwest. These helped the fire fighters in that area. At some locations these were the first measurable rains since August 2. A number of violent thunderstorms occurred in the central Great Plains. Winds gusting to 70 m.p.h. whipped Manhattan, Kansas, Weather of the week continued on page 666.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (Pseudaletia unipuncta)** - VIRGINIA - Larval feeding severe on leaves and buds in 15 acres of corn in Botetourt County. (Leonard). ALABAMA - Larvae heavy, 2-6 per plant, and causing heavy damage to heads of grain sorghum on farm in Marengo County. Larvae heavy on grain sorghum planted for wildlife at Fountain, Monroe County; required controls. (Yates, Lemons).

**ASTER LEAFHOPPER (Macrostoteles fascifrons)** - FLORIDA - Adults 5 in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

**BEET LEAFHOPPER (Circulifer tenellus)** - WYOMING - No adults or curly-top symptoms found in sugar beet fields of Washakie and southern Big Horn Counties. (Parshall).

**CORN EARWORM (Heliothis zea)** - NEW MEXICO - Light damage showing on grain sorghum heads in Curry County. (Campbell). OKLAHOMA - Light to absent on grain sorghum heads in Alfalfa and Harper Counties. Moderate in peanuts in Bryan County. (Okla. Coop. Sur.). KANSAS - Blacklight trap catches indicate continued heavy moth flights in northeast and central districts. Larvae per ear ranged 1-3 in field of late corn in Brown County, averaged 2.4 small to half-grown larvae in late corn in Wabaunsee County field. Averaged 1.5 larvae per ear in 2 fields of late corn in Riley County. (Bell). ARKANSAS - Infestations continue very localized in southeast area; declined in Lee and other soybean varieties of similar maturity date. Found in some late-planted Lee variety, but more general in Bragg and other later recommended varieties. (Boyer, Wall). Light in some soybeans in east area but below recommended treatment level. (Kimbrough). Found in Lafayette and Hempstead Counties only in late Lee and Bragg varieties. Averaged 0.5 or less larva per row foot in late Lee variety. Highest count in several hundred acres of late Bragg variety, up to 3.5 larvae per row foot. Larvae mainly second and third stage. (Boyer). Moth activity decreased. Eggs very hard to find in soybeans. No infestations reported in northeast area. (Boyer et al.). Light, less than recommended treatment level in 2 fields of late sorghum in Lafayette County. (Boyer). VIRGINIA - Larvae 82 per 100 sweeps on unsprayed peanuts at Tidewater Research Station. (Smith). Larvae 2-4 per row foot in field of soybeans in Westmoreland County. Dry weather affected pod set and plant growth to point treatment questionable. (Ptucha). NEW JERSEY - Adults remain heavy; beans and lettuce should be watched. (Ins.-Dis. Newsltr.). MAINE - Light except in untreated or improperly timed areas; infestations up to 40 percent. (Gall).

**CORN LEAF APHID (Rhopalosiphum maidis)** - UTAH - Extremely heavy on 500 acres of field corn for silage in Delta and Sutherland area of Millard County. (Hall, Knowlton). NEW MEXICO - Generally light on grain sorghum in Chaves County. (Mathews). OKLAHOMA - Light, ranged 0-50 per plant in most fields of late-planted forage sorghum in northwest area. (Okla. Coop. Sur.).

**GREENBUG (Schizaphis graminum)** - NEBRASKA - Few remain on grain sorghum in Lincoln County; up to 90 percent parasitized by Lysiphlebus testaceipes (a braconid). No recent damage observed. (Campbell).

**SPOTTED ALFALFA APHID (Therioaphis maculata)** - UTAH - Ranged 3-300 per 25 sweeps in west Millard County alfalfa. (Wayland). NEW MEXICO - Light in alfalfa in most areas of State. (N.M. Coop. Rpt.).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER (Ostrinia nubilalis)** - MAINE - Infestations ranged 25-30 percent in Corinna area, Penobscot County. Stalk breakage 5 percent from storm of August 26. (Gall). NEW YORK - Moths noticeable in weeds around untreated corn plantings at Poughkeepsie, Dutchess County. Moths heavy in light trap for 10-day period ending August 29; total of 160 trapped. (N.Y. Wkly. Rpt.). MICHIGAN - Moths decreased in blacklight traps: Lenawee County station 131, Livingston County station 116. Larval activity expected until first frost. (Newman, Aug.

31). OHIO - Middle to late instars in field corn in west area. Heaviest (averaged 8 per 25 plants) in Union, Champaign, and Clarke Counties. Damage to middle of stalk evident with entry just above leaf bases. (Roach). IOWA - Moth flight indicates strong evidence of third brood. No flight in early July; 25-35 moths collected each night July 13-30. Eggs laid during this period hatched; larvae pupated. These moths flying, mating, and laying eggs now. Moths in blacklight trap at Ankeny ranged 25-38 per night during period August 23 to September 4. Data similar at all light traps in State except at Dubuque. (Iowa Ins. Sur.). NORTH DAKOTA - Larvae ranged 4-300 (average 92) per 100 stalks in Steele County corn. Percent infested stalks ranged 4-60 (average 27). (Kaatz). KANSAS - Third-generation eggs and young larvae found in late corn in northeast and east-central districts. Egg masses averaged 1.6 per plant in field of late corn in Brown County; about half had hatched. Others ranged from freshly laid to ready to hatch. Large second-generation larvae averaged 3 per plant, pupae 1 per 30 plants. Many second-generation moths emerged in this field. Third-generation egg masses averaged 0.4 and 0.6 per plant and larvae 0.0 and 0.4, respectively, in 2 fields of late corn in Riley County; averaged 1.6 egg masses and 2 small larvae per plant in Wabaunsee County field. No evidence of earlier infestation in latter field. Young third-generation larvae fed at bases of leaf blades or on silks. Moths in all fields checked. (Bell).

FALL ARMYWORM (*Spodoptera frugiperda*) - NEW YORK - Moth catches heavy in Hudson Valley area. Of 181 noctuids trapped August 28-29, total of 45 this species, two thirds females. (N.Y. Wkly. Rpt.). KANSAS - Very light in corn; larvae recently appeared in ears. Averaged 0.1 and 0.05 per ear respectively in 2 fields of late corn in Riley County. (Bell). OKLAHOMA - Light in several fields of forage sorghum in Major, Alfalfa, and Woods Counties. Light damage but no larvae found in Harper, Woodward, and Ellis Counties. (Okla. Coop. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - ILLINOIS - Collected in Grundy, McLean, and Livingston Counties. These are new county records. (Ill. Ins. Sur.). NORTH DAKOTA - Adults per plant averaged 1 on first-year corn and 2 on second-year corn near Kindred, Cass County. Less than 1 percent of plants lodged in second-year fields. Adults collected from corn in northeast Steele County for a new county record. (Brandvik, Kaatz). COLORADO - Adults up to 10 per corn plant in Arkansas Valley. (Burchett).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - NEW YORK - Adult feeding heavy in some instances in widely scattered portions of Livingston County. Root damage found in areas treated with chemicals this spring. Damage showing in fields in continuous corn from 3 through 7 or 8 years. Adult feeding found in dry bean fields planted adjacent to infested corn. In village of Nunda several home gardeners discovered blank sweet corn ears. (N.Y. Wkly. Rpt.). MICHIGAN - Adults abundant in Lapeer County fields planted to corn for two or more years. Damage to silks heavy, especially in fields where no insecticide applied at planting time. (Cress, Aug. 31).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - COLORADO - Adults ranged up to 1 per corn plant in many fields in northeastern area. (Johnson).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - ILLINOIS - Surveys indicate small increase in all 7 sections; ranged 0.2 (west-southwest) to 0.9 (central) per sweep. State average increased to 0.5 per sweep of corn. (Ill. Ins. Sur.).

SORGHUM WEBWORM (*Celama sorghiella*) - ARKANSAS - Counts ranged 10-100+ per row foot in late sorghum in 2 Lafayette County fields. (Boyer). OKLAHOMA - Early instars averaged 15 per 100 heads of grain sorghum checked in Payne County. (Okla. Coop. Sur.).

SORGHUM MIDGE (*Contarinia sorghicola*) - ARKANSAS - Survey negative in few late sorghum fields in bloom in east-central areas. (Kimbrough). Only two fields of late sorghum found in southwest area; damage apparent in these fields. (Boyer).

EUROPEAN EARWIG (Forficula auricularia) - MONTANA - Infested sweet corn in many parts of western area. (Merklly).

#### TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - Infesting pasture and forage crops over northern area. Adults and larvae heavy on lawns, golf courses, and football field turf in Clarke and Franklin Counties. (Nolan, Cole, Aug. 28). ALABAMA - Damaging several fields of grass hay crops in Dallas County. (Alsbrook). Damaging hybrid Bermuda grasses on golf courses in Monroe and Jackson Counties. (Lemons). Larvae causing heavy damage to new planting of Bermuda grass on athletic field south of Cullman, Cullman County. Controls scheduled. (Baswell). ARKANSAS - Below normal throughout season. Few infestations in pastures and meadows reported in Columbia County. (Barnes).

SOD WEBWORMS (Crambus spp.) - WEST VIRGINIA - Adults numerous, larval damage light to moderate in lawns in Cabell County. (W. Va. Ins. Sur.). NEBRASKA - Damage severe in some portions of east and southeast districts during August. Killed 15-75 percent of grass in several lawns in Lincoln, Lancaster County; most damage now past as 50-85 percent of larvae pupated. Adult emergence underway. (Keith). Larvae damaging lawns in North Platte area, Lincoln County. (Campbell). NEVADA - Adults heavy on lawns at Las Vegas, Clark County, and at Reno, Washoe County. Heavy emergence occurred in Reno July 28 to September 4. (Senn, Ting).

A SOD WEBWORM (Pediasia mutabilis) - KANSAS - Caused heavy damage in spots to 2 bluegrass lawns in Riley County; up to 6 large larvae per square yard; pupae and adults present. (Thompson, Bell). Larvae up to 6 per square foot in nursery planting of Midway Bermuda grass in Sedgwick County. (Redding).

TWO-LINED SPITTLEBUG (Prosapia bicincta) - ALABAMA - Nymphs heavy at plant crowns in grass lawns over large area in Monroeville, Monroe County. (Lemons).

#### FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - COLORADO - Ranged 0-800 per 100 sweeps of alfalfa in Arkansas Valley. (Burchett). WYOMING - Decreased in Fremont County; averaged 60 per 10 sweeps. Ranged 30-150 per 10 sweeps of alfalfa in Washakie, Big Horn, and Hot Springs Counties. (Parshall). WISCONSIN - Ranged 3-60 per sweep of alfalfa in southwestern counties; highest counts in lush stands. Few parasites and predators and many young nymphs preclude higher counts in succeeding weeks. In many cases about 20 percent of population winged forms. (Wis. Ins. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - MASSACHUSETTS - Adults averaged 61 per 100 sweeps of alfalfa in Berkshire County field. (Miller, Aug. 26). WYOMING - Averaged 4 per 10 sweeps of alfalfa in Hot Springs, Fremont, Washakie, and Big Horn Counties. (Parshall).

RAPID PLANT BUG (Adelphocoris rapidus) - FLORIDA - Adults 8 in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead). WISCONSIN - Nymphs ranged 2-3 per sweep in many alfalfa fields in southwest. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - UTAH - Ranged 25-300 per 25 sweeps in west Millard County alfalfa. (Wayland, Hurst). WYOMING - Adults and nymphs averaged 19 per 10 sweeps of alfalfa in Fremont, Hot Springs, Washakie, and Big Horn Counties. (Parshall).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Nymphs 40, adults 53 in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

CORN ROOTWORMS (Diabrotica spp.) - ILLINOIS - Average counts per sweep in alfalfa and red clover by section: Northwest 1.2, northeast 1.9, west 0.8, central 0.7, east 0.1, west-southwest 0.2, east-southeast 0.2. Average for State 0.9. (Ill. Ins. Sur.). WISCONSIN - D. virgifera (western corn rootworm) dominant species in

alfalfa in southwest. Ranged 1-5 per 10 sweeps in most fields regardless of proximity to corn. (Wis. Ins. Sur.).

ALFALFA SEED CHALCID (Bruchophagus roddi) - OKLAHOMA - Adults averaged 7 per 10 sweeps of alfalfa in northwestern Harper County. (Okla. Coop. Sur.).

ARMYWORMS (Spodoptera spp.) - ARIZONA - S. exigua (beet armyworm) larvae per 100 sweeps of alfalfa in Yuma County averaged as follows: Dome Valley 170, Gila Valley 235, Yuma Valley 550. (Ariz. Coop. Sur.). FLORIDA - S. frugiperda (fall armyworm) larvae ranged 1-2 per sweep in alfalfa at Gainesville, Alachua County. (Mead).

ALFALFA CATERPILLAR (Colias eurytheme) - COLORADO - Larvae up to 20 per 100 sweeps of alfalfa in most fields in Arkansas Valley. (Burchett).

GRASSHOPPERS (Melanoplus spp.) - WISCONSIN - Damage to new seedlings of alfalfa and to alfalfa cut early heavy in central area. Only stems remain in some fields. Corn not attractive for further migration. M. femurrubrum (red-legged grasshopper) dominant. M. differentialis (differential grasshopper) numerous enough to be noticeable only at few isolated locations. Feeding on crops other than alfalfa minimal in areas surveyed to date. (Wis. Ins. Sur.).

#### SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - LOUISIANA - Appearing in soybeans in south areas and will increase during next few weeks. (Tynes, Sept. 2).

ALABAMA - Larvae of this species and Plathypena scabra (green cloverworm) ranged light to heavy in soybeans throughout Covington County. (Pike). FLORIDA - Larvae 2 per row foot of soybeans at Gainesville, Alachua County, (Whitcomb et al); heavy at Quincy, Gadsden County, during late August and early September (Greene).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larvae medium on soybeans throughout Covington County. (Pike).

SOYBEAN LOOPER (Pseudoplusia includens) - MISSISSIPPI - Averaged less than one larva per 3 row feet in 7 Oktibbeha County fields. (Sartor). ALABAMA - This species and Trichoplusia ni (cabbage looper) ranged light to heavy in soybeans throughout Covington County. (Pike).

GREEN CLOVERWORM (Plathypena scabra) - MISSOURI - Larvae ranged 5-18 (average 7) per row foot on soybeans in southeast area. (Munson). MISSISSIPPI - Averaged 3 early instars per 3 row feet in 7 Oktibbeha County fields. (Sartor).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Heavy in scattered fields in Hughes County; light in other fields. (Okla. Coop. Sur.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - LOUISIANA - Heavy in soybeans. Feeding mainly on foliage now. Watch for pod feeding and apply controls when found. (Tynes, Sept. 2). MISSISSIPPI - Adults per 3 row feet averaged less than 1 in early plantings and 2 in late plantings in 7 Oktibbeha County fields. (Sartor).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults and larvae still active in soybeans in Wicomico and Worcester Counties. Several fields in Salisbury and Quantico area of Wicomico County 40-80 percent defoliated. (U. Md., Ent. Dept.). VIRGINIA - Increasing in few soybean fields in southern Tidewater area. (Smith et al.).



## PEANUTS

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Larvae continue heavy in most peanut fields in Covington County. Control difficult. (Pike).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larvae medium on peanuts throughout Covington County. (Pike).

SOYBEAN LOOPER (Pseudoplusia includens) - ALABAMA - This species and Trichoplusia ni (cabbage looper) ranged light to heavy in peanuts throughout Covington County. (Pike).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Remains light in Bryan County cotton. (Okla. Coop. Sur.). ARKANSAS - Heavy enough in some fields that controls needed to protect young bolls. Treatments made in 1,077 fields. (Barnes et al.). TENNESSEE - Damage still serious throughout west area. Migrating northward to late rank cotton. Most early cotton no longer attractive. Conditions ideal for further increase. (Locke). GEORGIA - Punctured squares ranged 40-100 percent over southern area. (Womack, Aug. 29). ALABAMA - Increased throughout State following continued "hatchouts" past 20 days of excessive rains, dampness, and high square production. Cotton maturing in extreme southern area; controls ending. Third-generation weevils developing in northern area brought square infestation counts above 10 percent in many fields. (McQueen). MISSISSIPPI - In delta counties weevils and punctured squares in 2 of 8 fields. Weevils 15 per 100 squares and punctures 59 percent in 1 field; 1 weevil per 100 squares and punctures 7 percent in other field. (Pfrimmer et al.). Infestation averages ranged 0.2-12 percent in Coahoma, Quitman, Tallatatchie, Yalobusha, Grenada, and Tishomingo Counties. (Sartor).

BOLLWORM (Heliothis zea) - ARIZONA - Second instars in many fields; averaged 1 per 10 plants in 2 fields northwest of Phoenix, Maricopa County. (Ariz. Coop. Sur.). OKLAHOMA - Percent damaged squares ranged 10-15 in Altus area, Jackson County, and 20-25 in Perkins area, Payne County. Moderate in Bryan County. (Okla. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - TENNESSEE - Continue to cause much damage throughout west area to late rank cotton. Maturing fields no longer attractive. (Locke). GEORGIA - Egg laying continues heavy over southern area. (Womack, Aug. 25). ALABAMA - Moths, mostly H. zea, continue heavy throughout State. Egg laying heavy; larvae ranged 3-25 per 100 terminals in many fields. (McQueen). MISSISSIPPI - In delta counties, moth flights still heavy, egg laying seems less. Eggs averaged 2 per 100 terminals in 3 of 8 fields; very few on other parts of plant. Injured squares averaged 1.56 (maximum 4.5) percent in 7 of 8 fields. (Pfrimmer et al.). Infestation averages ranged 1-4 percent in Coahoma, Quitman, Tallahatchie, Yalobusha, Grenada, and Tishomingo Counties. Oviposition heavy in several areas of State. (Sartor). ARKANSAS - Activity declined, particularly as fields become less attractive to moths. Active infestations should be treated to prevent boll damage. Treatments made in 1,189 fields. (Barnes et al.). LOUISIANA - Pressure continues. Expect increased egg laying during next 7 days and increase in number of live larvae. (Tynes, Sept. 2).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Light to medium spotty damage in cotton in Dona Ana County. (Campbell, Riddle). ARIZONA - Larvae averaged 5+ per plant in 3 fields at Glendale, Maricopa County; plants at ends of rows with up to 40 per plant. T. ni in combination with Spodoptera exigua (beet armyworm) and Bucculatrix thurberiella (cotton leaf perforator) causing open plants. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Increased from very light in scattered fields to heavy in most fields of Salt River Valley. Averaged 50+ per plant in most cases. Controls applied. (Ariz. Coop. Sur.).

## SUGARBEETS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Slowly increasing on sugar beets. Trace of virus yellows appearing, much later than usual in Walla Walla County. (Landis, Aug. 25).

## POTATOES, TOMATOES, PEPPERS

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Third instars light in field of potatoes in Monroe County. Many laterals mined out. Larvae decreased in peppers received at Vlastic station. (Newman, Aug. 31).

CABBAGE LOOPER (Trichoplusia ni) - OHIO - Mostly late instars 5-6 per plant on potatoes in Columbiana and Mahoning Counties. Defoliation about 10 percent. (Sleesman).

POTATO TUBERWORM (Phthorimaea operculella) - MICHIGAN - Third instars light in Monroe County potato field, especially in weedy areas where pest protected from controls. (Newman, Aug. 31).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Infesting potatoes at Oakley, Summit County. This is a new county record. (Roberts, Stevens).

POTATO APHIDS - MAINE - Counts by 3-leaf method on untreated potatoes at Presque Isle, Aroostook County, showed 94 percent of plants infested. Total numbers of aphids decreased due to fungus and migration. Macrosiphum euphorbiae (potato aphid) population 1.3 percent parasitized, 6.5 percent killed by fungus; yellow pan traps showed heavy flight of dispersal forms. Very few Aphis nasturtii (buckthorn aphid) parasitized; no cases of fungus observed. Myzus persicae (green peach aphid) population still small but increasing; few summer dispersal forms; fungus affected very small percentage of population. Acyrtosiphon solani (fox-glove aphid) counts very low. (Simpson, Aug. 24).

GREEN PEACH APHID (Myzus persicae) - IDAHO - Occasional aphid collected in trap pan survey for fourth consecutive week; 4 collected at Fort Hall and 3 at Shelby, Bingham County. (Kuta).

## COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Economic in commercial cabbage in Bixby area, Tulsa County. Controls applied. (Okla. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - MONTANA - Damaged cabbage, cauliflower, and broccoli in Ravalli County. (Markley).

## GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - COLORADO - Larval infestations ranged 2-35 percent in Arkansas Valley lettuce. (Burchett).

A LETTUCE APHID (Acyrtosiphon scariolae) - IDAHO - Colonies, including alates, multiplied rapidly on Prize Head variety lettuce at Moscow, Latah County. (Barr).

ASPARAGUS APHID (Brachycolus asparagi) - PENNSYLVANIA - Collected on asparagus fern in Bensalem Township, Bucks County, August 20, 1970, by J.G. Campbell. Specimens heavily parasitized. Determined by L.M. Russell. This is a new State record. (PPD).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - MONTANA - Damaged asparagus in Ravalli County. (Markley).

## DECIDUOUS FRUITS AND NUTS

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - MICHIGAN - Larval entries and young larvae appearing in pit area of late-harvested peaches. Problem mostly in poorly sprayed and poorly managed blocks. Increased problems can be expected in such orchards in spring 1971. (Thompson, Aug. 31). OREGON - Adult taken in bait pot in commercial peach orchard at Grants Pass, Josephine County, week of August 28. Determined by P. Larson. This is a new county record. (Penrose).

**CODLING MOTH** (*Laspeyresia pomonella*) - WASHINGTON - Third-brood larval entries on apples noted at Parker Heights and Buena Heights, Yakima County. (Johnson, Aug. 28).

**EYE-SPOTTED BUD MOTH** (*Spilonota ocellana*) - MONTANA - Injury showing in various apple varieties in Missoula and Ravalli Counties. (Markly).

**TEN-LINED JUNE BEETLE** (*Polyphylla decemlineata*) - WASHINGTON - Larvae feeding on roots caused loss of 500-600 cherry seedlings at Prosser, Benton County. (Cone, Aug. 26).

**SAN JOSE SCALE** (*Aspidiotus perniciosus*) - WASHINGTON - Second-generation young emerging from females on apples at Selah, Yakima County. (Gregorich, Aug. 27).

**EUROPEAN RED MITE** (*Panonychus ulmi*) - MASSACHUSETTS - Counts per 100 apple leaves in Hampshire County: 40 on McIntosh and 6,720 on Delicious with dormant oil and no treatment. (Jensen).

**FALL WEBWORM** (*Hyphantria cunea*) - TENNESSEE - Unusually heavy on pecan trees in west area. (Locke, White).

**PECAN WEEVIL** (*Curculio caryae*) - OKLAHOMA - Adults heavy on pecans checked in Rogers County. Occasional small larvae found in nuts. (Okla. Coop. Sur.).

## SMALL FRUITS

**A LEAFHOPPER** (*Scaphytopius magdalensis*) - NEW JERSEY - Only known vector of blueberry stunt, beginning second generation flight. Peak activity expected in late 1971. (Ins.-Dis. Newsltr.).

**WHITE-MARKED TUSSOCK MOTH** (*Hemerocampa leucostigma*) - MICHIGAN - Second-generation larvae heavy in blueberry plantations near Covert, Van Buren County. About 100 acres involved. Berries harvested; most larvae in late instar were resistant to controls and ready to pupate; additional sprays discouraged and not recommended. (Thompson, Aug. 31).

## FOREST AND SHADE TREES

**NANTUCKET PINE TIP MOTH** (*Rhyacionia frustrana*) - KANSAS - Infested 10-90 percent of shoots on untreated Austrian and ponderosa pines in nursery plantings in Saline County; less than 10 percent of shoots where treatments made. (Redding).

**A PHYCITIID MOTH** (*Dioryctria amatella*) - MISSISSIPPI - Larvae infested average of 33.65 percent of second-year cones on 10 slash pines in Greene County seed orchard. (Sartor).

**SADDLED PROMINENT** (*Heterocampa guttivitta*) - MASSACHUSETTS - Caused heavy defoliation August 20-27 in western areas. (McKenzie).

**VARIABLE OAK LEAF CATERPILLAR** (*Heterocampa manteo*) - MINNESOTA - Defoliating basswood in 2 new areas near Grand Rapids, Itasca County, and in several townships in Kandiyohi County. (Minn. Pest Rpt.).

OAK SKELETONIZER (Bucculatrix ainsliella) - MASSACHUSETTS - Second-brood larvae caused 50-75 percent defoliation of some trees in eastern area. Many inquiries concerning second treatment. (Garland).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - WEST VIRGINIA - Moderate to heavy larval damage observed on pin oak in Wirt County August 28. (W. Va. Ins. Sur.). CONNECTICUT - Light in New London County. (Anthony).

FALL WEBWORM (Hyphantria cunea) - NEW HAMPSHIRE - Very numerous in south-central area; webbed entire trees in some instances. (Mason, Aug. 26).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW HAMPSHIRE - Larvae heavily defoliated willows on State park in Coos County. Larvae full grown, ready to pupate September 1. (Jolley).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Heavy damage showing in nearly every town in State. Trees appear near complete defoliation. (N.M. Coop. Rpt.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Sixteen cases reported in U.S. August 30 to September 5 as follows: TEXAS - Terrell 2, Val Verde 1. NEW MEXICO - Grant 2, Lincoln 2, Luna 7. ARIZONA - Santa Cruz 1. CALIFORNIA - San Diego 1. Total of 115 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico August 23-29 as follows: Territorio sur de Baja California 2, Sonora 67, Chihuahua 45, Nuevo Leon 1. Total of 42 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 40,958,000; New Mexico 7,200,000; Arizona 10,484,000; Mexico 103,168,000. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - MARYLAND - Adults collected September 3 at Salisbury, Wicomico County, by J. Hellman. Determined by J. Hellman. This is a new county record. (U. Md., Ent. Dept.). NEBRASKA - Averaged 10 per face on river bottom herd pastured near North Platte, Lincoln County. Less than 1 per face on animals pastured in sandhills. (Campbell). UTAH - Continues annoying horses and cattle in northern area. (Knowlton). NEVADA - Light on cattle in Wells area, Elko County. (Nichols, Aug. 28).

HOUSE FLY (Musca domestica) - NEBRASKA - Ranged 10-15 per Scudder grid in feedlots examined in Lincoln County. (Campbell).

HORN FLY (Haematobia irritans) - NEBRASKA - Ranged 400-500 per animal on several untreated range herds in Lincoln County. (Campbell). OKLAHOMA - Ranged 600-1,000 per head on cattle in Major County, 75-150 per head in Payne County. Heavy in Hughes and Cleveland Counties. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Annoyance to cattle moderated in all areas; some annoyance continues in Chippewa, Rock, Clark, Calumet, Green Lake, Bayfield, Kewaunee, and Dane Counties. (Wis. Ins. Sur.). NEBRASKA - Ranged 3-5 per leg on feedlot animals checked in Lincoln County. (Campbell). OKLAHOMA - Ranged 3-4 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - Light trap collections at Minneapolis and Saint Paul week ending August 29 increased. Of 6,090 females taken in 16 traps, Aedes vexans 5,022, Culex tarsalis 106, and Anopheles walkeri 135. In 21 evening bite collections A. vexans 83 of 101 specimens taken; A. triseriatus 8, A. trivittatus 7, and Anopheles walkeri 2. In 90 daytime collections A. vexans 604 of 705; A. triseriatus 64, A. cinereus 9, and A. excrucians and A. fitchi 4 each. Egg samples taken August 24 showed 97 percent hatch. Two samples on August 31 showed 22 and 28 percent hatch. Past records indicate egg diapause usually well underway at this time. (Minn. Pest Rpt.).

TICK SURVEILLANCE - Survey throughout the U.S. and Puerto Rico is to show seasonal distribution of potential vectors and hosts of livestock diseases and to detect exotic species. Some of the more interesting determinations for August were as follows: Boophilus annulatus (cattle fever tick) TEXAS - cows, horse, also B. microplus (tropical cattle fever tick) horse. Dermacentor nitens (tropical horse tick) TEXAS - mule, horse; FLORIDA - horse; PUERTO RICO - horse, cow. Dermacentor andersoni (Rocky Mountain wood tick) CALIFORNIA - man. Otobius megnini (ear tick) TEXAS - cow; CALIFORNIA - cow; COLORADO - dog; OKLAHOMA - cow; WASHINGTON - dog. Amblyomma cajennense (Cayenne tick) TEXAS - horse, cow. (Anim. Health Div.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy on cattle in Lincoln County. (Okla. Coop. Sur.).

#### STORED PRODUCTS

A WEEVIL (Araecerus fasciculatus) - FLORIDA - Adults apparently infesting all of 5,000 100-pound bags of coffee in storage at Plymouth, Orange County. (Van Pelt, Aug. 26). Fumigation required. (Fla. Coop. Sur.).

#### BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults and larvae averaged 6 per 10 sweeps of alfalfa in Fremont, Washakie, and Hot Springs Counties. Counts heaviest in Fremont County. (Parshall).

A MELYRID BEETLE (Collops quadrimaculatus) - WISCONSIN - Collected in cranberries in Juneau County. This is a new county record. (Wis. Ins. Sur.).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults and nymphs averaged 8 per 10 sweeps of alfalfa in Fremont, Hot Springs, and Washakie Counties. (Parshall). MASSACHUSETTS - Averaged 12 adults and 39 nymphs per 100 sweeps of alfalfa in Berkshire County field. (Miller, Aug. 27).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Adults 12 per 20 sweeps in young, lush weed grasses at woodlot borders in Berrien County. Feeding common; no mating and only short, low flights. Adults held in laboratory fed sporadically and did not mate. Adults rarely swept from roadside and field grasses. (Ruppel, Aug. 31).

GIANT AFRICAN SNAIL (Achatina fulica) - FLORIDA - Surveys of 22 infested properties in Dade County August 28 to September 3 revealed 4 live and 208 dead snails; 10 nonviable eggs also found. (PPD).

GRASSHOPPERS - IDAHO - Adult survey indicates an estimated 2,749,000 acres infested with 8 or more per square yard. Portions of 25,520 acres in Clearwater, Latah, and Nez Perce Counties treated during July reinfested from surrounding areas. (Portman). UTAH - Surveys indicate that 12,570 acres of cropland may have problems in 1971; largest infested areas in Box Elder, Tooele, Juab, Sanpete, and Millard Counties. Including rangeland, potential for problems in 1971 exists on 64,610 acres. This is lowest outlook in 34 years. (Thornley). Numbers in Curlew Valley of Box Elder County decreased by 90 percent. Sarcophagid parasites numerous in several localities. (Judd, Knowlton). Grasshoppers moderate in west Millard County alfalfa fields. (Wayland). NORTH DAKOTA - Melanoplus bivittatus adults, 6 per square yard, feeding on bolls of late flax in southern Cass County. Hot, dry weather favorable for egg deposition in area. (Brandvik).

GYPSY MOTH (*Porthetria dispar*) - Results to September 3 in 1970 trapping survey revealed establishment of new county records in following States: Delaware 1, Maryland 6, Pennsylvania 7, and Virginia 3. Survey indicates heavy buildup in peripheral areas of New York and continued spread to southern sectors of New Jersey. In Pennsylvania, buildup extremely heavy in southeastern counties. Most significant findings were on Delmarva Peninsula where positive specimens taken at 38 sites. In western Virginia, moths-recently collected in Rockingham and Prince William Counties. Following unreported new county records included in above totals: VIRGINIA - Adult recovered in trailer court at Dumfries, Prince William County, by M.M. Poyner August 17. MARYLAND - Adult collected in trap near Siloam, Wicomico County, by B. Bozman August 17. PENNSYLVANIA - Adult trapped near Davidson, Sullivan County, by M.A. Renshaw August 17. Determinations by E.L. Todd and D.M. Weisman. (PPD).

JAPANESE BEETLE (*Popillia japonica*) - SOUTH CAROLINA - Adult trapped in rural area of Chester County by S.W. Weaver, August 14. GEORGIA - Adult trapped near Stockridge, Henry County, July 23 and adult trapped near Lithia Springs, Douglas County, July 20 by T.A. Knight. Determinations by R.D. Gordon. These are new county records. (PPD).

PINK BOLLWORM (*Pectinophora gossypiella*) - Sterile moth releases August 28 to September 3 as follows: CALIFORNIA - Bakersfield 3,967,485, total to date 41,321,445. ARIZONA - Redington, Pima County, 45,000, total to date 1,147,300. In release field at Redington, 8 sterile but no native moths taken. Seasonal total 19 native and 208 sterile moths trapped. Weekly boll survey negative. (PPD). NEW MEXICO - Light, ranged 0-14 percent, on cotton in Carlsbad and Artesia areas of Eddy County. (Mathews).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - GEORGIA - Adults of *G. leucoloma striatus* collected at Bremen, Haralson County, and *Graphognathus* spp. at Villa Rica, Douglas County, August 21 by T.A. Knight. Determinations by R.E. Warner and J.M. Kingsolver. VIRGINIA - Adult of *G. leucoloma fecundus* collected at Arlington, Arlington County, by Morris August 14, and adults collected at Independent City of Falls Church by Thompson August 25. Adults of *G. leucoloma striatus* collected at Chestnut Level, Pittsylvania County, by W.D. Jones August 3. LOUISIANA - Adult of *G. peregrinus* collected at Bently, Grant Parish, by Hutzler August 25 and from farm at Plaquemine, Iberville Parish, by H.F. Young July 24. Determinations by R.E. Warner. These are new county and parish records. (PPD).

## DETECTION

New State Record - ASPARAGUS APHID (*Brachycolus asparagi*) PENNSYLVANIA - Bucks County. (p. 658).

New County and Parish Records - COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) UTAH - Summit (p. 658). FACE FLY (*Musca autumnalis*) MARYLAND - Wicomico (p. 660). GYPSY MOTH (*Porthetria dispar*) VIRGINIA - Prince William, MARYLAND - Wicomico, PENNSYLVANIA - Sullivan (p. 662). JAPANESE BEETLE (*Popillia japonica*) SOUTH CAROLINA - Chester, GEORGIA - Henry, Douglas (p. 662). A MELYRID BEETLE (*Collops quadrimaculatus*) WISCONSIN - Juneau (p. 661). ORIENTAL FRUIT MOTH (*Grapholitha molesta*) OREGON - Josephine (p. 659). WESTERN CORN ROOTWORM (*Diabrotica virgifera*) NORTH DAKOTA - Steele, ILLINOIS - Grundy, McLean, Livingston (p. 654). WHITE-FRINGED BEETLES (*Graphognathus* spp.) GEORGIA - Haralson, Douglas, VIRGINIA - Arlington, Independent City of Falls Church, Pittsylvania, LOUISIANA - Grant, Iberville. (p. 662).

HAWAII INSECT REPORT

Turf, Pasture - Adults of a GRASS WEBWORM (Herpetogramma licarsisalis) moderate to heavy in 500 acres of Kikuyu grass and pangola grass at Hana, Maui; larvae up to 9 (average 3) per square foot; damage generally light, moderate in areas of high larval density. All of 21 eggs collected parasitized. Larvae averaged 1 per square foot on some hosts at Kipahulu. Larvae averaged less than 1 per square foot at golf course and memorial park on windward Oahu, where 11 per square foot reported in spots in early August. Chemical control applied. (Miyahira, Kawamura).

General Vegetables - All stages of LEAF MINER FLIES (Liriomyza spp.) moderate in 0.25 acre of young beans at Kaaawa, Oahu; larval mines confined mostly to older leaves. Pupae and mines moderate to heavy in adjacent older planting of beans. Mines light in 0.5 acre of 10-inch high tomato seedlings and in 0.25 acre of cucumber seedlings at Pupukea, Oahu; light in 0.5 acre of beans and 0.25 acre of eggplant at Waianae. CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy in 0.25 acre of eggplant at Punaluu, Oahu; about 50 per square inch on under surface of older leaves. Trace in 0.25 acre of eggplant at Waianae. TARO LEAFHOPPER (Tarophagus proserpina) light in 10 acres of taro (Colocasia esculenta) at Wailua, Maui; averaged 1 adult and 4 nymphs per plant. A predacious MIRID BUG (Cyrtorhinus fulvus) moderate. (Miyahira).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) trace to light in most papaya and banana fields on windward Oahu; 10 percent of leaves in 2 acres of papaya at Hakipuu with colonies of 1 square inch or less; previously (early May) colonies moderate in same field; predators nil. Remains light to moderate on older fronds of coconut trees in most windward areas. Nymphs and adults of BLACK STINK BUG (Coptosoma xanthogramma) light (averaged 2-3 per terminal shoot) on mango tree (Mangifera indica) at Kaaawa, Oahu; light on roadside maunaloa vines (Canavalia cathartica) in same area. BARNACLE SCALE (Ceroplastes cirripediformis) heavy in about 20 of 120 acres of passion fruit planting at Kahului, Maui; parasite activity low in infested fields. RED WAX SCALE (C. rubens) heavy on 4 mango trees in same orchard. (Miyahira).

**CORRECTIONS**

CEIR 20(32):560 - SPIDER MITES (Tetranychus spp.) - IDAHO - Determination incomplete. Should read: STRAWBERRY SPIDER MITE (Tetranychus atlanticus). (Portman).

CEIR 20(32):562-563 - SPIDER MITES (Tetranychus spp.) - IDAHO - Determination in error. Should read: A FRUIT-TREE MITE (Bryobia rubrioculus). (Portman).

CEIR 20(33):573, 575 - ARMYWORM (Pseudaletia unipuncta) - Information for South Carolina should read FALL ARMYWORM (Spodoptera frugiperda). Armyworm is correct for Nebraska. See CEIR 20(36):640 for additional information on outbreak in South Carolina. (PPD).

CEIR 20(33):590 - FACE FLY (Musca autumnalis) - NEVADA - Elko County is not a new county record; this is second verified record for State. Single male collected January 10, 1968, near Mountain City, Elko County, was first record for State.





LIGHT TRAP COLLECTIONS

| Locality           | Date            | Time     | Trap    | Species | Number | Other | Notes |
|--------------------|-----------------|----------|---------|---------|--------|-------|-------|
| TENNESSEE (County) | Hayden          | 8/28-9/1 | BL      | 22      | 1      | 133   |       |
|                    | Haywood         | 8/28-9/1 | BL      | 42      | 6      | 14    |       |
|                    | Madison         | 8/28-9/1 | BL      | 52      |        | 14    |       |
|                    | Shelby          | 8/28-9/1 | BL      | 11      |        |       |       |
| TEXAS              | Waco            | 9/3      | BL      | 17      | 90     | 40    | 127   |
| VIRGINIA           | Charlotte Court | House    | 8/28-28 | BL      | 50     |       | 134   |
|                    | Holland         | 8/28-9/1 | BL      | 6       |        | 3     | 228   |
|                    | Warsaw          | 8/17-24  | BL      | 3       |        | 103   | 31    |
|                    | Warsaw          | 8/26-31  | BL      | 3       |        |       |       |
|                    | Evansville      | 8/24-30  | BL      | 5       |        | 15    |       |
|                    | Hancock         | 8/24-9/1 | BL      | 5       |        | 3     |       |
| WISCONSIN          | Janesville      | 8/24-30  | BL      | 1       |        | 19    |       |
|                    | Mazomanie       | 8/25-30  | BL      | 1       |        | 11    |       |
|                    | Oakfield        | 8/25-31  | BL      | 1       |        | 187   |       |
|                    | Platteville     | 8/25-30  | BL      | 1       |        | 5     |       |
|                    | Platteville     | 8/25-30  | BL      | 1       |        | 5     |       |

Weather of the week continued from page 652.

late Wednesday night while hail as large as grapefruit fell at Coffeerville, Kansas. A windstorm at Leavenworth, Kansas, blew down trees blocking some streets and breaking power lines. The weekend brought torrential rains to some mountainous areas in Arizona, where Crown King received 7.01 inches in 24 hours ending at 8:00 p.m. Saturday. Snow fell at Tahoe Valley, California, Friday evening and in the central Rocky Mountains Saturday evening. Damaging windstorms hit the central Great Plains Sunday night. At Kearney, Nebraska, the gusts reached 81 m.p.h. Weekly rainfall totals ranged widely within almost every State. California was the main exception, receiving only widely scattered light sprinkles. Light sprinkles occurred in parts of almost all other States with heavy showers falling nearby. Rainfall was moderate to heavy in northern and western regions of the important Corn Belt while the southern and eastern regions had generally light to moderate precipitation.

TEMPERATURE: Canadian air cooled the Northeast early in the week. The interior southeast continued hot and the Deep South warm and humid. Locations in the southwestern deserts warmed to 100° or more on several days. On Tuesday afternoon, temperatures in the 90's were common over a wide band from eastern Montana to the eastern gulf and southern Atlantic coasts. Aberdeen, South Dakota, registered 102° Tuesday afternoon. Southerly breezes warmed the Northeast after midweek. Rochester, New York, registered 44° Wednesday morning, but their lowest temperature Friday morning was 73°. Most of Pennsylvania was 25° warmer Friday morning than 2 days earlier. At other cool spots was Big Piney, Wyoming, where the temperature dropped to freezing levels several mornings; 26° on Friday. Weekend warming brought a return of 100° heat to spots in the central Great Plains. Huron, South Dakota, registered 106° Sunday. Temperature and humidity increased in the Northeast with 90° or warmer occurring at Washington, D.C., and Baltimore, Maryland. Temperatures averaged below normal over the Pacific States, the Great Basin, and from Pennsylvania to Maine except along New England coast. Above normal weekly averages occurred from the Continental Divide to the Atlantic Ocean except the Northeast as noted above. Much of the northern Great Plains averaged 6° to 14° warmer than normal. (Summary supplied by Environmental Data Service, ESSA).



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VOL. 20 No. 38

September 18, 1970

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

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**PLANT PROTECTION DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Economic Insect Survey and Detection  
Plant Protection Division  
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Hyattsville, Maryland 20782

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

CORN EARWORM moths remain abundant in New Jersey, Delaware, and Wisconsin. Larvae severe on soybeans in Virginia and increased in south Alabama. (p. 669).

SOUTHWESTERN CORN BORER heavy in sorghum in Arizona and Ohio. (p. 670).

FALL ARMYWORM increasing; worst outbreak in 15 years in South Carolina. (p. 671).

BOLL WEEVIL continues to cause problems in cotton-growing areas of Tennessee, Mississippi, Alabama, and South Carolina. BOLLWORMS damaged bolls in California; damage increased in Oklahoma; moths increased in South Carolina. (p. 672).

Larvae of a TORTRICID MOTH damaged several thousand acres of oaks in Pennsylvania. (p. 676).

Three specimens of ORIENTAL FRUIT FLY trapped in Orange County, California. (p. 677).

CABBAGE LOOPER moth collections heavy in Mississippi and Texas. (p. 679).

Detection

New State records include a JAPANESE WEEVIL from Minnesota (p. 677); RASPBERRY CANE MAGGOT and a XIPHYDRIID WASP from West Virginia (p. 675).

For new county and island records see page 678.

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Reports in this issue are for week ending September 11 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-SEPTEMBER TO MID-OCTOBER 1970

The Weather Bureau's 30-day outlook for mid-September to mid-October is for temperatures to average above seasonal normals over the eastern third of the Nation as well as in western portions of the central and southern Plateau region and in Texas. Below normal temperatures are expected along the Pacific coast and in the northern Plains. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Mississippi Valley, the Great Lakes, eastern portions of the Great Plains, and the north Pacific coast. Sub-normal totals are indicated for portions of the middle and south Atlantic Coast States, and also for California and the southern Plateau. 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.

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WEATHER OF THE WEEK ENDING SEPTEMBER 14

HIGHLIGHTS: The first winter storm hit the northern Rocky Mountains. Hurricane Ella brought beneficial rains and no significant damage to Texas.

PRECIPITATION: Widespread sunshine covered most of the Nation last week. Precipitation occurred along a cold front as it advanced southeastward. On Monday, these rains were scattered from Abilene, Texas, to Lower Michigan. Tuesday was another fine day, except in the showers which prevailed from Kentucky to New England. The northern and central Great Plains and eastward to Michigan and Indiana received scattered showers Wednesday. Thursday's showers covered the Northeast from West Virginia to New England. Light scattered rains continued along the gulf. The first major winter storm swept into Montana on Friday. A low-pressure area moved into the western part of the State from Alberta Thursday afternoon and by Friday noon 3 inches of snow covered the ground at Cut Bank. Elsewhere in Montana, the snowfall ranged from traces to several inches in the lower elevations and there were reports of a foot or more in the southern mountains. Snow accumulated to 14 inches on the highway in the Big Horn Mountains in Wyoming. Weather of the week continued on page 680.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (Pseudaletia unipuncta)** - ALABAMA - Larvae of this species and Spodoptera frugiperda (fall armyworm) medium in Tuscaloosa County on lawn grasses, Coastal Bermuda grass, and other pasture plants. (Pitts et al.). SOUTH CAROLINA - Infested 25 lawns of crabgrass, fescue, and Bermuda grass September 1-2 in Laurens County. Widespread on Coastal Bermuda grass in Calhoun County. Infested fescue in Oconee County. (Nettles et al.).

**BEEF LEAFHOPPER (Circulifer tenellus)** - UTAH - Ranged 1-3 per 10 sweeps on Russian-thistle in Locomotive Springs and Snowville areas of Box Elder County. (Knowlton, Judd). Curly top infested 5 percent of tomato plants in north and central areas. (Knowlton).

**CORN EARWORM (Heliothis zea)** - NEW JERSEY - Moths remain abundant; watch beans and lettuce. (Ins.-Dis. Newsltr.). DELAWARE - Adults abundant in blacklight trap collections throughout State, especially in eastern Sussex County. Averaged 100+ per night. (Burbutis et al.). MARYLAND - Infestations on soybeans below 1969 levels. Heaviest infestations to date ranged 1-2 per 10 row feet in Dorchester and Wicomico Counties. (U. Md., Ent. Dept.). MICHIGAN - Adults appearing (later than usual) in light trap collections in Benzie and Lenawee Counties. Could still cause problems for growers of late sweet corn. (Sauer). WISCONSIN - Adults remain heavy and should peak soon. Decline expected in September instead of October. Most sweet corn should be out of danger. (Wis. Ins. Sur.). OHIO - Light on commercial sweet corn in Madison County. Growers indicate decrease in problem over previous 3 years. (Roach). VIRGINIA - Severe on soybeans in Middlesex, Gloucester, and Lancaster Counties; 50 percent cut in some fields. Spotty damage in New Kent County fields. Severe drought damage but spotty H. zea damage in Richmond, Westmoreland, and Northumberland Counties. Spotty, light damage in King and Queen County. (Allen et al.). TENNESSEE - Surveys indicate no buildup yet on soybeans in Henderson, Carroll, Madison, Hardeman, Haywood, and Tipton Counties. Eggs and larvae trace in fields surveyed and all larvae diseased. (Emerson, Gordon). GEORGIA - Heavy on sorghum heads in Randolph and Thomas Counties (Womack et al.), and Dougherty County (Bishop, Nolan, Sept. 5). ALABAMA - Larvae increased in soybeans from Montgomery to Autauga County south to State line. To date, numbers lighter in fields than anticipated. Some controls applied in south area. (McQueen). ARKANSAS - Infestations confined primarily to more southern area soybeans. More common than in past 2 weeks in east-central area but mainly noneconomic. Infested mainly Bragg variety and other varieties of comparable maturity dates. (Boyer et al.). MISSOURI - Mostly third instars ranged 0-20 per 100 heads of sorghum in southwest area. (Munson). KANSAS - None to very light in soybeans in southeast crop district. Larvae ranged up to 0.16 per row foot in 3 fields in Neosho County, none in 1 field in Bourbon County, up to 0.1 per row foot in 3 fields in Crawford County, up to 0.1 per row foot in 7 fields in Cherokee County, none in 1 field in Labette County, and none in 1 field in Butler County. (Bell).

**OKLAHOMA** - Corn earworm averaged 1 per 3 heads of grain sorghum in Payne County. Heavy in late corn in Marshall County. (Okla. Coop. Sur.). COLORADO - Larvae ranged 0-12 per 100 row feet in cornfields checked in Yuma and Washington Counties. Damage light to moderate. (Johnson). UTAH - Still light to moderate in central and northern area sweet corn. Canning-corn infestations and damage light, averaging 15 percent in Cache County and 20 percent in Weber County. (Knowlton, Duncan).

**CORN LEAF APHID (Rhopalosiphum maidis)** - NEW MEXICO - Mostly light and spotted in grain sorghum in Roosevelt and Curry Counties. (Mathews).

**GREENBUG (Schizaphis graminum)** - NEBRASKA - Few remain on grain sorghum in Scotts Bluff County. Noneconomic. (Hagen). NEW MEXICO - Up to 6 per leaf in grain sorghum in Curry and Roosevelt Counties. (Mathews).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WYOMING - Averaged 4 per 10 sweeps in 2 alfalfa fields near Hawk Springs, Goshen County. (Parshall). KANSAS - Averaged 1 per sweep in field in Butler County and 5 per sweep in field in Reno County. (Bell). NEBRASKA - Ranged 25-30 per linear foot in one seedling alfalfa field in Dawson County. No visible damage; plants 4 inches tall. (Keith, Berogan).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - COLORADO - Larvae ranged 0-1 per corn-stalk in Kiowa Valley, Weld County. Infestations ranged 10-20 percent with lodging appearing on 6-10 percent of stalks. (Johnson). KANSAS - Larvae ranged up to 0.12 per stalk in 3 fields of late corn in Reno County and some small, probably third-generation, larvae feeding on shucks of sterile ears (Redding, Bell); up to 0.2 per stalk in 5 fields of corn in Stafford County, none in 4 fields in Edwards County (Redding). NEBRASKA - Averaged 40 percent of ears infested with second-brood borers in 44 Dawson County fields. (Keith, Berogan). NORTH DAKOTA - Larvae ranged 4-80 (averaged 39) per 100 stalks in Grand Forks County corn. Infested stalks ranged 4-40 (averaged 17) percent. Larvae ranged 4-40 (averaged 12) per 100 stalks in Walsh County corn. Infested stalks ranged 4-20 (averaged 7) percent. (Kaatz). WISCONSIN - Adult flight continues to decline and damage to field corn becoming increasingly more evident in some areas. (Wis. Ins. Sur.). MICHIGAN - Moths collected at Lenawee County blacklight trap station 51 and at Livingston County station 42. Second-brood larval damage greater than in 1969 (Newman, Sept. 8). OHIO - Moth activity ended for summer; larvae evident throughout east-central area. No inspected field without borers and some as high as 90 percent infested. All instars present. (Roach).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARIZONA - Heavy damage to sorghum at Avra Valley and Marana, Pima County. Estimated as high as 50 percent loss of crop. (Ariz. Coop. Sur.). KANSAS - Initial fall survey counts indicate increase in damage over 1969 in areas surveyed. Half-grown larvae, some of which had not bored into stalks, found in late corn in Reno County; up to 12 percent of stalks in 3 fields infested and lodged stalks ranged 0-4 percent. (Redding, Bell). Infested stalks ranged 52-92 percent in 5 fields in Stafford County with 8-32 percent lodging of stalks; infested stalks ranged 8-36 percent in 4 fields in Edwards County, lodging 4-12 percent. (Redding). OHIO - Unusually heavy in grain sorghum field near Roswell, Chaves County. (Shannon).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Adults of D. virgifera (western corn rootworm) and D. longicornis (northern corn rootworm) prevalent in alfalfa. (Wis. Ins. Sur.). ILLINOIS - Specimens of D. virgifera collected from Cook, Du Page, Will, Ford, and Iroquois Counties. These are new county records. (Ill. Ins. Sur.).

TWO-LINED SPITTLEBUG (Prosapia bicincta) - GEORGIA - Nymphs ranged 1-10 per sorghum stalk on 500 acres of dying sorghum in Lamar County. (Tippins, Sept. 5). FLORIDA - During late August 1970, 90 acres of sweet corn plowed under as a result of seedlings being killed at Belle Glade, Palm Beach County. Examination of these and adjacent fields indicated damage resulted from adult feeding. Corn planted early. (Fla. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - OHIO - Adults heavy on silks of field corn in Athens and Fairfield Counties. Late-planted corn had higher counts than did more mature fields, with as many as 5-6 per ear. (Roach). OKLAHOMA - Averaged 5 per row foot in grain sorghum in Payne County field. (Okla. Coop. Sur.).

BANKS GRASS MITE (Oligonychus pratensis) - NEBRASKA - Increasing on corn in panhandle area. Some economic damage in past several weeks, but most not serious. Most corn maturing; spider mites no longer pose serious threat. (Hagen).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - COLORADO - Larvae up to 12 per 100 row feet of corn in Yuma and Washington Counties. Infestations vary and controls used in some fields. (Johnson).

## TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Damage light to some lawns in Oktibbeha County. (Sartor). GEORGIA - Early instars infesting lawns, expect problem to become more severe in Spalding County. (Tippins, Sept. 5). SOUTH CAROLINA - Increasing. Most widespread and serious outbreak in 15 years. Now covers most of State. Infested lawns, pasture grasses, and millets. (Nettles, Sept. 9). Infestations in lawns increased greatly August 30 to September 2 in lower Calhoun County; nearly all good lawns infested. First pasture infestation September 3 in Abbeville County. Infested 200 acres of fescue pasture in Laurens County to September 6. Many complaints September 6-7 in Spartanburg County. Infested lawns and pastures, especially fescue. Many infestations in lawns September 7 at Greenville, Greenville County. Infested 30-40 acres of fescue September 3 in Oconee County. (Nettles et al.). VIRGINIA - Medium, required control, on golf course in Lancaster County. (McSwain).

GRANULATE CUTWORM (Feltia subterranea) - CALIFORNIA - Larvae 1 per linear foot in lawn at Kingsburg, Fresno County. Has been heavy in lawns. (Cal. Coop. Rpt.).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - UTAH - Widely distributed in Salt Lake County lawns, but not observed in Magna area. (Burningham, Knowlton).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - ARIZONA - Heavy in some dichondra lawns at Tucson, Pima County. (Ariz. Coop. Sur.).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Extremely numerous on range plants in Hansel Valley, Box Elder County. (Judd, Knowlton).

## FORAGE LEGUMES

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WYOMING - Averaged 2 per 10 sweeps of alfalfa in Platte, Goshen, and Laramie Counties. (Parshall). KANSAS - Averaged 0.6 per sweep in alfalfa field in Butler County, and 0.2 per sweep in field in Reno County. (Bell).

ALFALFA CATERPILLAR (Colias eurytheme) - UTAH - Larvae 1-2 per 10 sweeps in Cache County alfalfa. (Knowlton).

ZEBRA CATERPILLAR (Ceramica picta) - WYOMING - Heavily infested alfalfa field near Farson, Sweetwater County. Field treated. (Spackman).

CLOVER ROOT CURCULIO (Sitona hispidulus) - WISCONSIN - Ranged up to 13 per sweep in some alfalfa in Dodge County. (Wis. Ins. Sur.).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Adults of D. virgifera (western corn rootworm) and D. longicornis (northern corn rootworm) continue prevalent in alfalfa. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - WYOMING - Light, ranged 10-70 per 10 sweeps of alfalfa in Platte, Goshen, and Laramie Counties. (Parshall).

## SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Adults per 3 row feet averaged 6.7 in 1 Washington County field, 1 in 5 Oktibbeha County fields and 3 Choctaw County fields, and 2 in 2 Attala County fields. (Sartor). KANSAS - Heavy in isolated fields of soybeans in southeast crop district, no economic damage. Counts per row foot averaged 16.3 in 1 field in Neosho County, 1 in another; up to 1.2 in 5 fields in Crawford County; 0.1-3.2 in 7 fields in Cherokee County; 0.4 in 1 field in Labette County, and none in 1 field in Butler County. (Bell).

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Increased; treatment required in many fields in Middlesex, Lancaster, Richmond, Gloucester, and New Kent Counties. (Allen, McSwain). Averaged 640 per 100 sweeps, control applied, in Nansemond County. (Smith).

STRIPED BLISTER BEETLE (*Epicauta vittata*) - MISSISSIPPI - Adults caused heavy damage to late soybeans in 2 Oktibbeha County fields. (Sartor).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - ALABAMA - Heavy, as high as 30 per linear foot, in soybeans in Marengo County. Lighter in soybeans in several fields in Mobile County. This pest and mixed population of *Spodoptera frugiperda* (fall armyworm), *Heliothis zea* (corn earworm), and *Epilachna varivestis* (Mexican bean beetle) required some control on limited acreage in south area. (Yates et al.). MISSISSIPPI - *A. gemmatalis* larvae averaged 2 per 3 row feet in 5 Oktibbeha County fields, 2 in 3 Choctaw County fields, and 1.5 in 2 Attala County fields. (Sartor).

GREEN CLOVERWORM (*Plathypena scabra*) - MISSISSIPPI - Larvae averaged 2 per 3 row feet in 5 Oktibbeha County fields and 5.5 per row foot in 1 Washington County soybean field. (Sartor). KANSAS - Abundant in some soybean fields in southeast crop district; no economic damage. (Bell).

SOYBEAN LOOPER (*Pseudoplusia includens*) - MISSISSIPPI - Larvae averaged 1 per 3 row feet in 2 Yazoo County fields and 1 per 3 row feet in 5 Oktibbeha County fields. (Sartor).

#### PEANUTS

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - NEW MEXICO - Populations lighter in Roosevelt County peanuts than in 1969. Less than 10 percent of terminals damaged. (N.M. Coop. Rpt.).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - TENNESSEE - Continues to cause serious injury to young bolls in late rank cotton. Found 14 adults in one bloom in Hardeman County. Most fields now unattractive. (Locke). MISSISSIPPI - In delta counties, increasing in some areas, general spread limited. Negative in many fields. (Pfirmer et al.). ALABAMA - Adults heavy in south and central areas, wherever food remains. Migrated from mature fields to more suitable young cotton and second-growth cotton. Increased in north area and control efforts more widespread. (McQueen). GEORGIA - Migration heavy in south area; 4-day insecticide schedule necessary to maintain control and save mature top bolls. (Womack, Sept. 5). SOUTH CAROLINA - Infestations increasing in Florence County. Ranged 5-31 percent in treated plots, 26-31 percent in untreated plots. (Taft et al., Sept. 2).

BOLLWORMS (*Heliothis* spp.) - CALIFORNIA - *H. zea* and *Platynota stultana* (a leaf roller moth) larvae damaged green bolls in local areas of Merced County near Chowchilla, Madera County. Increasing. (Cal. Coop. Rpt.). OKLAHOMA - *H. zea* increasing in cotton in Jackson County. Egg counts in Payne County light. (Okla. Coop. Sur.). ARKANSAS - Larvae collected in Jefferson County determined 368 *H. zea* and 42 *H. virescens*. (Wall). TENNESSEE - Most damage on late rank cotton. Egg and larval counts ranged 1-26 per 100 terminals. Most eggs laid down in plants and hard to find. Control still needed in late cotton. (Locke). MISSISSIPPI - In delta counties, moth flights and egg laying light. Larvae light in some fields. Mostly *H. zea* and controls effective. (Pfirmer et al.). ALABAMA - Numbers remain heavy throughout State. *H. zea* dominant species. (McQueen). GEORGIA - Egg laying heavy in south area. (Womack, Sept. 5). SOUTH CAROLINA - In Florence County blacklight trap, recovered 5,397 *H. zea* and 173 *H. virescens*. Larval infestations light, moths increased. (Taft et al., Sept. 2).

CABBAGE LOOPER (*Trichoplusia ni*) - OKLAHOMA - Damaging cotton in Altus area, Jackson County. Many larvae show symptoms of disease. (Okla. Coop. Sur.).

#### TOBACCO

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - VIRGINIA - Adults light to moderate in several fields in Prince Edward County. (Allen).

### POTATOES, TOMATOES, PEPPERS

TOMATO FRUITWORM (Heliothis zea) - OKLAHOMA - Averaged 1 per 20 tomatoes in Payne County. Heavy in Mayer County. (Okla. Coop. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - NEBRASKA - Some damage to potatoes in Scotts Bluff County. Averaged less than 1 per linear row foot in most fields checked. (Hagen).

TARNISHED PLANT BUG (Lygus lineolaris) - MAINE - Remains heavy in 50 percent of potatoes at Corinna, Penobscot County. (Gall).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Increasing on sweet peppers in Sussex County. (Boys).

### BEANS AND PEAS

VARIEGATED CUTWORM (Peridroma saucia) - NEBRASKA - Some damage to field beans in Scotts Bluff County. Averaged less than 1 per linear foot of row in most fields checked. (Hagen).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - UTAH - Some increase in damage to bean foliage in northern area. (Knowlton).

### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - WISCONSIN - Controls difficult in Waushara County on late cabbage. (Wis. Ins. Sur.). MICHIGAN - Adults still taken in light traps. Growers with cabbage and other cole crops in field should be alert to infestations. (Sauer). COLORADO - Larvae averaged 2 per plant on untreated cabbage and less than 1 in treated fields in Fort Collins area, Larimer County, September 4. Much damage in untreated fields. (Hantsbarger).

### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Serious in Dona Ana County lettuce fields. Populations heavier than for past several years in fall lettuce. Many growers treating on 3-4 day schedule. (N.M. Coop. Rpt.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Damaged some lettuce fields in Dona Ana County. (N.M. Coop. Rpt.).

ASPARAGUS BEETLE (Crioceris asparagi) - DELAWARE - Larvae caused noticeable injury to asparagus ferns in Kent County. (Boys).

GOLDEN TORTOISE BEETLE (Metriona bicolor) - MARYLAND - Adults and larvae remain active in most sweetpotato fields surveyed at Hebron and Salisbury, Wicomico County. Foliar damage still below economic levels at 2-5 percent reduction in leaf surface area. (U. Md., Ent. Dept.).

## DECIDUOUS FRUITS AND NUTS

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Infested 33 percent of susceptible fruits in many Salt Lake County home orchards; serious even in treated commercial orchards. (Burningham).

YELLOW-NECKED CATERPILLAR (Datana ministra) - MINNESOTA - Full-grown larvae heavy, stripped many apple trees in several unsprayed orchards in Chisago County. (Sandve).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - UTAH - Very light in infested commercial orchards of Utah County. Larvae few in home orchards. (Davis).

APPLE MAGGOT (Rhagoletis pomonella) - WISCONSIN - Problems significant where sprays not applied or poorly timed in Kenosha County. Adults continue active at Eau Claire, Eau Claire County, and Sturgeon Bay, Door County. (Wis. Ins. Sur.). RHODE ISLAND - Damaged poorly protected fruit in Washington County. (Field).

SAN JOSE SCALE (Quadraspidotus perniciosus) - FLORIDA - All stages severe on 40 percent of pear plants in nursery at Glen St. Mary, Baker County, September 2. (Collins).

SPIDER MITES - CALIFORNIA - Tetranychus urticae (two-spotted spider mite) infested peach ranch at Valyermo, Los Angeles County. Mites prevalent at this time. (Cal. Coop. Rpt.). MICHIGAN - Panonychus ulmi (European red mite) declining, but economic damage still found. Overwintering eggs appearing on twigs and calyx end of fruit. (Thompson, Sept. 8).

PLUM RUST MITE (Aculus fockeui) - MICHIGAN - Recurred on cherries in Grand Traverse County after 3 years. Damage greater to terminal growth and caused red discoloration of young branches and twigs. No dependable controls. (Thompson, Sept. 8).

CODLING MOTH (Laspeyresia pomonella) - CALIFORNIA - Larvae damaged English walnuts at Yuba City, Sutter County. No history of codling moth in these groves although pest occurs in county. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Spotty in Richmond and Prince Edward Counties. (Allen). Infested pecan and black walnut in Isle of Wight County. (Tate, Sept. 1).

PECAN NUT CASEBEARER (Acrobasis caryae) - NEW MEXICO - Still problem in Eddy County. Losses heavy on untreated pecan trees at Carlsbad. (Mathews).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Still heavy on pecans in Rogers County. Light to moderate in Cleveland County. (Okla. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Light in black walnuts at Slaterville, Weber County. (Knowlton).

## CITRUS

Citrus Insect Situation in Florida - End of August - CITRUS RUST MITE (Phyllocop-truta oleivora) infested leaves in 73 (norm 50) percent of groves; economic in 51 (norm 33) percent of groves. Infested fruit in 86 (norm 60) percent of groves; economic in 70 (norm 44) percent of groves. Population decreased but still very high and much above normal especially on fruit. Although further decrease expected, increase likely to resume late in September. High on fruit in all districts. Highest on leaves in west, north, south, and central districts. TEXAS CITRUS MITE (Eutetranychus banksi) in 20 (norm 23) percent of groves; economic in 11 (norm 9) percent of groves. CITRUS RED MITE (Panonychus citri) in 33 (norm 28)

percent of groves; economic in 11 (norm 12) percent of groves. Both spider mite species decreased to normal low level. Further decrease expected. All districts low. GLOVER SCALE (Lepidosaphes gloverii) in 57 (norm 44) percent of groves. PURPLE SCALE (L. beckii) in 38 (norm 44) percent of groves; economic in 5 (norm 2) percent of groves. CHAFF SCALE (Parlatoria pergandii) in 34 (norm 34) percent of groves; economic in 3 (norm 3) percent of groves. All 3 scales decreased to normal low level. All districts will remain low. BLACK SCALE (Saissetia oleae) in 57 (norm 57) percent of groves; economic in 25 (norm 36) percent of groves. Decreased to moderate range in August and was below normal abundance. Will remain near current level through September and will be only of localized importance. Highest districts central and west. YELLOW SCALE (Aonidiella citrina) in 34 (norm 43) percent of groves; economic in 6 (norm 7) percent of groves. Decreased and will remain near current low level and below average. Highest district north. An ARMORED SCALE (Unaspis citri) in 27 percent of groves; moderate to heavy in 14 percent. Increased and will continue to spread and intensify. WHITEFLIES in 81 percent of groves; 23 percent economic. Highest for August in 19 years of record. Will advance further into high range in September. Highest districts north, central, west, south, and east. MEALYBUGS in 55 percent of groves; 11 percent economic. Dropped to low range but still highest for August in 19 years of record. Decrease will occur in all districts. Highest district south. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - At 50 per limb on doorway citrus at Fremont, Alameda County. (Cal. Coop. Rpt.). ARIZONA - Heavy in lemon grove on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

RASPBERRY CANE MAGGOT (Pegomya rubivora) - WEST VIRGINIA - Larval damage light in Boone County. Collected by J.D. Hacker, May 10, 1970. Determined by G. Steyskal. This is a new State record. (W. Va. Ins. Sur.).

YELLOW-NECKED CATERPILLAR (Datana ministra) - GEORGIA - Heavy on blueberry foliage in Berrien County. (Wood, Sept. 5).

REDBERRY MITE (Aceria essigi) - OREGON - Heavy in commercial planting of evergreen blackberries in Junction City area, Lane County. Fruit loss estimated at 30-40 percent on 40 acres. (Every).

#### ORNAMENTALS

TWO-LINED SPITTLEBUG (Prosapia bicincta) - ALABAMA - Adults, 10-15 per shrub, damaged tender growth of many holly shrubs in Lee County. (Copeland et al.).

HEMISPHERICAL SCALE (Saissetia coffeae) - CALIFORNIA - This and Hemiberlesia rapax (greedy scale) heavy on holly plants at Ventura, Ventura County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

INTRODUCED PINE SAWFLY (Diprion similis) - MINNESOTA - Several hundred acres of mature white pine treated to control heavy second generation in scattered locations in Morrison, Crow Wing, and Isanti Counties. (Sandve). WISCONSIN - Infested nearly all white pines in Burnett County. (Wis. Ins. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - RHODE ISLAND - Larvae in base of pine needles in Newport County. (Kerr).

A XIPHYDRIID WASP (Xiphydria maculata) - WEST VIRGINIA - Collected 6 adults from sugar maple tree dying from verticillium wilt in Kanawha County July 1, 1970. Determined by D.R. Smith. This is a new State record. (Hacker).

A TORTRICID MOTH (Archips semiferanus) - PENNSYLVANIA - Heavy mortality in all oak species appearing in August in north-central counties as result of 2-3 years of defoliation. Significantly affected 100,000 acres in Clinton County and probably 100,000 acres in western Lycoming, Cameron, and Clearfield Counties. Usual mortality ranged 30 to 50+ percent; 80-90 percent in worst areas. Earlier report in CEIR 20(29):500. (For. Pest Rpt., Sept. 8).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Damaged elm, poplar, willow, and fruit trees in Lincoln County. (Hare). Damaged poplar and fruit trees at Jemez Pueblo, Jemez Springs, and Ponderosa, Sandoval County. Almost completely defoliated many trees in canyons and along streams. (Heninger). TENNESSEE - Light to moderate in central and west areas. Damage usually light. (Gordon).

MAPLE TRUMPET SKELETONIZER (Epinotia aceriella) - MASSACHUSETTS - Larval damage much more severe than in previous years. Many maple sugar producers concerned statewide. (McKenzie).

MIMOSA WEBWORM (Homadaula anisocentra) - KANSAS - Foliar damage heavy on many trees in communities in southeast crop district. (Bell). IOWA - Collected from honeylocust tree in Des Moines County September 9. This is a new county record. (Iowa Ins. Sur.).

ELM LEAF BEETLE (Pyrrhalta luteola) - MISSISSIPPI - Heavy on Chinese elm in Yalobusha, Calhoun, Webster, Choctaw, and Oktibbeha Counties. (Sartor).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 6 cases reported in U.S. September 6-12 as follows: TEXAS - Terrell 1; ARIZONA - Santa Cruz 1; NEW MEXICO - Grant 2, Luna 2. Total of 161 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 1, Sonora 69, Chihuahua 83, Coahuila 1, Nuevo Leon 4, Tamaulipas 3. Total of 72 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 41,518,000; New Mexico 9,800,000; Arizona 10,724,000; Mexico 85,788,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - NEW MEXICO - Moderate to heavy and annoying horses and cattle in Lincoln County. (Hare). OKLAHOMA - Ranged 400-700 per head on cattle in Major County and 30-50 per head in Payne County. Heavy in Noble, Kay, and Marshall Counties, and moderate in Cleveland County. (Okla. Coop. Sur.). FLORIDA - Adults averaged 451 per steer on improved pasture September 4 at Bryant, Palm Beach County. (Janes).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Continues to plague man and animals at various locations. (Wis. Ins. Sur.). FLORIDA - Averaged 6 flies per small boat, biting fishermen in gulf waters 10 miles out from Cedar Key, Levy County, September 5. (Mead). Averaged 15 per boat as far out as 60 miles into gulf from Panama City, Bay County, in early September. (Rodgers).

FACE FLY (Musca autumnalis) - OHIO - Averaged 35 (ranged 15-50) per face on Hereford cattle in Morrow and Ashland Counties. (Roach). MONTANA - Ranged 4-10 per face on cattle in west area. Counts variable. Light in east area, rarely exceeding 2 per face. (Pratt).

HOUSE FLY (Musca domestica) - WISCONSIN - Continues to annoy man and animals at various locations. (Wis. Ins. Sur.).

MOSQUITOES - WISCONSIN - Again on increase but probably will not approach earlier numbers. (Wis. Ins. Sur.).



HORSE BOT FLY (Gasterophilus intestinalis) - NEVADA - Adults active and laying eggs on horses at Reno, Washoe County. (Smith).

BLACK WIDOW SPIDER (Latrodectus mactans) - NEVADA - Large numbers migrating into garages, homes, and other buildings in southern Washoe County. (Nev. Coop. Rpt.).

#### HOUSEHOLDS AND STRUCTURES

A JAPANESE WEEVIL (Calomycterus setarius) - MINNESOTA - Specimens collected in residence in Fillmore County by M. Hoberg July 27, 1970. Determined by D. Noetzel and H. Chiang. This is a new State record. (Minn. Pest Rpt.).

#### STORED PRODUCTS

INDIAN-MEAL MOTH (Plodia interpunctella) - WYOMING - Infested stored grain at Casper, Natrona County. (Burkhardt).

#### BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Hippodamia convergens (convergent lady beetle) and Scymnus spp. common in grain sorghum and cotton fields checked in Payne County. (Okla. Coop. Sur.). MAINE - Coccinella transversoguttata (transverse lady beetle) still heavy in three-fourths of cornfields, reduced aphid populations to zero or trace in Penobscot County. (Gall).

A PHYTOSEIID MITE (Metaseiulus occidentalis) - WASHINGTON - Feeding on codling moth larvae on apple at Selah, Yakima County. (Gregorich).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - All stages abundant in grain sorghum and cotton in Payne County. (Okla. Coop. Sur.).

HONEY BEE (Apis mellifera) - ARIZONA - Of 2,221 colonies inspected in State, 8 destroyed due to American foulbrood and 820 dead for period ending August 31. (Ariz. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Adults emerging from lawns and sod areas in and near Blaine, Whatcom County. Fifteen cast pupal cases per square foot common. Adults numerous on shrubs and buildings. Mating in progress. Swarming at Sumas, Lynden, and Blaine, Whatcom County. Gravid females evident. (PPD, PQ).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - One male taken in detection trap September 4 at Garden Grove, Orange County. Intensive trapping initiated immediately; 100 traps deployed per mile in one-mile radius of find, 50 traps for second mile, and 20 traps within next 2-mile radius. Additional specimen taken at Garden Grove on September 11. Single specimen taken at Los Alamitos, Orange County, on September 9. Intensive trapping begun in this area. (PPD).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released September 4-10 as follows: CALIFORNIA - Bakersfield 3,749,453, total to date 45,070,898. ARIZONA - Redington, Pima County, 67,500, total to date 1,214,800. Found one infested boll in Redington field, 2 weeks later than first larval recovery during 1969 season. Eighteen sterile moths trapped September 2 for total of 226. (PPD). Currently infested 25-100 percent of 7 fields northeast of Higley, Maricopa County. Majority of cotton in Maricopa and Pinal Counties under some type of spray program. At Marana, Pima County, 15 percent of cotton in critical condition; heavy rains prevented spraying. (Ariz. Coop. Sur.).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - Adults few on kudzu outside treated area at Apopka, Orange County. (PPD).

HAWAII INSECT REPORT

General Vegetables - BEAN FLY (Melanagromyza phaseoli) adults moderate to heavy in small backyard planting of snap beans at Makawao, Maui; adults averaged 3 per emerging seedling. Adults trace in 0.5 acre of 6-inch soybeans at Waimanalo, Oahu. (Miyahira, Kawamura). SOUTHERN GREEN STINK BUG (Nezara viridula) light to moderate in acre of soybeans at Waimanalo; some plants with 6 nymphs and/or adults per plant; average 2 nymphs and/or adults per 3 plants. Of 21 adults examined, 17 bore eggs of a TACHINA FLY (Trichopoda pennipes var. pilipes). (Kawamura).

Shade Trees - CHINESE ROSE BEETLE (Adoretus sinicus) damage heavy on 6 false kamani (Terminalia catappa) trees at Hana, Maui; affected 75 percent of leaf surface. Adults fed even during daylight. (Ah Sam, Miyahira). CITRUS MEALYBUG (Planococcus citri) moderate on monkeypod (Samanea saman) tree at Waialua, Oahu. Trace on several monkeypods along boulevard stretch at Honolulu, Hawaii. Predators nil in both areas. Severe during this period last year on same boulevard. A LADY BEETLE (Cryptolaemus montrouzieri) preying heavily on infestations. (Kashiwai, Funasaki).

Man and Animals - VEXANS MOSQUITO (Aedes vexans nocturnus) numbered 279 and SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) 1,967 in 56 light traps on Oahu during August. Aedes ranged up to 148 and Culex ranged up to 655 at Kailua, Oahu. (Mosq. Contr. Br., Dept. of Health).

Miscellaneous Pests - Six nymphs of a LONGHORN GRASSHOPPER (Euconocephalus nasutus) swept from Kikuyu grass at Mililani Memorial Park, Oahu. (Au, Wong). Several adults of SPINY ASSASSIN BUG (Polididus armatissimus) at light at Kapaa and Kipu, Kauai, for a new island record. Nymphs and adults of a RHOPALID BUG (Jadera haematoloma) heavy on seed coats of lonomea (Sapindus oahuensis), a native Hawaiian species (seeds are strung for leis), at Puu Ka Pele Forest Reserve, Kauai, for a new host record in Hawaii. (Gagne).

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**DETECTION**

New State Records - A JAPANESE WEEVIL (Calomycterus setarius) MINNESOTA - Fillmore County (p. 677). RASPBERRY CANE MAGGOT (Pegomya rubivora) WEST VIRGINIA - Boone County (p. 676). A XIPHYDRIID WASP (Xyphydria maculata) WEST VIRGINIA - Kanawha County (p. 675).

New County and Island Records - MIMOSA WEBWORM (Homadaula anisocentra) IOWA - Des Moines (p. 676). SPINY ASSASSIN BUG (Polididus armatissimus) HAWAII - Kauai (p. 678). WESTERN CORN ROOTWORM (Diabrotica virgifera) ILLINOIS - Cook, Du Page, Ford, Iroquois, Will (p. 670).



### CORRECTIONS

CEIR 20(28):479 - FILBERTWORM (*Melissopus latifereanus*) should read (*Melissopus latiferreanus*).

CEIR 20(31):541 - A MIDGE (*Cecidomyia piniopis*) should read (*Cecidomyia piniinopis*).

CEIR 20(36):640 - A BILLBUG (*Sphenophorus venatus vestitus*) should read (*Sphenophorus venatus vestitus*).

CEIR 20(36):647 - A BIG-EYED BUG (*Geocorus punctipes*) should read (*Geocoris punctipes*).

CEIR 20(37):663 - CORRECTIONS - STRAWBERRY SPIDER MITE should read *Tetranychus turkestani*.

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Weather of the week continued from page 668.

The snow hindered automobile travel and chains were required on many mountain roads. Cold rain fell south and east of the snow area. By Sunday the rain area extended from central Colorado to New England. Parts of the Corn Belt received from 1.00 to 2.00 inches. Most of Texas received beneficial weekend showers as the result of being caught between a cold front from the north and the peripheral circulation of Hurricane Ella in southern Texas. The hurricane brought beneficial rains but no important damage to Texas. California, Nevada, and parts of nearby States received no rain or only light sprinkles last week.

TEMPERATURE: The approach of autumn brought the coolest weather of the season to much of the Nation last week. Skies were mostly clear. Temperatures dropped abruptly over the Great Plains as a cold front advanced southeastward. Aberdeen, South Dakota, registered 98° Tuesday afternoon but the highest temperature at Aberdeen Wednesday was 62°. Similarly, the maximum temperatures at Wichita, Kansas, on Wednesday and Thursday were 102° and 76°, respectively. Southerly winds on Friday brought the return of summer temperatures to the Great Plains, 86° at Aberdeen and 90° at Wichita. The Deep South and the Atlantic Coastal States as far north as Maryland continued warm until the weekend approached. Baltimore, Maryland, and Washington, D.C., registered 93° Thursday afternoon before a cold front passed. Northerly breezes brought subfreezing temperatures to the northern and central Rocky Mountains. Big Piney, Wyoming, registered 19° Friday morning. Subfreezing weather also occurred in parts of the central Great Plains. North Platte, Nebraska, recorded 30° and nearby Sidney, 29°, Friday morning. Minimums in the 30's and 40's were common from Utah to Minnesota and northern Wisconsin. Bryce Canyon, Utah, registered 28° Friday morning. Weekly temperatures averaged above normal over most of California and nearby parts of Nevada and Arizona and southeast of a line from southern New Mexico to northern Ohio, and below normal over most of the rest of the Nation. A large area from eastern Washington to western North Dakota and southward to the Nebraska Panhandle averaged 9° to 14° cooler than normal. (Summary supplied by Environmental Data Service, ESSA.)







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## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

ARMYWORM serious on grasses and forage crops in several areas of South Carolina. (p. 683).

FALL ARMYWORM damaging grasses in South Carolina, northern Georgia, and Alabama. (p. 684).

HORN FLY heavy on cattle in Oklahoma. (p. 688).

#### Detection

An ENCYRTID WASP reported for the first time from Hawaii. This is a new Western Hemisphere record. This parasitic species previously only recorded from Guam. (p. 689).

A new State record was another ENCYRTID WASP from Hawaii. (p. 689).

For new county and island records see page 690.

#### Special Reports

Distribution of a Japanese Weevil. Map. (p. 692).

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WEATHER OF THE WEEK ENDING SEPTEMBER 21

**HIGHLIGHTS:** Light rain fell in the Northeast late in the week. Generous rain fell in many parts in all eastern areas. The West continued cold. Summer weather persisted in the East.

**PRECIPITATION:** Early in the week a storm moved northeast across the central Great Plains to the Great Lakes. The combination of cool air north of this system and the southerly flow of warm moist air replaced widespread rain and drizzle from the north and central Great Plains to the north and middle Atlantic States. A tropical depression developed Tuesday between the Florida Peninsula and the Bahamas. It gained strength rapidly and moved across the Keys producing storm gusting winds and locally heavy rains. Winds at Ft. Myers gusted to 58 m.p.h. and over 4 inches of rain fell at Naples, Florida. Tropical storm Felice moved into the Galveston, Texas, vicinity Tuesday afternoon. Winds at Galveston gusted to 55 m.p.h. and more than 6.25 inches of rain fell within a few hours. Felice moved northward into north-central Texas and although decreased to 30 m.p.h., it continued to produce heavy rains with 3-6 inches at many locations and 5.80 inches at Roanoke, Texas, in the 24-hour period ending Thursday morning. Thunderstorms and shower activity continued Thursday night along a front that extended from northeast Texas to the Great Lakes and in the warm moist gulf air that streamed northward over the eastern half of the Nation. Heavy rains of 4-6 inches fell Saturday in parts of northern Arkansas. Mostly cloudless skies dominated the weather of the West until the weekend when light showers fell along the Washington and Oregon coast.

**TEMPERATURES:** A low pressure area moved northeastward across the Great Plains to the Great Lakes early in the week. Afternoon temperatures from Kansas to Lower Michigan remained in the 40's and 50's Monday afternoon while the readings from Texas to Ohio reached the 80's and 90's. The sharp contrast continued on Tuesday when Concordia, Kansas, and Waterloo, Iowa, recorded 60° maximums and St. Louis, Missouri, Springfield, Illinois, and Ft. Wayne, Indiana, registered in the 90's. The heat spread eastward. On Wednesday, Baltimore, Maryland, registered 97°, a record maximum for so late in the season. Subfreezing temperatures occurred in the northern and central Rocky Mountains and much of the Great Basin early in the week. Big Piny, Wyoming, registered 15° and Flagstaff, Arizona, 30° Tuesday morning. The weekend brought the return of hot weather to mid-America. The mercury at Imperial, Nebraska, reached 96° Sunday afternoon. Weekly temperatures were below normal over the West, the North-Central, and the Northeast and above normal elsewhere. Most of the Great Basin and northern Rocky Mountains averaged more than 6° colder than normal. (Summary supplied by Environmental Data Service, ESSA).

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - SOUTH CAROLINA - Worst outbreak since 1936 in Spartanburg County (Martin); serious in Laurens County (Outz); infesting lawns and forage crops in Greenwood County (Bryson); and damaged fescue and Bermuda grass lawns in York County (Fant). VIRGINIA - Based on light trap catches, damage expected to fall-planted cereals in southern Piedmont areas. (Allen).

**CORN EARWORM (*Heliothis zea*)** - IDAHO - Damage near 100 percent in untreated sweet corn at Caldwell, Canyon County, September 20. (Homan). COLORADO - Larvae up to 10 per 100 row feet of corn in Sedgwick, Logan, and Phillips Counties. Damage noneconomic. (Johnson). ARIZONA - Averaged 1 per ear of green corn at Safford, Graham County. (Ariz. Coop. Sur.). ARKANSAS - Ranged 1-2 per row foot in late blooming sorghum in Desha County. (Boyer). MISSOURI - Second to last instars up to 31 per 100 heads on late grain sorghum in southwest and west-central areas. (Munson). WISCONSIN - Lighter than normal on corn in northern counties. (Wis. Ins. Sur.). DELAWARE - Larvae on lima beans in eastern Kent and Sussex Counties. (Burbutis et al.). VIRGINIA - Expect some damage in central Tidewater region on late-planted soybeans, based on light trap catches. (Allen). TENNESSEE - Some pod injury in late soybeans throughout southern part of western area. (Locke). GEORGIA - Moderate on grain sorghum in Seminole County. (Payne, French, Sept. 11). ALABAMA - Larvae of this species and other grain feeders developed to damaging numbers on several hundred acres of grain sorghum in Conecuh and Covington Counties. Controls applied. (Oakly, Linder).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - KANSAS - Moderate behind leaf sheaths and loose shucks in partially green and green corn surveyed in Doniphan and Brown Counties. (Bell).

**GREENBUG (*Schizaphis graminum*)** - ILLINOIS - Caused occasional damage to bluegrass in central area. (Ill. Ins. Rpt.).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - WYOMING - Collected in alfalfa field in Fremont County by A.E. Parshall and C.C. Burkhardt July 3, 1968. This is a new county record. (Parshall).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER (*Ostrinia nubilalis*)** - RHODE ISLAND - Infested 10 percent of ears in one Washington County field. (Field). OHIO - Infestations 100 percent (larvae 6-7 per corn plant) in some fields in Pickaway County. Many second to last instars in tips of ears. (Blair). WISCONSIN - Heavier than usual throughout northern corn-growing counties. Stalk breakage above normal. (Wis. Ins. Sur.). COLORADO - No larvae found in fields checked in Roggen and Prospect areas of Weld County. Most larvae in ears rather than stalks as in previous 2 years in Kiowa Valley. (Johnson). KANSAS - Young third-generation larvae averaged 3 per stalk in field of very late corn in Nemaha County. Full-grown, probably second generation, larvae averaged 1.3 per plant. Larvae feeding on leaf sheaths, sterile ears, shucks, and silks. (Bell). Surveys in northern counties show 68-100 percent of stalks infested and 12-20 percent of stalks lodged below an ear in 5 fields in Brown County. Infested 40-100 percent of plants with up to 5 larvae per stalk in 4 fields checked in Doniphan County. No borers in one field in Washington County, and 8 percent of stalks infested in second field; 28 percent of stalks in one field in Clay County. (Bell). Infested stalks ranged 4-16 percent in 5 fields in Pawnee County; 4-80 percent of stalks infested with up to 5 larvae per stalk in Montgomery County; ranged 4-76 percent in 5 fields in Labette County; 12-76 percent in 5 fields in Cherokee County; none to 52 percent in 5 fields in Crawford County; and 4-7.6 percent in 5 fields in Neosho County. (Redding).

**SORGHUM WEBWORM (*Celama sorghiella*)** - MISSISSIPPI - Larvae ranged 120-138 per sorghum head in several Oktibbeha County fields. (Sartor). ARKANSAS - Ranged 2-5 per row foot in late blooming sorghum in Desha County. (Boyer). MISSOURI - Larvae

light, up to 81 per 100 heads, on late-planted sorghum in southwest and west-central areas. (Munson).

**SOUTHWESTERN CORN BORER (Diatraea grandiosella)** - KANSAS - Infested plants ranged 4-16 percent in 5 fields in Pawnee County, 4-8 percent lodging; ranged 12-48 percent in 4 fields in Montgomery County, 4-8 percent lodging; 8-28 percent infestation in 5 fields in Labette County, no lodging. Infested plants ranged 16-40 percent in 5 fields in Cherokee County, up to 4 percent lodging; 4-48 percent in 5 fields in Neosho County, up to 4 percent lodging. (Redding).

**WESTERN BEAN CUTWORM (Loxagrotis albicosta)** - COLORADO - Larvae up to 3 per 100 row feet in corn checked in Phillips, Sedgwick, and Logan Counties. Infested fields scattered and damage light. (Johnson).

**NORTHERN CORN ROOTWORM (Diabrotica longicornis)** - SOUTH DAKOTA - Found on high-sugar silage corn north of Midland, Haakon County. Less than 1 adult per 100 plants. This is a new county record. (Jones).

**A WEEVIL (Anacetrinus deplanatus)** - TEXAS - Found in grain sorghum in Floyd, Hale, Crosby, Swisher, Scurry, Castro, Lamb, and Parmer Counties. Determined by H.R. Burke. These are new county records. For additional information on this pest in State see Goode, J.P., and Randolph, N.M., 1961. J. Econ. Ent. 54(2):301-303. (Rummel).

**WESTERN BROWN STINK BUG (Euschistus impictiventris)** - CALIFORNIA - Larvae 150 per sorghum stalk at Holtville, Imperial County. (Cal. Coop. Rpt.).

**BANKS GRASS MITE (Oligonychus pratensis)** - OKLAHOMA - On corn in Texas and Beaver Counties. (Okla. Coop. Sur.). **UTAH** - This species and Tetranychus urticae (two-spotted spider mite) damaged corn past 3 weeks in Utah County. (Horn). Damage currently moderate in Salt Lake (Parrish) and Uintah Counties (Hunsaker).

#### **SMALL GRAINS**

**FALL ARMYWORM (Spodoptera frugiperda)** - TENNESSEE - Damaged newly emerging small grain and pastures throughout east. (Mullett). Damaged wheat in Hardeman County. (Locke).

#### **TURF, PASTURES, RANGELAND**

**FALL ARMYWORM (Spodoptera frugiperda)** - SOUTH CAROLINA - Troublesome on sweet corn in Marion County (Thomas); destroyed 100 acres Reed Canary grass in Sumter County (Page); also Bermuda grass lawn in Laurens County (Outz); Dallas grass in Oconee County (Wise); troublesome in Greenville County (Jones); on Bermuda grass lawns in Georgetown County (Hardee); light in Dorchester County (Epps); second generation serious on Bermuda grass lawns, golf greens, and Coastal Bermuda grass pastures in Florence County (Livingston); and light mostly on Bermuda grass lawns in Horry County (Witherspoon). **GEORGIA** - Severe on pasture and forage crops in north area. Severely damaging Bermuda grass and other lawn grasses in Spalding County (Beckham); feeding on rose buds in Tift County (French); severe on lawn and football field turfs in several north area counties (Nolan, Sept. 11). **ALABAMA** - Infestation of this species and Pseudaletia unipuncta (armyworm) increased in fields of Coastal Bermuda grass and other grasses. Infestations reported in Bibb, Chilton, Sumter, Autauga, Lee, Tallapoosa, Geneva, and Russell Counties September 11. Many other counties previously reported infestations. Homeowners applying controls for larvae on lawns in Lee County. Moderate along highway shoulder in Russell County. Infestation on lawn at Auburn, Lee County, destroyed by virus. (Odom et al.).

**GRANULATE CUTWORM (Feltia subterranea)** - CALIFORNIA - Larvae of this species and Prodenia praefica (western yellow-striped armyworm) 10 per square foot of dichondra and nutgrass at Visalia, Tulare County. (Cal. Coop. Rpt.).

A SHORT-TAILED CRICKET (Anurogryllus muticus) - OKLAHOMA - Moderate to heavy in lawns in scattered areas of Stillwater, Payne County. (Okla. Coop. Sur.).

FIELD CRICKETS (Gryllus spp.) - CALIFORNIA - Very abundant in hayfields in Imperial Valley, Imperial County. Tend to move into cultivated fields with young seedlings. (Cal. Coop. Rpt.). SOUTH DAKOTA - Counts of 1 per 10 square yards along several miles of highway in Davison County. Swallows feeding on crickets. (Jones).

A MARCH FLY (Dilophus orbatus) - CALIFORNIA - Adults heavy in lawns at Gilroy, Santa Clara County. Very prevalent recently and caused concern to homeowners. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - IDAHO - Adults ranged 2-5 per square yard and ovipositing in southern Owyhee County alfalfa September 9. (Homan). NEW MEXICO - Larvae light on alfalfa in Dona Ana, Otero, and Luna Counties. (N.M. Coop. Rpt.).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 20 per 100 sweeps in 4 fields of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) - WISCONSIN - Adults numerous along roadsides, in alfalfa, and in margins of corn in Waupaca, Shawano, Oconto, Outagamie, Buffalo, and Trempealeau Counties. Damage light. (Wis. Ins. Sur.).

A LYGUS BUG (Lygus sp.) - ARIZONA - Averaged 310 per 100 sweeps in 4 fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - FLORIDA - Larvae defoliated several acres of untreated soybeans at Quincy, Gadsden County. (Greene, Whitcomb). A fungus, Spicaria rileyi, becoming abundant, infesting 25 percent of A. gemmatilis larvae at Gainesville, Alachua County, and at Quincy. (Whitcomb). GEORGIA - Increasing in south area soybeans. (Todd, Sept. 11). MISSISSIPPI - Larvae averaged 3 per 3 row feet in 5 Oktibbeha County fields. (Sartor).

SOYBEAN INSECTS - ALABAMA - Controls required on several thousand acres of soybeans in southern counties due to feeding of Trichoplusia ni (cabbage looper), Pseudoplusia includens (soybean looper), Anticarsia gemmatilis (velvetbean caterpillar), Plathypena scabra (green cloverworm), Spodoptera frugiperda (fall armyworm), Heliothis zea (corn earworm), and Heliothis spp. along with other pod and leaf feeders. (Miller et al.).

GREEN CLOVERWORM (Plathypena scabra) - MISSISSIPPI - Larvae averaged 2 per 3 row feet in 5 Oktibbeha County fields. (Sartor).

SOYBEAN LOOPER (Pseudoplusia includens) - MISSISSIPPI - Larvae averaged 1 per 3 row feet in 5 Oktibbeha County fields and 5.2 per row foot in 2 Yazoo County fields. (Sartor).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Increasing in south area soybeans. (Todd). VIRGINIA - Continues serious on late soybeans. Many soybeans nearly mature and out of danger but large acreages still in critical stage in Accomack and Northampton Counties. (Hofmaster).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Adults averaged 2 per 3 row feet in 5 Oktibbeha County fields. (Sartor).

## PEANUTS

RED-NECKED PEANUTWORM (Stegasta bosqueella) - NEW MEXICO - Heavy at Hobbs, Lea County. Larvae in all terminals of plants checked in one field. (Mathews).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Still moderate in Hughes and Bryan Counties. (Okla. Coop. Sur.).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Still damaging small bolls in late cotton. Control becoming more difficult. (Locke). ALABAMA - Adults remain heavy throughout south and central areas wherever suitable food remains. Migrated from mature fields to more suitable young and second-growth cotton. Numerous adults in south and central areas to diapause and enter hibernation. (Barwood et al.). Weevils continue to increase in north area. Feeding on bolls and preparing for hibernation. (McQueen).

BOLLWORMS (Heliothis spp.) - OKLAHOMA - H. virescens (tobacco budworm) 62 percent and H. zea (bollworm) 38 percent of 39 larvae collected from cotton at Chickasha, Grady County. H. zea still moderate to heavy in some areas of Marshall County. (Okla. Coop. Sur.). ARKANSAS - Larvae collected in late August and early September determined by county: Mississippi - 129 H. zea and 2 H. virescens; Poinsett - 16 H. zea, no H. virescens. (Boyer). TENNESSEE - All larval stages continue to damage late cotton. (Locke). ALABAMA - Remain relatively heavy throughout State. H. zea dominant species. Moth flights continue heavy. (McQueen). Larvae 1-2 per stalk in large field in Lee County; controls ended 10 days ago. Bolls and squares destroyed by larvae and weevils. Larvae about 3 per 10 stalks, feeding on bolls in fields examined in Coosa Valley area. Moths of H. zea dominant. (Barwood et al.). GEORGIA - Damaging small bolls where controls discontinued in south areas. (Womack, Sept. 11).

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Increasing in Imperial Valley, Imperial County. Possible upsurge of S. exigua and Trichoplusia ni (cabbage looper) may result in large numbers emerging from untreated fields to be harvested early. (Cal. Coop. Rpt.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Heavy in Dome Valley, Yuma County. Heavy in areas of Maricopa and Pima Counties. (Ariz. Coop. Sur.).

## SUGAR BEETS

FALL ARMYWORM (Spodoptera frugiperda) - ARIZONA - Larvae 3 per row foot in 50-acre field at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

SUGAR-BEET ROOT APHID (Pemphigus populivinae) - ARIZONA - Heavy on 20 acres at Safford, Graham County. (Ariz. Coop. Sur.).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - ARIZONA - Adult collected on weeds in motel area at Nogales, Santa Cruz County, by R.W. Hancock, August 23. Determined by T. Halstead. This is a new county record. (Ariz. Coop. Sur.).

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Weather conditions have been ideal and fall potato foliage showing extensive damage in Accomack and Northampton Counties. (Hofmaster).

SAY STINK BUG (Chlorochroa sayi)\* - ARIZONA - Damaged 1 of every 5 fruits on 0.5 acre of chilli peppers at Safford, Graham County. (Ariz. Coop. Sur.).

\* It has been determined that the genus Chlorochroa Stal, 1872, is not preoccupied, and is again available. For original change see footnote in CEIR 17(16):305.



## GENERAL VEGETABLES

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Damaged lettuce plantings at Red Rock, Pinal County; replanting necessary. Controls applied at Yuma, Yuma County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Treatments started on lettuce in Salt River Valley, Maricopa County. Controls applied at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Growers in Luna and Dona Ana Counties spraying or dusting lettuce every 3-4 days. (N.M. Coop. Rpt.).

FIELD CRICKETS (Gryllus spp.) - CALIFORNIA - Heavy in asparagus fields at Imperial, Imperial County. (Cal. Coop. Rpt.). ARIZONA - Very heavy in spots at Yuma, Yuma County; bait being applied to infested areas before planting. (Ariz. Coop. Sur.).

## DECIDUOUS FRUITS AND NUTS

PEAR-SLUG (Caliroa cerasi) - MONTANA - Second most important insect in late summer. Infested plum, cherry, and cotoneaster statewide. (Pratt).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Heavy on untreated pecan trees in south area (French); light in Dougherty and Mitchell Counties (Harris et al., Sept. 11). NEW MEXICO - Light to heavy on walnut and apple trees at Elk, Chaves County, and Mayhill, Otero County. (Hare).

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Moderate to heavy on scattered pecan trees in Payne County. (Okla. Coop. Sur.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Adult emergence still heavy in Rogers County. Light in Marshall County. (Okla. Coop. Sur.).

APHIDS - GEORGIA - Myzocallis caryaefoliae (black pecan aphid) heavy on untreated pecan trees over south area. (French, Sept. 11). ALABAMA - Mixed populations of M. caryaefoliae, Monellia spp., and mites heavy on thousands of unsprayed pecan trees. Defoliation heavy from these and other causes in Elmore, Lowndes, Wilcox Mobile, Washington, Butler, Barbour, Henry, and Lee Counties. Many trees developed objectionable second growth. (Morris et al.).

## FOREST AND SHADE TREES

A PYRALID MOTH (Dioryctria amatella) - MISSISSIPPI - Infested average of 48.41 percent of cones harvested from 12 slash pines in Greene County seed orchard. (Sartor).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Light to heavy on willow, poplar, and elm trees at Elk, Chaves County, and Mayhill, Otero County. (Hare). TENNESSEE - Scattered light to moderate infestations common statewide. Damage light. (Gordon). WEST VIRGINIA - Larval damage light to moderate over 100 acres of hickory in Braxton County September 11. Current larval damage heavy to mulberry in Harrison County. (Miller).

BIRCH SKELETONIZER (Bucculatrix canadensisella) - WISCONSIN - Severely affected white birches in Marathon County. (Wis. Ins. Sur.).

MAPLE TRUMPET SKELETONIZER (Epinotia aceriella) - MAINE - Damage moderate to heavy on many trees in central and south areas. (Gall).

LILAC BORER (Podosesia syringae syringae) - UTAH - Severe and damaging hundreds of blue ash and other ash trees in Salt Lake County. Outbreak almost countywide. (Knowlton, Parrish).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Half-grown larvae light on pin oak at Stillwater, Payne County. (Okla. Coop. Sur.). MISSOURI - Light on oaks in Texas and Maries Counties. Moderate to heavy in scattered areas of Cole and Iron Counties. (Gass).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Defoliation heavy on elms at Artesia, Eddy County. (Hare).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Nine cases reported in U.S. September 13-19 as follows: TEXAS - Menard 1; ARIZONA - Santa Cruz 2; NEW MEXICO - Grant 2, Luna 4. Total of 125 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 2, Sonora 41, Chihuahua 77, Nuevo Leon 4, Tamaulipas 1. Total of 50 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 41,454,000; New Mexico 11,800,000; Arizona 10,500,000; Mexico 82,582,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 1,500-2,000 per head, 10 times numbers of past 2 weeks, on cattle in Payne County. Heavy in Bryan County. Light to moderate in Mayes and Cleveland Counties. (Okla. Coop. Sur.). MARYLAND - Variable throughout control area. Up to 200 per head on 23 steers near Point of Rocks, Frederick County. (U. Md., Ent. Dept.).

FACE FLY (Musca autumnalis) - MARYLAND - Continues heavy, as high as 30-40 per head on cattle, in Baltimore, Frederick, and Montgomery Counties. (U. Md., Ent. Dept.).

HOUSE FLY (Musca domestica) - OKLAHOMA - Up to 70 per Scudder grid in favorable locations at Stillwater, Payne County, but averaged about 5 per grid in all areas checked. (Okla. Coop. Sur.). TENNESSEE - Still a nuisance in and around homes statewide. (Gordon).

STABLE FLY (Stomoxys calcitrans) - NORTH DAKOTA - Heavy in hog houses in Barnes and Cass Counties. Up to 300 per sow and up to 20 per square foot on walls and ceilings of farrowing pens. (Brandvik).

HORSE BOT FLY (Gasterophilus intestinalis) - MISSISSIPPI - Adults averaged 1 per head on 10 horses in Oktibbeha County. (Sartor).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Up to 10 per head in backs of cattle checked at Foraker, Osage County. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - Two Aedes vexans egg samples collected September 14 were immersed and checked September 15; hatch was 11 and 15 percent. Diapause earlier than in other years. (Minn. Pest Rpt.).

#### STORED PRODUCTS

INDIAN-MEAL MOTH (Plodia interpunctella) - NORTH DAKOTA - Damaged 25 percent of 100 tons of pinto beans at Hatton, Traill County. Infestation apparently originated from out of State. Shipment had been fumigated. (Brandvik).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Release of 3,896,424 sterile moths September 10-17 at Bakersfield; total to date 48,967,322. Third native moth of season trapped September 4 west of Lamont, Kern County. Two additional moths trapped September 9 and 14 south of Lamont. Last two sites outside of increased sterile moth drop zone, but now receiving supplemental

sterile moths. ARIZONA - Release of 67,500 sterile moths at Redington, Pima County; total to date 1,282,300. One sterile and 8 native moths trapped; seasonal total of 227 sterile and 27 native moths. Infested 8 of 500 bolls; total of 9 infested bolls to date. (PPD). Heavy at Marana and Avra Valley, Pima County. Infested all of 20-acre field of long staple cotton at Central, Graham County. Worst infestations, few up to 50 percent, from Thatcher west to Pima along Gila River at Safford, Graham County. Beneficial insects abundant and still very active. Long staple cotton in full bloom and in lush growth. Treatments continue in some fields at Yuma, Yuma County; some fields being picked. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on cotton in southern Dona Ana County. (N.M. Coop. Rpt.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSISSIPPI - Cysts light on soybeans on farm in Carroll County. Collected by Hulett September 11. Determined by A.M. Golden. (PPD).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Infestation at junction of Klamath and Shasta Rivers, Siskiyou County, treated third time. Rough terrain made treating of wild grapes extremely difficult, but results very good. Only few larvae on occasional vine. Overlapping generations very obvious in mountain area. First frost of season occurred September 13. (Cal. Coop. Rpt.).

#### HAWAII INSECT REPORT

New State Records - First specimen of an ENCYRTID WASP (Acerophagus texanus) collected at Ewa, Oahu, in April 1960. One specimen collected at Lanaihale, Lanai, in January 1962. A. texanus is recorded as a primary parasite of Ferrisia virgata (striped mealybug). First specimen of another ENCYRTID WASP (Ooencyrtus guamensis Fullaway) collected at Waimanalo, Oahu, October 8, 1963. Both specimens collected and determined by J.W. Beardsley. O. guamensis from puparium of an aphidophagous syrphid collected on corn at Waimanalo by Beardsley in December 1963 and from same host situation at Kaaawa, Oahu, by B. Napompeth, August 24, 1970. (Beardsley). O. guamensis is a new Western Hemisphere record. (PPD).

Turf, Pasture, Rangeland - A GRASS WEBWORM (Herpetogramma licarsialis) moderate in pasture of Kikuyu grass at Kainaliu, Kona, Hawaii. Larvae averaged 12-15 per square foot. A MINUTE EGG PARASITE (Trichogramma semifumatum) parasitized 93 percent of 62 egg clusters. On Kauai, light infestation in early August at Kipu ranch appears to be subsiding. T. semifumatum noticeable in 40 affected acres; at Kalaheo, pastures were recovering where larvae averaged 15 per square foot in July. T. semifumatum parasitized 88 percent of eggs collected during this infestation. On Maui, webworm activity remained near nil in lush pastures at Haiku and drought-stricken pastures at Kula. Adults moderate, 15-20 per sweep, in Kikuyu grass at Mililani Memorial Park, Oahu. (Yoshioka et al.).

Beneficial Insects - Larvae of LANTANA CERAMBYCID (Plagiobammus spinipennis) girdled several large lantana plants on ranch at Kona, Hawaii, where adults initially released in April 1967. LANTANA LEAF BEETLE (Octotoma scabripennis) larvae active on some plants. Chrysomelid adults heavy on wayside lantana plants on road to Kealakekua Bay, Hawaii; as many as 100 per plant on isolated stands; about 70 percent of leaves exhibit larval activity. (Matayoshi, Yoshioka).

Miscellaneous Pests - Collected and destroyed 356 GIANT AFRICAN SNAIL (Achatina fulica) specimens, mostly juveniles, at Poipu, Kauai; at Wahiawa, much poison bait applied in area where 6 snails found and destroyed. (Sugawa). CLUSTER FLY (Pollenia rudis) built up throughout August at Kahua ranch, Hawaii, where adults fed on fruits of Myoporum trees. Populations on Kauai confined to higher elevations at Kokee; light on lantana several miles below Puu Ka Pele. (Yoshioka, Sugawa).

## DETECTION

New Western Hemisphere Record - An ENCYRTID WASP (Ooencyrtus guamensis Fullaway) HAWAII - Oahu Island (p. 689).

New State Record - An ENCYRTID WASP (Acerophagus texanus) HAWAII - Oahu Island (p. 689).

New County and Island Records - COLORADO POTATO BEETLE (Leptinotarsa decemlineata) ARIZONA - Santa Cruz (p. 686). An ENCYRTID WASP (Acerophagus texanus) HAWAII - Lanai (p. 689). NORTHERN CORN ROOTWORM (Diabrotica longicornis) SOUTH DAKOTA - Haakon (p. 684). SOYBEAN CYST NEMATODE (Heterodera glycines) MISSISSIPPI - Carroll (p. 689). SPOTTED ALFALFA APHID (Therioaphis maculata) WYOMING - Fremont (p. 683). A WEEVIL (Anacetrinus deplanatus) TEXAS - Castro, Crosby, Floyd, Hale, Lamb, Parmer, Scurry, Swisher (p. 684).

## CORRECTIONS

CEIR 20(36):646, 648 - FACE FLY (Musca autumnalis) UTAH - ... at Midway, Washington County, should read Wasatch County. (Knowlton).

CEIR 20(38):667, 670 - SOUTHWESTERN CORN BORER (Diatraea grandiosella) ... OHIO - ... should be NEW MEXICO - ...

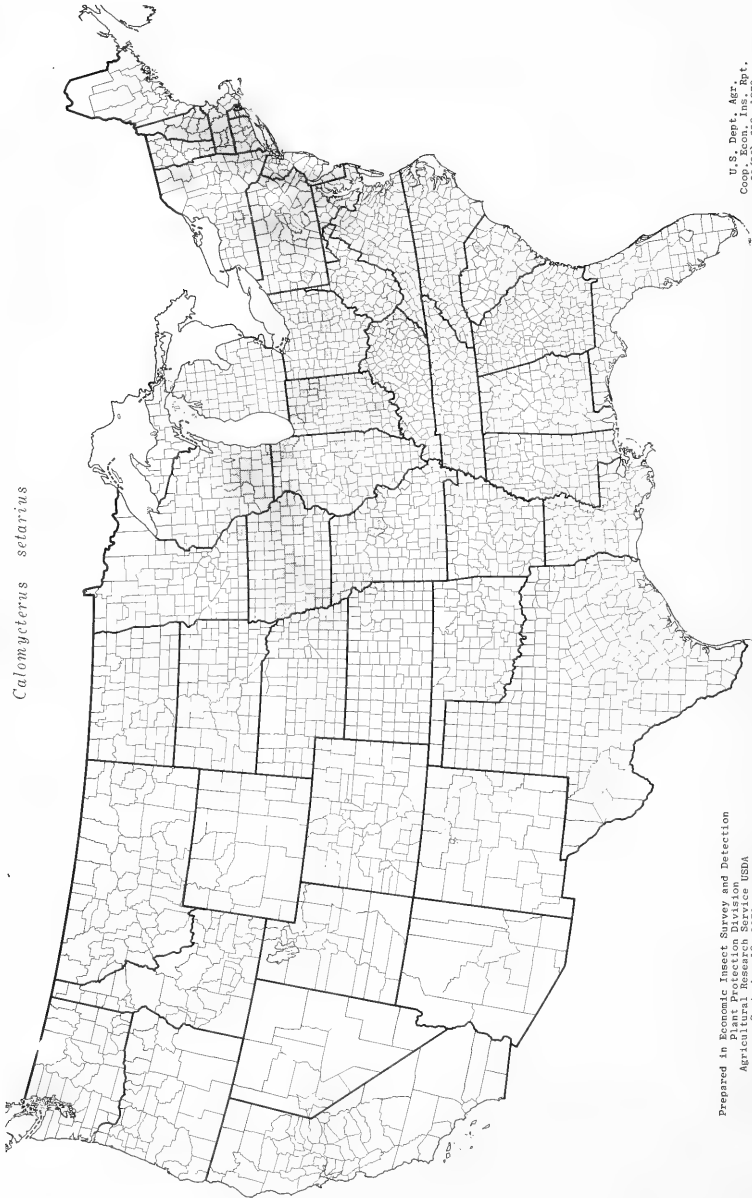
CEIR 20(38):678 - A XIPHYDRIID WASP (Xyphydria maculata) ... should be A XIPHYDRIID WASP (Xiphydria maculata).

CEIR 20(38)679 - TENNESSEE - Manduca sexta (tobacco hornworm) should be Manduca quinquemaculata (tomato hornworm). (Gordon).



# Distribution of a Japanese Weevil

*Calomycterus setarius*



Prepared in Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service USDA  
September 15, 1970

U. S. Dept., Agr.  
Cooperation with  
28 (29) 242, 1970



UNITED STATES DEPARTMENT OF AGRICULTURE  
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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**





## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

SORGHUM MIDGE damaged sorghum in Florida, Alabama, Oklahoma, and Missouri. (p. 695).

FALL ARMYWORM larvae damaged small grains in Virginia, Tennessee, and Alabama. Decreasing on grasses in South Carolina; third brood expected soon in Piedmont area. Damaging grasses in Alabama. (p. 696).

GREEN JUNE BEETLE larvae heavy in fescue, clover, and Bahia grass pastures in Georgia. (p. 696).

VELVETBEAN CATERPILLAR larvae heavy in soybeans in south Alabama. (p. 697).

CARROT WEEVIL larvae heavy on untreated commercial carrots in Delaware. (p. 699).

VARIABLE OAK LEAF CATERPILLAR infestations heaviest in 10 years in Arkansas. (p. 701).

Detection

An ICHNEUMON WASP reported for the first time from Hawaii. This is a new Western Hemisphere record. This is a widely distributed Asiatic parasitic species. (p. 704).

New State records include a SEED BEETLE from California (p. 701), and a SKIPPER and an ICHNEUMON WASP from Hawaii (p. 704).

For new county records see page 706.

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Reports in this issue are for week ending September 25 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING SEPTEMBER 28

**HIGHLIGHTS:** The hottest weather of the year occurred in parts of the Northeast before a cold front dropped temperatures 20° to 30°. Heavy thunderstorms caused flooding along some streams in the central Great Plains. Heavy snow fell in the central Rocky Mountains. Brush fires burned uncontrollable in southern California.

**PRECIPITATION:** Showers and thunderstorms occurred early in the week along a frontal system which extended from the upper Mississippi River Valley to Texas. Heraldton, Oklahoma, received 6.00 inches and Blue Springs, Missouri, received 5.40 inches of rain in the 24-hour period ending Tuesday morning. Larger totals fell in Oklahoma in the following 24-hour period, 7.93 inches at Stroud, and 6.38 inches at Norman. Tuesday afternoon, hail as large as baseballs fell about 10 miles south of Topeka, Kansas. These heavy rains caused overflowing of rivers and flooding of lowlands. Heavy snow fell in the Wyoming and Colorado Rockies shortly after midweek accumulating to 10 inches at Fraser, Colorado. Showers continued over the central Great Plains and Ohio River Valley. The Northeast and the gulf coast also received light rain Thursday evening and Friday morning. Weekend showers and thunderstorms occurred along a sharp cold front as it advanced southeastward across the Eastern States and the Deep South. The Far Southwest continued dry. The unfortunate combination of no rain, low humidity, and strong winds caused brush and forest fires to spread rapidly in southern California and hindered their control.

**TEMPERATURE:** A large High centered off the northern Pacific coast brought northerly winds, clear skies, and cool temperatures to most of the West. Afternoon temperatures were in the 50's and 60's on most days. Early morning readings were generally in the 30's and 40's except in the Southwest where the 50's and 60's were common. Thursday morning, many stations in the northern Rocky Mountains and parts of the Great Basin recorded temperatures in the 20's. Big Piney, Wyoming, registered 14° on that day. Temperatures in the humid air that covered the East and the Deep South ranged from warm to hot. Ninety-degree weather occurred in central Ohio on Tuesday and Harrisburg, Pennsylvania, recorded 97° Thursday afternoon. Numerous locations in the Northeast recorded higher temperatures than had been previously recorded so late in the season. Trenton, New Jersey, registered 90° or higher on 5 consecutive days; this is the first such occurrence in late September in more than 100 years. The cold front that separated the cold and warm airmasses reduced temperatures slightly as it advanced southeastward across mid-America. Weather of the week continued on page 706.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**BEEET LEAFHOPPER** (*Circulifer tenellus*) - UTAH - Curly top caused 25 percent loss in Washington County tomatoes this season; light in Iron County tomatoes. (Huber, Sjoblom).

**CORN EARWORM** (*Heliothis zea*) - ARIZONA - Larvae 1 per 3 plants in 10-acre sorghum field at Wellton, Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Moderate on alfalfa in Kiowa and Jackson Counties and on peanuts in Bryan County. (Okla. Coop. Sur.). TENNESSEE - Did not build up to damaging numbers on soybeans in Carroll, Weakley, Obion, Lake, Dyer, Gibson, Madison, and Haywood Counties. Diseased larvae in most fields surveyed. Beneficial insects heavy in all fields. (Gordon et al.). GEORGIA - Infested soybeans and grain sorghum in Oglethorpe County. (Carter et al., Sept. 18). SOUTH CAROLINA - Still a problem on late-planted soybeans. (Thomas, Sept. 23). VIRGINIA - Remains scarce in most soybean fields in Tidewater area except in Middlesex and nearby counties. Larvae still moderate on peanuts. (Allison). MARYLAND - Fed on newly dug sweetpotatoes near Salisbury, Wicomico County. Destroyed 150 bushels. (U. Md., Ent. Dept.).

**GREENBUG** (*Schizaphis graminum*) - COLORADO - Infested 90-95 percent of sorghum in Arkansas Valley. Controls and parasites effective by end of first week in September. (Burchett).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER** (*Ostrinia nubilalis*) - KANSAS - One pupa in cornstalk in Cloud County. Many third-generation larvae in Cloud and Republic Counties. Many still feeding at base of leaf sheaths. (Bell). WISCONSIN - Freshly emerged moths in Arlington blacklight trap week of September 21. Few second instars in very late plantings of field corn in eastern Waushara County; possibly tail end of second generation. (Wis. Ins. Sur.). VIRGINIA - Medium on grain sorghum in Charles City County. (Allen, Davis, Sept. 15). GEORGIA - Lodged grain sorghum in Taylor County. (Reddish, Nolan, Sept. 18). Currently lodged half of grain sorghum plants in Houston County. (Smith).

**SORGHUM WEBWORM** (*Celama sorghiella*) - ALABAMA - Badly damaged grain sorghum heads in late field of 20 acres in Macon County. (Brown). MISSISSIPPI - Larvae 36-290 per 8 sorghum heads in test plot in Oktibbeha County. (Sartor). TENNESSEE - Averaged 4-5 per head in Hardin and Henry Counties. (Johnson). MISSOURI - Larvae 11-138 per 100 heads in southeastern area. All stages present. (Munson).

**WESTERN BEAN CUTWORM** (*Loxagrotis albicosta*) - NEBRASKA - Larva on corn ear near Atkinson, Holt County, for a new county record. Collected by J. Burbank July 30. Determined by R.E. Roselle. (Keith). COLORADO - Larvae, 0-20 per 100 row feet, scattered throughout corn area of Morgan County. Center of infestation in Bijou and Hill area. (Johnson).

**SOUTHWESTERN CORN BORER** (*Diatraea grandiosella*) - OKLAHOMA - Heavy on late corn in Marshall County. (Okla. Coop. Sur.). KANSAS - Average percent of infested cornstalks (and percent girdled) by county: Pratt 47 (27 with maximum of 52 percent girdled in one field), Barton 35 (18), and Rice 25.6 (8). (Redding).

**SORGHUM MIDGE** (*Contarinia sorghicola*) - FLORIDA - Sorghum kernels 70-90 percent damaged or lost in plots at Marianna, Jackson County. (Fla. Coop. Sur.). ALABAMA - Almost destroyed grain heads in 10-acre field of late grain sorghum near older plantings in lower Macon County. Older nearby fields not affected. (Brown). OKLAHOMA - Heavy on late-planted sorghum in several southwest counties. (Okla. Coop. Sur.). MISSOURI - Severely damaged late-planted sorghum in southeast area. Adults numerous. (Munson).

**CHINCH BUG** (*Blissus leucopterus*) - KANSAS - Adults and few nearly full-grown nymphs numerous behind leaf sheaths and shucks of corn in field in southeastern Cloud County. Not reported elsewhere in State this year. (Bell).

#### SMALL GRAINS

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Larvae heavy; damaged young rye fields at Tyler, Dallas County. Controls applied. (Hines). TENNESSEE - Damaged wheat in Tipton County. Controls applied. (Gordon). VIRGINIA - Severe local infestations on small grain in Appomattox County. (Allen, Sept. 18).

#### TURF, PASTURES, RANGELAND

FALL ARMYWORM (*Spodoptera frugiperda*) - SOUTH CAROLINA - Marked reduction in number of complaints past week noted. Mostly pupae or emerging moths at Clemson, Oconee County. Several moths emerged September 20. Third brood in Piedmont imminent unless weather or other conditions intervene. (Nettles, Sept. 23). GEORGIA - Larvae and adults numerous on forage and pasture crops and lawns in northern area. (Nolan). ALABAMA - This and *Pseudaletia unipuncta* (armyworm) occurring in Coastal Bermuda grass and other grass hay crops over wide area. Damaging populations reported on several thousand acres September 18 in Bibb, Sumter, Autauga, Macon, Tallapoosa, and Geneva Counties. Controls applied to several fields; crop harvested early in several counties to prevent further damage. (Odum et al.). TENNESSEE - Light to moderate on newly seeded pasture in Dyer County. (Barrett). VIRGINIA - Severe numbers damaged lawns in Prince George County. Spotted damage on several crops and turf areas throughout State. (Allen).

WHITE GRUBS - UTAH - Damaged several Washington County lawns. (Huber). GEORGIA - *Cotinis nitida* (green June beetle) grubs destroyed stands of fescue and clover pastures in northern area week of September 18. Currently heavy under fescue, clover, and Bahia grass pastures statewide. (Nolan). OHIO - *Cyclocephala borealis* (northern masked chafer) grubs damaged lawns in Franklin, Licking, and Fairfield Counties. Grubs about third instar. (Roach). PENNSYLVANIA - *Cyclocephala* sp. averaged as many as 50 grubs per square foot, turf dead in Lawrence County. (Adams, Sept. 18). VIRGINIA - Severe local infestations of white grubs killed orchard grass in Franklin County pasture. (Allen, Sept. 15).

CHINCH BUGS (*Blissus* spp.) - WEST VIRGINIA - *B. leucopterus* (chinch bug) damage heavy to several lawns in Kanawha County; damage moderate to lawn in Harrison County previous week. (Hacker, Tustin). PENNSYLVANIA - *B. hirtus* (hairy chinch bug) damaged many lawns in September. Statewide, but especially troublesome in eastern half of State. (Gesell).

TWO-LINED SPITTLEBUG (*Prosapia bicincta*) - ALABAMA - Adults and nymphs heavy on centipede grass lawns in Dallas County. (Hines).

A WHITEFLY (*Aleurocybotus occiduus*) - ARIZONA - Nymphs heavy in some Bermuda grass seed fields at Yuma, Yuma County; may become problem. (Ariz. Coop. Sur.).

A MARCH FLY (*Dilophus orbatus*) - CALIFORNIA - Larvae and adults heavy in lawns at Loomis, Placer County, and Sacramento, Sacramento County. Swarms annoying homeowners. Many complaints from residents with mixed dichondra and grass lawns. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

FALL ARMYWORM (*Spodoptera frugiperda*) - OKLAHOMA - Moderate on alfalfa in Jackson County. (Okla. Coop. Sur.). GEORGIA - Infested forage and pasture crops in northern area. (Nolan, Sept. 18). VIRGINIA - Severe local infestations on alfalfa in Orange and Montgomery Counties. (Allen, Sept. 18).

NOCTUID MOTHS - ARIZONA - *Spodoptera exigua* (beet armyworm) larvae averaged 140 per 100 sweeps of alfalfa in north Gila Valley, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - *Colias eurytheme* (alfalfa caterpillar) larvae 2-8 per 25 sweeps of Chaves County alfalfa. (Mathews). OKLAHOMA - *S. exigua* very heavy on alfalfa in Jackson County. Damage especially heavy in young fields. Many diseased larvae dying. *Pseudoplusia includens* (soybean looper) very heavy and damaging young

alfalfa in Jackson County. Plathypena scabra (green cloverworm) heavy on alfalfa in Kiowa and Jackson Counties. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Beginning to break diapause. Adults 1 in 50 sweeps in alfalfa field in northeastern Dodge County. (Wis. Ins. Sur.). MASSACHUSETTS - Larvae 2 and adults 1 per 100 sweeps in Hampshire County alfalfa field. (Jensen).

LYGUS BUGS (Lygus spp.) - ARIZONA - Lygus sp. averaged 450 adults per 100 sweeps of alfalfa at north Gila Valley, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Lygus spp. adults and nymphs 8-20 per 25 sweeps of Chaves County alfalfa. (Mathews). MASSACHUSETTS - L. lineolaris (tarnished plant bug) adults 22 per 100 sweeps of alfalfa in Hampshire County field. (Jensen).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Very heavy on Jackson County alfalfa. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Still damaging alfalfa hay in Fresno County. (Cal. Coop. Rpt.). NEW MEXICO - Light, 10-50 per 25 sweeps, in Chaves County alfalfa. (Mathews). MASSACHUSETTS - Light, 60 per 100 sweeps of alfalfa in Hampshire County field. (Jensen).

LEAF MINER FLIES (Agromyza spp.) - MASSACHUSETTS - Adults 78 per 100 sweeps of alfalfa in Hampshire County field. (Jensen).

#### SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - FLORIDA - Larvae decreased to 7-8 per row foot in several untreated fields totaling 20 acres at Quincy, Gadsden County. Plants completely defoliated. (Hasse). Adults in light traps averaged over 100 per night at Quincy. (Greene). ALABAMA - Heavy in several thousand acres in Marengo County; controls applied in several fields. (Miller). Young larvae very heavy in over 85 percent of several thousand acres at Foley, Baldwin County. Will probably be last generation of season. One grower reported 80 small larvae per 3 row feet. Controls applied. (Wilson). MISSISSIPPI - Larvae averaged 1 per 2 row feet in 8 Oktibbeha County fields. (Sartor). ARKANSAS - Very light in southern area. (Boyer).

NOCTUID MOTHS - ALABAMA - Pseudoplusia includens (soybean looper), Trichoplusia ni (cabbage looper), Plathypena scabra (green cloverworm), A. gemmatilis, and Spodoptera frugiperda (fall armyworm) larvae continue medium to heavy over all of Covington County. (Pike et al.). MISSISSIPPI - P. includens larvae averaged 1 per 3 row feet in 8 Oktibbeha County fields. (Sartor). MISSOURI - Second to third instars of P. scabra 3-16 per 3 row feet in southeastern area. (Munson). OKLAHOMA - P. includens very heavy in Jackson County. T. ni heavy in Bryan and Jackson Counties. (Okla. Coop. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Widespread defoliation in Tidewater area. This, extreme drought, and hot weather will hurt beans in maturity groups 5, 6, and 7. (Allison).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Adults averaged 1 per 3 row feet in 8 Oktibbeha County fields. (Sartor).

GREEN STINK BUG (Acrosternum hilare) - GEORGIA - Heavy in Crisp and Tift Counties. (Nix, Todd).

## PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae heavy in late field in Covington County; fed on vines and "pegs." (Pike). OKLAHOMA - Moderate on sandy soils in Marshall County and moderate in Hughes County. (Okla. Coop. Sur.).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Heavy in Caddo County. (Okla. Coop. Sur.).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Still heavy. First of 4 insecticide treatments in a diapause control program applied to several thousand acres in Shelby, Talladega, St. Clair, and Bibb (all of acreage) Counties. (McQueen). GEORGIA - Heavy in cotton still fruiting over southern area. (Womack).

BOLLWORMS (Heliothis spp.) - GEORGIA - Damaged small bolls where controls discontinued in southern area. (Womack). OKLAHOMA - H. zea still light to moderate in Kiowa, Jackson, and Bryan Counties. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Heavy in Marshall and Jackson Counties. (Okla. Coop. Sur.).

## SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Larvae up to 42 (average 4) per root in Walsh, Pembina, and northern Grand Forks Counties. Maggots at 3 to 7-inch levels. Entered diapause early this season; all lesions healed. (Kaatz, Sept. 18).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae, 3-4 per leaf, scattered through 80-acre planting at Caruthers, Fresno County. (Cal. Coop. Rpt.).

## POTATOES, TOMATOES, PEPPERS

CABBAGE LOOPER (Trichoplusia ni) - WISCONSIN - Caused much damage to tomato plants in Waushara County. (Wis. Ins. Sur.). RHODE ISLAND - Infested tomatoes in Providence County. (Hartley).

POTATO TUBERWORM (Phthorimaea operculella) - UTAH - Rare in Iron and Washington County potatoes. None elsewhere in State. (Sjoblom, Knowlton).

GRASSHOPPERS - ARIZONA - Damaged peppers in Yavapai and Yuma Counties. (Ariz. Coop. Sur.).

A LEAFHOPPER (Empoasca filamenta) - UTAH - Seven per 10 sweeps of potatoes at North Logan, Cache County. (Knowlton).

## BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - COLORADO - Adults and larvae heaviest on beans at harvest time in Morgan County; controls used in some fields. (Fithian).

GARDEN FLEAHOPPER (Halticus bracteatus) - GEORGIA - Severe on Spalding County lima beans. (Minter, Dupree).



## COLE CROPS

CABBAGE LOOPER (*Trichoplusia ni*) - OKLAHOMA - Heavily damaged 10 acres of collards, mustard, and turnips ready to harvest for greens in Tulsa County. Heavy on okra in Jackson County and on several fall-planted vegetables in Marshall County. (Okla. Coop. Sur.). WISCONSIN - Problem serious in commercial cabbage in Outagamie County. (Wis. Ins. Sur.).

FALSE CHINCH BUG (*Nysius ericae*) - OREGON - Severely damaged 8-acre seed planting of cabbage in Marion County. Initial treatment ineffective; may need replanting. Nymphs and adults heavy in adjacent cabbage litter; apparently source of infestation. (Capizzi).

CABBAGE MAGGOT (*Hylemya brassicae*) - OREGON - Larvae in basal portions of recently harvested cabbage in Willamette Valley. (Capizzi).

## GENERAL VEGETABLES

ASPARAGUS APHID (*Brachycolus asparagi*) - PENNSYLVANIA - Heavy in spots on asparagus on farm in Worcester Township, Montgomery County. Oviparous females and males collected by J.R. Robb September 17, 1970. Some parasitized. Determined by L.M. Russell. This is a new county record. (PPD).

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Heavy moth flights September 12 at Roll, Yuma County. Eggs 2-27 (averaged 5) per plant in field of young lettuce near Luke Air Force Base, Maricopa County; no larvae September 23. (Ariz. Coop. Sur.).

CARROT WEEVIL (*Listronotus oregonensis*) - DELAWARE - Larvae heavy on untreated carrots in large commercial fields in eastern Sussex County. (Boys).

GRASSHOPPERS - ARIZONA - Heavy feeding injury to okra September 12 at Dome, Yuma County. (Ariz. Coop. Sur.).

## DECIDUOUS FRUITS AND NUTS

APPLE MAGGOT (*Rhagoletis pomonella*) - WISCONSIN - Adults almost completed flight. One adult trapped in Eau Claire area and none in Door County. Problem serious in improperly treated apples in Kewaunee County. (Wis. Ins. Sur.).

FILBERTWORM (*Melissopus latiferreanus*) - OREGON - Larvae more damaging to prune crop in Marion and Polk Counties this year than in previous years. Generally very light with damage occurring at sporadic locations. Increased damage may be due to favorable climatic conditions or possibly adaptation to a new host. (Brown).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - SOUTH CAROLINA - Heavy on apple at Longcreek, Oconee County. (Nettles, Sept. 23). GEORGIA - Heavy in 2 apple orchards in Haralson County. (Heath).

PEAR PSYLLA (*Psylla pyricola*) - UTAH - Numerous in unsprayed small orchard at North Ogden, Weber County. (Davis). OREGON - Overwintering forms numerous in pear orchards at Hood River, Hood River County. (Zwick).

SPIDER MITES (*Tetranychus* spp.) - UTAH - Most females in Davis County orchards in overwintering stage. (Davis). OREGON - *T. mcdanieli* (McDaniel spider mite) overwintering forms appearing in pear orchards at Hood River, Hood River County. (Zwick).

FALL WEBWORM (*Hyphantria cunea*) - GEORGIA - Infested Clarke County pecans. (Nolan, Sept. 18). ALABAMA - Buildup very heavy in many pecan trees in Dallas and Montgomery Counties. (Hines, Thompson). MISSISSIPPI - Light to moderate on pecans in southern half of State. (Sartor). COLORADO - Webs heavy on fruit trees in Mesa County on Western Slope. (Sisson).

WALNUT CATERPILLAR (Datana integerrima) - GEORGIA - Moderate on Jackson County pecans. (Welborn).

HICKORY HORNED DEVIL (Citheronia regalis) - GEORGIA - Infested Clarke County pecans (Nolan); light on Decatur County pecans (Wheeler).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Heavy emergence at Bixby, Tulsa County; moderate in Nowata County. (Okla. Coop. Sur.).

APHIDS - ALABAMA - Myzocallis caryaefoliae (black pecan aphid); Monellia spp., and mites heavy on thousands of unsprayed pecan trees. Damage, along with physical and nutritional conditions of unknown causes, continues in south and central areas. Diseases part of problem causing heavy premature leaf drop. Early and heavy leaf drop in over 60 percent of pecan area of State in Pike, Henry, Bullock, Barbour, Covington, Conecuh, Butler, Washington, Mobile, Tallapoosa, Macon, Lee, Wilcox, Montgomery, Lowndes, Elmore, Dallas, Sumter, and St. Clair Counties. (Carter et al.).

#### CITRUS

GRASSHOPPERS - ARIZONA - Damaged foliage of young citrus nursery stock for resale at Gadsden, Yuma County. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Light in some groves at Yuma, Yuma County. Earlier feeding injury showing up in packing houses after fruit sweated. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Controls excellent in infested groves at Yuma, Yuma County. One small grove with 20 per leaf. (Ariz. Coop. Sur.).

#### OTHER TROP. & SUBTROP. FRUITS

A LEAF-FOOTED BUG (Leptoglossus zonatus) - ARIZONA - Nymphs and adults feeding on pomegranates at Tucson, Pima County. (Ariz. Coop. Sur.).

VINEGAR FLIES (Drosophila spp.) - CALIFORNIA - Heavy buildup of larvae and adults on figs at Hayward, Alameda County, and at Sacramento, Sacramento County. Nuisance where dropped fruit not removed. Built up during melon season. (Cal. Coop. Rpt.).

#### SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - Most severe damage to grapes in 10 years. (Knowlton, Huber).

GRAPE BERRY MOTH (Paralobesia viteana) - UTAH - Damage unusually severe to several vineyards at Dixie, Washington County. (Huber, Knowlton).

#### ORNAMENTALS

A PSYCHID MOTH (Apterona crenulella) - OREGON - Larval cases collected at Baker, Baker County, week of July 31. Determined by D.M. Weisman. (Every). This is a new county record. (PPD).

AZALEA LACE BUG (Stephanitis pyrioides) - CONNECTICUT - Infestations on azaleas heaviest in years in Fairfield County. (Schread).

MEALYBUGS - FLORIDA - Rhizoecus sp. eggs and nymphs moderate on 65 percent of 1,000 plants of Norfolk Island pine (Araucaria excelsa) at Snead Island, Manatee County. (McFarlin, Bickner, Sept. 15). CALIFORNIA - Spilococcus implicatus one per leaf on cypress trees in 0.5-acre planting at Gualala, Mendocino County. This is a new county record. (Cal. Coop. Rpt.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Heavy on plantings of pittosporum and viburnum at Phoenix, Maricopa County. (Ariz. Coop. Sur.).

#### FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - VIRGINIA - Damage currently at peak in Coastal Plain. Light, 20 percent infestation, in pine plantations in Richmond and Essex Counties. Heavy in young Virginia pine throughout southwest counties; moderate in loblolly plantations in Frederick County. (For. Pest Sur. Rpt., Sept.).

BAGWORM (Thyridopteryx ephemeraformis) - VIRGINIA - Defoliation moderate to cedar and spruce in scattered locations in Prince William, Orange, Campbell, and Prince Edward Counties. Active on eastern redcedar and arborvitae in several locations in Wise County and moderate to severe on individual trees of white pine and arborvitae in Shenandoah County. (For. Pest Sur. Rpt., Sept.).

PINE TUBE MOTH (Argyrotaenia pinatubana) - OHIO - Late instars light to moderate on Licking County Christmas tree planting of 6 to 7-foot white pine. First time this summer when pest heavy enough for treatment. (Roach).

WHITE-PINE SAWFLY (Neodiprion pinetum) - WEST VIRGINIA - Larvae moderately damaged small stand of white pine in Barbour County. Heavily damaged a small white pine in Preston County. These are new county records. (Hacker).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - IOWA - Eggs averaged 21 per female scale on twig of Black Hills spruce from Clutier, Tama County, September 22. Females 4.5 per infested needle. (Iowa Ins. Sur.).

NOTODONTID MOTHS - ARKANSAS - Heterocampa mantee (variable oak leaf caterpillar) heavy past few weeks in central and eastern areas. Trees nearly stripped of leaves, especially along Crowley's Ridge in eastern and northeastern areas. Heaviest infestations in 10 or more years. (Boyer). IOWA - Dicentra lignicolor defoliated linden, redbud, and maple trees at Leon, Decatur County, and fed on oak at Whitten, Hardin County, week of September 18. Symmerista canicosta and Datana ministra (yellow-necked caterpillar) currently defoliated 75-100 acres of timber in Lyon County; larvae 6-12 per leaf at one time. (Iowa Ins. Sur.).

CITHERONIID MOTHS - OHIO - Anisota senatoria (orange-striped oakworm) completely defoliated black oaks in acre-area of Carroll County. Larvae about 1,000 per tree. (Custer, Sept. 18). SOUTH CAROLINA - Citheronia regalis (hickory horned devil) infested sweetgum at Livingston, Greenwood County. (Nettles, Sept. 23).

FALL WEBWORM (Hyphantria cunea) - COLORADO - Webs heavy on shade trees in Mesa County on Western Slope. (Sisson). CONNECTICUT - Heavy throughout Canterbury and southern Brooklyn, Windham County. (Anthony).

A SPHINGID MOTH (Pachysphinx modesta) - ARIZONA - Heavy on cottonwoods at Tucson, Pima County. (Ariz. Coop. Sur.).

A SEED BEETLE (Amblycerus robiniae) - CALIFORNIA - Infested pods of honeylocust at Sacramento, Sacramento County. Collected by L. Carnahan September 4, 1970. Five adults emerged from pods. Identified by G. Okumura. This is a new State record. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Seven cases reported in U.S. September 20-26 as follows: ARIZONA - Cochise 1; NEW MEXICO - Luna 4, Sierra 1; TEXAS - Hudspeth 1. Total of 212 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 76, Chihuahua 122, Nuevo Leon 5, Tamaulipas 9. Total of 89 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establish-

ment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 44,868,000; New Mexico 11,900,000; Arizona 9,560,000; Mexico 74,400,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 50-300 per head of cattle in Cherokee County. Moderate in Cleveland County. (Okla. Coop. Sur.). KANSAS - Average estimated at 400+ per cow on shoulders and backs in herd of range cattle in southeastern Cloud County. (Bell).

FACE FLY (Musca autumnalis) - MARYLAND - Adults on horses near Snow Hill, Worcester County, September 22, 1970. Collected and determined by J. Hellman. This is a new county record. (U. Md., Ent. Dept.). NEVADA - Adults medium on cattle in Clover Valley, Elko County. (Nichols).

HORSE BOTS (Gasterophilus spp.) - OKLAHOMA - Averaged 6 per head on horses in Lincoln County. Heavy in Adair and Cherokee Counties. Moderate in Payne County. Egg laying very heavy in most of these areas. (Okla. Coop. Sur.). MARYLAND - G. intestinalis (horse bot fly) egg laying heavy at Snow Hill, Worcester County. Adults averaged 2 per horse. (U. Md., Ent. Dept.). MAINE - G. intestinalis eggs reported by 3 horseowners in Penobscot County. (Gall, Sept. 21).

MOSQUITOES - GEORGIA - Culex pipiens quinquefasciatus abundant around homes in Spalding County. (Snoddy, Sept. 18). Currently, mosquitoes still annoying about residences in Spalding County; unusually heavy this year. (Beckham). OKLAHOMA - Larvae common at Stillwater, Payne County, following rains of last 2 weeks. Species most commonly collected: Culex tarsalis, C. salinarius, Psorophora ciliata, P. confinnis, Aedes hendersoni, A. dorsalis, and A. atropalpus. Adult emergence of most species begun and should increase rapidly next 7 days. (Okla. Coop. Sur.). WISCONSIN - Activity increased in Walworth County and in low areas of Jefferson County. (Wis. Ins. Sur.). MINNESOTA - Aedes vexans 184 of 316 females from 16 light traps at Minneapolis and St. Paul week ending September 18. Balance were Culex, Culiseta, and Anopheles (A. walkeri 4 percent). Two egg samples collected and immersed September 21 showed 18 and 22 percent hatch next day. (Minn. Pest Rpt.). UTAH - Aedes dorsalis increased since recent rains in Salt Lake County. Decreased in Cache County but some annoyance continues. (Collett, Knowlton). IDAHO - Aedes sp. unusually abundant and biting voraciously in sandy areas southwest of Shoshone, Lincoln County. (Barr, Sept. 17).

A LOUSE FLY (Lipoptena mazamae) - OKLAHOMA - Adults abundant in areas frequented by deer in Cherokee County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Nymphs and larvae still heavy on deer in Cherokee County. (Okla. Coop. Sur.).

#### BENEFICIAL INSECTS

GREEN LACEWINGS (Chrysopa spp.) - ARIZONA - Heavy on milo in Cochise County. (Ariz. Coop. Sur.).

EUROPEAN MANTID (Mantis religiosa) - MASSACHUSETTS - Adults numerous in Hampshire County; egg laying begun. (Jensen).

A CINNABAR MOTH (Tyria jacobaeae) - CALIFORNIA - Two per leaf in stand of tansy ragwort (Senecio jacobaeae) at Fort Bragg, Mendocino County. (Cal. Coop. Rpt.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CHAFER (Amphimallon majalis) - Results of 1970 survey showed extensions of known infested areas in Massachusetts, New York, and Pennsylvania. No new county records established. Significant negative findings from New Jersey and Rhode Island. Over 11,000 acres of infested land treated over 9-year period in New Jersey. An infestation in Rhode Island found and treated in 1969. (PPD).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - More than 500 adults, mostly males, in light trap in one week one mile west of Lynden, Whatcom County. Adult activity peaked third week in September although adults still plentiful from Birch Bay to Blaine. (Nonini, PPD).

GIANT AFRICAN SNAIL (Achatina fulica) - FLORIDA - Survey September 17-24 of 22 infested properties in Dade County revealed 98 dead and no live snails. First time since start of survey no live snails found. Weekly baits continuing with thirty-third treatment completed September 22. (PPD).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Seven moths in trap in Shade Township, Somerset County. Collected by W.R. Kline, August 28. Determined by E.L. Todd. This is a new county record. (PPD).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Total of 13 native flies trapped in San Ysidro and San Diego area since July 7. Release of sterile flies in area began September 23. Release of 12,000-15,000 sterile flies planned each week. (PPD).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Fourth fly trapped September 18 at Garden Grove, Orange County. (PPD).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Release of 5,965,234 sterile moths September 17-24 at Bakersfield, Kent County; total to date 54,932,556. ARIZONA - Release of 67,500 sterile moths at Redington, Pima County; total to date 1,349,800. Infested 9 cotton bolls for total of 18 to date. Field now has 1.8 percent infestation. Catch of 7 native and 4 sterile moths in field for 34 native and 231 sterile moths to date. (PPD). Crop loss of 5-10 percent in Pima County. Cool nights promoting larval diapause. Infested top crop of all cotton at Safford, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Very light in bolls in Chaves County. No larvae in 14 of 15 fields; infestation 4 percent in other field. (Mathews).

SOYBEAN CYST NEMATODE (Heterodera glycines) - Cysts collected on farms for new county records. Determined by A.M. Golden. ARKANSAS - In Drew County by B.F. Goolsby September 11. MISSISSIPPI - In Tippah County by Wilson and Worley September 16. (PPD).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Following are new county records. All adults light on aster on roadsides except as noted. All determined by R.E. Warner. NORTH CAROLINA - G. leucoloma striatus collected at Columbus, Polk County, by T.N. Hunt September 14; also on ragweed. Same species at Mocksville, Davie County, by C.D. Bowers September 15. G. leucoloma fecundus at Rutherfordton, Rutherford County, by T.N. Hunt September 15, and in Durham County, by A.S. Elder September 22. G. leucoloma striatus in Chatham County by A.S. Elder September 22. KENTUCKY - G. leucoloma striatus only on goldenrod at Bowling Green, Warren County, by G. T. Berrien September 17. ARKANSAS - G. leucoloma striatus only on weeds in alley at Black Rock, Lawrence County, September 15. Same species at Datto, Clay County, September 24; both collected by J.H. White. (PPD).

HAWAII INSECT REPORT

New State Records - Specimen of an ICHNEUMON WASP (Xanthopimpla punctata (Fabricius)) collected at Honolulu, Oahu, by R. Kobayashi in December 1969. Determined by R.W. Carlson. Second specimen collected by E. Shiroma at Wahiawa, Oahu, during same period. X. punctata is a widely distributed Asiatic species known from Afghanistan, through India, Ceylon, China, Indonesia, Malaysia, Mauritius, Philippines, Japan, Ryukyu Islands, and Taiwan. Principally parasitic on pyralid and tortricid moth borers, including Chilo suppressalis (Asiatic rice borer), Maruca testulalis (bean pod borer), and Anomis flava (hibiscus caterpillar). (Beardsley). X. punctata is a new Western Hemisphere record. (PPD).

First specimen of an ICHNEUMON WASP (Pachysomoides stupidus) collected at Honolulu, Oahu, by G. Smith May 11, 1970. Second specimen in student collection. Third specimen collected live on car window at Honolulu by J. Beardsley. Parasitizes larvae of Polistes wasps. Identified by R.W. Carlson. (Beardsley). Adults of a SKIPPER (Hylephila phylaeus) collected on Bermuda grass at Salt Lake, Oahu, and submitted September 8, 1970, by G. Komatsu. Serious pest of lawn grasses, possibly preferring Bermuda grass and bentgrass. First record of the Family Hesperidae in Hawaii. Identified by G. Funasaki; confirmed by W. Bauer. (Kawamura).

Ornamentals - MANGO FLOWER BEETLE (Protaetia fusca) adults light, one per 4 flower stems, on flowers and buds in 0.25 acre of commercial tuberose. Heavy, as many as 3 adults per ear, in adjacent small planting of corn. (Kawamura).

Forest and Shade Trees - MONKEYPOD MOTH (Polydesma umbricola) and a NOCTUID MOTH (Melipotis indomita) in larval ratio of 2:3 on monkeypod trees along boulevard at Honolulu. (Kawamura).

Beneficial Insects - MELASTOMA BORER (Selca brunella) moderate to heavy on flowers and fruits of Indian rhododendron (Melastoma malabathricum) at Keaukaha, Komohana, and Waiakea, Hawaii. Infested 12-79 (average 41) percent of 100 fruits and flower buds. (Yoshioka).

Miscellaneous Insects - Adults of a GRASSHOPPER (Oedaleus abruptus) on dirt road at Salt Lake. Nymphs and adults abundant in most dry, grassy areas throughout Hickam Air Force Base, Oahu. (Au, Olson).



## DETECTION

New Western Hemisphere Record - An ICHNEUMON WASP (Xanthopimpla punctata (Fabricius)) HAWAII - Oahu Island (p. 704).

New State Records - An ICHNEUMON WASP (Pachysomoides stupidus) HAWAII - Oahu Island (p. 704). A SEED BEETLE (Amblycerus robiniae) CALIFORNIA - Sacramento County (p. 701). A SKIPPER (Hylephila phylaeus) HAWAII - Oahu Island (p. 704).

New County Records - ASPARAGUS APHID (Brachycolus asparagi) PENNSYLVANIA - Montgomery (p. 699). FACE FLY (Musca autumnalis) MARYLAND - Worcester (p. 702). GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Somerset (p. 703). A MEALYBUG (Spilococcus implicatus) CALIFORNIA - Mendocino (p. 700). A PSYCHID MOTH (Apterona crenulella) OREGON - Baker (p. 700). SOYBEAN CYST NEMATODE (Heterodera glycines) ARKANSAS - Drew; MISSISSIPPI - Tippah (p. 703). WESTERN BEAN CUTWORM (Loxagrotis albicosta) NEBRASKA - Holt (p. 695). WHITE-FRINGED BEETLES (Graphognathus spp.) - G. leucoloma fecundus in NORTH CAROLINA - Durham, Rutherford; G. leucoloma striatus in ARKANSAS - Clay, Lawrence, KENTUCKY - Warren, NORTH CAROLINA - Chatham, Davie, Polk (p. 703). WHITE-PINE SAWFLY (Neodiprion pinetum) WEST VIRGINIA - Barbour, Preston (p. 701).

## CORRECTIONS

CEIR 20(39):687 - BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Damaged lettuce plantings ... should read Ruined 12 acres of experimental lettuce plantings ... (Ariz. Coop. Sur.).

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Weather of the week continued from page 694.

Another cold front, which pushed into the northern Rocky Mountains and northern Great Plains shortly after midweek brought autumn weather to those areas. Temperatures in Wyoming Thursday afternoon ranged from 39° at Lander to 58° at Cheyenne. Thursday's maximums over the northern Great Plains ranged from the 50's near the international boundary to the 60's in northern Nebraska and Iowa. As this front advanced southeastward, cool autumn weather replaced summer heat. Much of the East was 20° or more cooler Sunday afternoon than on Saturday. Temperatures averaged slightly above normal along the Pacific coast. Inland portions of Washington, Oregon, and California and eastward to a line from northwestern Wisconsin to southeastern Texas averaged cooler than normal. Much of the Great Basin, the central Rocky Mountains, and the western edge of the Great Plains averaged from 9° to 11° colder than normal. Most areas from the northern and middle Atlantic coast averaged 6° to 15° warmer than normal. (Summary supplied by Environmental Data Service, ESSA.)









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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

To facilitate mailroom handling, all reports, inquiries, and other matters pertaining to this release, including the mailing list, should be sent to:

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Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

EUROPEAN CORN BORER larvae heavy in experimental corn plots, expect extensive cob droppage in South Dakota. Heavier than usual in ears of sweet corn in Wisconsin and damaging tassels in South Carolina. (p. 709).

VARIABLE OAK LEAF CATERPILLAR defoliating oak in southern Missouri. (p. 712).

HORN FLY heavy on cattle in Nebraska and Oklahoma. (p. 713).

A SUBTERRANEAN TERMITE damaged rolled newsprint in Colorado. (p. 714).

#### Detection

New State records include a CONIFER APHID from Maryland and a MEGALOPYGID MOTH from South Carolina. (p. 712).

For new county records see page 715.

Reports in this issue are for week ending October 2 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING OCTOBER 5

HIGHLIGHTS: Last week was notable for an abundance of bright sunshine, pleasant temperatures, and the absence of storms.

PRECIPITATION: For the Nation as a whole, the past week has been one of the driest in many months. Except for a few light to moderate showers in the Atlantic Coastal States early in the week, precipitation was mostly light and widely scattered. A few flakes of wet snow mixed with rain fell in some higher elevations in southern New York late Tuesday night and dense fog covered central and southern Maine early Friday morning. Brief scattered showers and thunderstorms interrupted the fine weather in southern Florida Friday and early Saturday. Rains also fell late in the week from southern California to western Texas. Tucson, Arizona, received over an inch of rain in one hour late Friday evening. The total rain for the week at Tucson, 1.73 inches, is more than 2.5 times the September normal. The rains in the Southwest helped bring the brush fires under control. The week-end brought light snow flurries to northeastern Minnesota and Upper Michigan; heavy thunderstorms, some with hail, to New England; and thundery weather to the Southwest and to the lower Rio Grande Valley. A large area from Oregon and California (except the extreme south) to the central and southern Appalachians and from the Canadian border to the Gulf of Mexico received no rain during the week.

TEMPERATURE: Bright sunshine and unusually pleasant autumn temperatures prevailed over most of the Nation last week. Afternoon temperatures reached the 80's from the northern Great Plains to Texas and eastward to the Florida Peninsula on Wednesday afternoon. Cooler weather prevailed over the Northeast in sharp contrast to that of the previous week. On Monday morning, September 28, subfreezing temperatures occurred over northern Minnesota, western Wisconsin, and Upper Michigan. Temperatures dropped below freezing several mornings in parts of the Great Basin and the northern and central Rocky Mountains. Elsewhere minimums ranged from the 40's in the North to the 50's and 60's in the South. In general, temperatures averaged above normal from the Pacific Ocean to northern and central Great Plains and below normal over the rest of the Nation. (Summary supplied by Environmental Data Service, ESSA).

Weather continued on page 716.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - NEW HAMPSHIRE - First adult of season in black-light trap at Lee, Strafford County, September 20. (Blickle). ARIZONA - Heavy in late-planted sweet corn at Safford, Graham County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Averaging 100 per 100 sweeps in few fields at Goodyear, Maricopa County. (Ariz. Coop. Sur.).

### CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - OKLAHOMA - Adults of D. virgifera (western corn rootworm) and D. undecimpunctata howardi (southern corn rootworm) remain common in irrigated corn in Texas and Cimarron Counties. (Okla. Coop. Sur.). MINNESOTA - Surveyed 54 counties in August and populations increased 128 percent. Adults of D. virgifera (western corn rootworm) increased in southwest, south-central, southeast, and central districts and remained about same in west-central district. Now dominant in southwest, south-central, and west-central districts. D. longicornis (northern corn rootworm) dominant in southeast, central, and east-central districts. Survey showed corn rootworm problems remain in fields where corn follows corn. Infestations 97.4 percent in fields that had been in corn 2 or more years; and 2.6 percent in first year cornfields. Percent lodged plants increased in all districts surveyed; ranged 2.11 to 9.81. (Minn. Pest Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW HAMPSHIRE - Survey indicates second brood survival unusually heavy. Infestation 100 percent in 10 acres of commercial sweet corn at Litchfield, Hillsborough County, September 20-24. (Blickle). WISCONSIN - Larvae heavier than normal in ears of late sweet corn. (Wis. Ins. Sur.). SOUTH DAKOTA - Very heavy in experimental corn plots in Clay County. Larvae averaged 550 per 100 stalks; up to 16 in individual stalks. Extensive cob droppage expected. (Jones). KANSAS - Evidence indicates few third-generation larvae near maturity in late-planted corn in some counties of north-east, north-central, and east-central crop reporting districts. Most bored into stalks but still many half-grown larvae found feeding at bases of leaf sheaths and shucks. (Bell). SOUTH CAROLINA - Very damaging to tassels of fall sweet corn in Marion, Florence, and Williamsburg Counties. (Thomas, Sept. 30).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARIZONA - Twenty percent of late-planted milo treated in Pima County. (Ariz. Coop. Sur., Sept. 25). NEW MEXICO - Heavy on corn in Luna and Dona Ana Counties. (Riddle). OKLAHOMA - In 2 untreated cornfields in Cimarron County 3 percent of stalks lodged. Larvae moved into roots. (Okla. Coop. Sur.).

SORGHUM WEBWORM (Celama sorghiella) - ARKANSAS - Counts of 100+ per row foot in heads of late silage sorghum in Lee County field. Treatments planned. (Kimbrough).

FALL ARMYWORM (Spodoptera frugiperda) - KANSAS - Small to three-fourth grown larvae averaged 0.6 per stalk in one field of very late corn in Riley County. Feeding on ears, shucks, and leaf sheath bases. (Bell).

CHINCH BUG (Blissus leucopterus) - KANSAS - Adults averaged 25 per plant along with occasional late instar nymphs found behind leaf sheaths and shucks in one field of grassy upland corn in south-central Cloud County. (Bell).

### SMALL GRAINS

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Surveyed 80 hard red spring wheat stubble fields in 10 counties. Cut stems ranged 0-9.3 (averaged 0.8) percent, a 0.1 percent decrease from 1969, in all counties surveyed. Infested fields ranged 20-83 (averaged 52) percent, a decrease from 63 percent found in 1969. Decrease in cutting attributed to late seeding of wheat. (Brandvik).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Heavy in 80 acres of young barley in Cotton County. Controls planned. (Okla. Coop. Sur.).

#### TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - SOUTH CAROLINA - Majority of moths in flight at Clemson, Union, Spartanburg, Greenville, and other upper Piedmont localities. (Nettles, Sept. 30). ALABAMA - Damaged several hundred acres of Coastal Bermuda grass and other grass hay crops in Jefferson, Chambers, Butler, Covington, Barbour, and Clarke Counties. Few infestations noted in mixed grass permanent pastures in Jefferson County. (Johns et al., Sept. 25).

#### FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae 130 per 100 sweeps in alfalfa field at Blaisdell, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Adults light to heavy on alfalfa in Chaves and Eddy Counties. Larvae averaged 2-8 per 25 sweeps. (Mathews). UTAH - Larvae averaged 0.8 per 10 sweeps in Salt Lake County alfalfa. (Knowlton).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 320 per 100 sweeps in alfalfa field in Yuma Valley, Yuma County; averaged 50 per 100 sweeps in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Heavy on alfalfa in Craig County. (Okla. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Averaged 30 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEBRASKA - Averaged 5 per sweep in fields near Palmyra, Otoe County. (Beland, Stevens).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - D. virgifera (western corn rootworm) and D. longicornis (northern corn rootworm) adults continue to be active, particularly in alfalfa. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Average per 100 sweeps of alfalfa: 480 at Blaisdell, Yuma County; 1,000 in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - MISSISSIPPI - Larvae averaged 5 per 2 row feet in 8 Oktibbeha County fields. (Sartor). FLORIDA - Larval populations reduced to near zero, primarily by fungus, Spicaria rileyi, at Quincy, Gadsden County. Treated commercial soybeans in good condition; untreated fields reduced to stalks in Gadsden and Jackson Counties. (Greene).

SOYBEAN LOOPER (Pseudoplusia includens) - OKLAHOMA - Defoliated soybeans in Chickasha area of Grady County. (Okla. Coop. Sur.). ARKANSAS - High populations of this and Trichoplusia ni (cabbage looper) declined in Jefferson County. Heavy infestations limited to few localized areas, but a few thousand acres partly to fully defoliated. P. includens probably responsible for most heavy defoliation. Soybean looper less effectively controlled by disease than cabbage looper. Prospective yields expected to be reduced. No treatments applied. (Schroeder, Boyer). MISSISSIPPI - Larvae averaged less than 1 per 2 row feet in 8 Oktibbeha County fields. (Sartor).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Much damage found near Hartsville, Darlington County. (Nettles, Sept. 30).

BROWN STINK BUG (Euschistus servus) - ALABAMA - This species and Nezara viridula (southern green stink bug) developed to damaging numbers in several soybean fields in Covington County. (Linder).

GREEN STINK BUG (Acrosternum hilare) - MISSISSIPPI - Adults averaged less than 1 per 2 row feet in 8 Oktibbeha County fields. (Sartor).

STRIPED BLISTER BEETLE (Epicauta vittata) - MISSISSIPPI - Adult damage heavy to several Oktibbeha County fields. (Sartor).

#### COTTON

BOLLWORMS (Heliothis spp.) - OKLAHOMA - H. zea heavy in Bryan County, and moderate to heavy in Marshall County. Larval collections continue to average 50 percent H. virescens (tobacco budworm) in Chickasha area of Grady County. (Okla. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Larval damage heavy to 200 acres of cotton at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

SOYBEAN LOOPER (Pseudoplusia includens) - OKLAHOMA - Defoliated cotton in scattered fields in Grady County. (Okla. Coop. Sur.).

A PLANT BUG (Neurocolpus nubilus) - ALABAMA - Adults collected from blooms and squares in large field in Colbert County August 18. Adults about one per 10 row feet with most noticeable damage to blooms. First report of this plant bug in cotton in Alabama, although it may have previously occurred. Determined by J.L. Herring. (McQueen, Sept. 25).

#### SUGAR BEETS

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 4 per plant on about 260 acres of sugar beets at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - CALIFORNIA - Adults 3 per sweep of tomatillo plants in 10-acre planting at Fontana, San Bernardino County. (Cal. Coop. Rpt.).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Hatch heavy on lettuce in Dona Ana and Luna Counties. Treatments frequent. (N.M. Coop. Rpt.). ARIZONA - Averaging 4 eggs per lettuce plant. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - One egg mass per 10 lettuce plants in 4 Maricopa County fields. Majority of fields dusted or sprayed. (Ariz. Coop. Sur.).

GARDEN SYMPHYLAN (Scutigera immaculata) - OREGON - Severely damaged 4-acre nursery planting of asparagus at Keizer area, Marion County. Loss of marketable plants estimated at about 25 percent. Symphylans very abundant 21 days ago. (Penrose).

## DECIDUOUS FRUITS AND NUTS

ORIENTAL FRUIT MOTH (Grapholitha molesta) - COLORADO - Adults up to 3 per trap in Mesa County; as high as 27 per trap west of Palisade. Fruit damage up to 3 percent; as high as 30 percent west of Palisade. Integrated biological and spray program apparently very effective. (Sisson, Anderson).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Larval damage ranged 15-20 percent in poorly sprayed orchards in Mesa County. (Sisson, Anderson).

A TORTRICID MOTH (Platynota idaeusalis) - PENNSYLVANIA - Injury evident on various apple varieties in Adams and Franklin Counties. Collected on apple by D. Asquith and R.B. Colburn, July 10. Determined by R.W. Hodges. (Asquith).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - DELAWARE - Severe enough in Kent County apple orchard to appear on calyx end of harvested fruit. (Burbutis et al.).

PECAN WEEVIL (Curculio caryae) - NEW MEXICO - Two adults trapped week ending August 28 on property at Tularosa, Otero County, where infested nuts found in December 1969. Nuts from trees infested in 1969 and from adjoining trees to be burned before larvae emerge. All surveys at Tularosa and Alamogordo, Otero County, negative since mid-September. Sprays in infested area applied every 7 days. (N.M. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Heavy and widespread in pecan trees in Dallas, Elmore, and Montgomery Counties. (Alsobrook et al.).

WALNUT CATERPILLAR (Datana integerrima) - ARKANSAS - Completely defoliated many pecan trees in Ashley County. No controls due to "off year" for pecans and very few nuts. (Ferguson, Boyer).

BLACK PECAN APHID (Myzocallis caryaefoliae) - ALABAMA - This species, Monellia spp., and mites still heavy on thousands of unsprayed pecan trees. Damage along with physical and nutritional conditions of unknown causes continues in south and central areas. Premature leaf drop in many areas past 7-21 days. Suspect black pecan aphid major cause. (Kirkpatrick et al.).

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Moderate on black and English walnuts at Salt Lake City, Salt Lake County. (Knowlton).

## ORNAMENTALS

A MEALYBUG (Pseudococcus microcirculus) - CALIFORNIA - Infested orchids in orchid house at San Bernardino, San Bernardino County. Under treatment. (Cal. Coop. Rpt.).

## FOREST AND SHADE TREES

A CONIFER APHID (Cinara palmerae) - MARYLAND - Collected on blue spruce at College Park, Prince Georges County, by D. Shriver, June 10, 1970. Determined by L.M. Russell. This is a new State record. (U. Md., Ent. Dept.).

A MEGALOPYGID MOTH (Norape ovina) - SOUTH CAROLINA - Larvae collected from red-bud at York, York County, by J.D. Williams, September 2, 1970. Determined by R.C. Fox. This is a new State record. (Nettles).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - MISSOURI - Still defoliating oak throughout southern areas. Seriously defoliated several hundred acres of oak in Iron County. (Kearby, Gass).

ELM LEAF BEETLE (Pyrhalta luteola) - IOWA - Specimens collected in house September 9 at Moorhead, Monona County, for a new county record. (Iowa Ins. Sur.).

TWIG GIRDLER (Oncideres cingulata) - ARKANSAS - First girdling of season in Washington County. Girdled hickory limbs on ground. (Boyer).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - NEVADA - Heavy on cottonwood and willow at Elko, Elko County. (Peters).

PAINTED MAPLE APHID (Drepanaphis acerifoliae) - ARKANSAS - First infestations of fall season on maple in Washington County. (Boyer).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. September 27 to October 3 as follows: NEW MEXICO - Luna 1. Total of 195 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico September 20-26 as follows: Sonora 97, Chihuahua 87, Coahuila 1, Nuevo Leon 4, Tamaulipas 6. Total of 136 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 44,868,000; New Mexico 6,600,000; Arizona 7,350,000; Mexico 78,176,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 400-600 per head on cattle checked in Payne, Noble, and Cimarron Counties. Heavy in Cotton and Marshall Counties. Moderate in Craig County. NEBRASKA - Ranged 400-500 per animal on 3 untreated range herds in Keith County and on 5 river bottom and canyon herds in Lincoln County week of September 25; currently 400 per animal on untreated herds near North Platte, Lincoln County. (Campbell). FLORIDA - Adults averaged 150 per animal at Ona, Hardee County. (Butler).

FACE FLY (Musca autumnalis) - NEBRASKA - Some light hibernation activity in Lancaster County, but no large numbers at wintering sites yet. (Jones). Ranged 1-2 per animal on range herds at North Platte, Lincoln County. (Campbell). NORTH DAKOTA - Adults averaged less than one per beef cattle in Divide and Williams Counties. These are new county records. (Brandvik). Now statewide. (PPD).

MOSQUITOES - CALIFORNIA - Increased noticeably in Sacramento and upper San Joaquin Valleys due to rice harvest. Many complaints from cities as influx of mosquitoes increases. Unusually warm days and nights favored pest. (Cal. Coop. Rpt.). WASHINGTON - Aedes dorsalis adults heavy in orchard and golf course September 19 at Rock Island, Douglas County. Apple pickers quit because of severity of attack. (Rushmore, Retan).

CATTLE TAIL LOUSE (Haematopinus quadripertusus) - FLORIDA - Adults averaged 10, eggs 100, per tail on untreated cattle at Ona, Hardee County. (Butler).

A VESPID WASP (Vespula pensylvanica) - CALIFORNIA - Primarily this wasp continues nuisance and menace in many areas. Higher elevations now support greater numbers. Adults 50-2,500 per control trap. (Cal. Coop. Rpt.). OREGON - V. pensylvanica still troublesome at Medford, Jackson County. Special traps placed at various localities to help alleviate problem. (Berry).

PULICID FLEAS (Ctenocephalides spp.) - CALIFORNIA - Mass numbers of C. felis (cat flea) and C. canis (dog flea) invaded yards and residences; complaints numerous. Stray cats responsible for majority of fleas, but dog fleas more evident this fall than in past. (Cal. Coop. Rpt.).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEVADA - Above normal populations and numbers of dogs infested at Las Vegas, Clark County. (Zoller).

TICK SURVEILLANCE - Survey throughout the U.S. and Puerto Rico is to show seasonal distribution of potential vectors and hosts of livestock diseases, and to detect exotic species. Some of the more interesting determinations for September were as follows: Boophilus spp. (cattle fever ticks) TEXAS - bovine. Octobius megnini (ear tick) OREGON - canine, bovine; WASHINGTON - canine; OKLAHOMA - bovine;

HAWAII - bovine; COLORADO - bovine, canine. Amblyomma cajennense (Cayenne tick)  
TEXAS - bovine. Anocentor nitens (tropical horse tick) PUERTO RICO - bovine;  
TEXAS - horse. (Anim. Health Div.).

BLACK WIDOW SPIDER (Latrodectus mactans) - IDAHO - Concern by homeowners as fall migration into homes continues at Fort Hall, Bingham County, September 25. (Kunkel).

#### HOUSEHOLDS AND STRUCTURES

HIDE BEETLE (Dermestes maculatus) - CALIFORNIA - Larvae 12 per square yard in wooden building at Escondido, San Diego County. (Cal. Coop. Rpt.).

#### STORED PRODUCTS

A SUBTERRANEAN TERMITE (Reticulitermes tibialis) - COLORADO - Damaged \$5,000+ of rolled newsprint in storage at Denver, Denver County. Controls applied. Determined by F.W. Lechleitner. (Thatcher).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Heavy in stored grain in Texas County. (Okla. Coop. Sur.).

#### BENEFICIAL INSECTS

A PUNCTURE-VINE SEED WEEVIL (Microlarinus lareynii) - ARIZONA - Larvae infested all seed of puncture-vine examined in area of Casa Grande, Pinal County. (Ariz. Coop. Sur., Sept. 23).

LADY BEETLES - NEBRASKA - Very abundant in sweetclover fields in Otoe County, averaged about 3 per sweep; almost all adults. (Beland, Stevens).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - One adult male collected in home on Lummi Island, Whatcom County. This is first record on Lummi Island. (PPD, Holland).

GRASSHOPPERS - ARIZONA - Melanoplus sp. 70 per 100 sweeps in Gila Valley field, Yuma County. (Ariz. Coop. Sur.). KANSAS - Grasshoppers severely damaged early wheat along borders of some fields in northwest Finney County. (Maddux).

JAPANESE BEETLE (Popillia japonica) - ILLINOIS - Adult trapped at South Beloit, Winnebago County. Collected by R. Johnson August 7. Determined by R.D. Gordon. This is a new county record. (PPD).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Two males trapped at Lakewood and East Long Beach, Los Angeles County, September 30. Areas 1.5 miles apart and 4 miles from previous Los Alamitos collection in Orange County. New area within 20-traps-per-square-mile area associated with Orange County finds. This makes total of 6 flies trapped in State during this episode. Larval checks negative and trapping in new area immediately stepped up to eradication levels. Source of flies not established. (Cal. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Larvae 2 per hibiscus plant at Winterhaven, Imperial County. (Cal. Coop. Rpt.). Release of 4,240,084 sterile moths September 25 to October 1 at Bakersfield, Kern County; total to date 59,172,640. ARIZONA - Release of 67,500 sterile moths at Redington, Pima County; total to date 1,417,300. Infested in Redington field, 95 of 500 bolls for 19 percent infestation, increased from 1.9 percent 7 days ago. A 41 percent infestation found in field at Monmouth about 25 miles north; 17 percent field infestation at Pomerene about 30 miles south. Five native and four sterile moths trapped in Redington field for respective season totals of 39 and 235. (PPD).

Infestations widely scattered in Salt River Valley. Few growers still irrigating in Maricopa, Pima, and Yuma Counties. Cotton in many areas defoliated, but in many cases second treatment required. Some farmers at Blaisdell, Yuma County, picked cotton and plowing fields. (Ariz. Coop. Sur.). NEW MEXICO - Adults 102 in 10 hexalure traps in southern Eddy County. Infested 32 percent of bolls. (Mathews).

A WHITE-FRINGED BEETLE (Graphognathus peregrinus)-TEXAS - Adults collected at Jasper, Jasper County, by I.O. Ochoa September 29. Determined by V.H. Owens, confirmed by R.E. Warner. This is a new county record. (PPD).

#### HAWAII INSECT REPORT

Turf and Pastures - Larvae and pupae of a GRASS WEBWORM (Herpetogramma licarsisalis) trace, averaged 0.5 per square foot, in 5 acres of Kikuyu grass at Haiku, Maui. Trichogramma semifumatum (a minute egg parasite) parasitized 87 percent of 46 webworm eggs. Averaged 10 adults per sweep of Kikuyu grass at Mililani Memorial Park, Oahu. A parasitic TACHINA FLY (Eucelatoria armigera) abundant; as many as 20 adults per sweep. (Ah Sam et al.).

General Vegetables - SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults trace in backyard planting of long beans at Ewa, Oahu; heavy, 27 nymphs on one bush. Nymphs and adults moderate in small backyard planting of lima beans at Haiku; eggs of a parasitic TACHINA FLY (Trichopoda sp.) on some adults. (Ah Sam et al.). Larval mines of LEAF MINER FLIES (Liriomyza spp.) heavy in older leaves in 4 acres of watermelon at Waimanalo, Oahu; adults as many as 12, averaged 4 per leaf. Mines moderate in older leaves in 1.5 acres of tomato at Waianae, Oahu; adults 1 per 2 leaves, as many as 6 per leaf. (Kawamura). Larval mines of BEAN FLY (Melanagromyza phaseoli) heavy, adults moderate, average 5-6 per young seedling in small backyard planting of snap beans at Makawao, Maui. Adults trace in backyard snap bean planting at Haiku. Adults and larval mines light in small unsprayed snap bean planting at Waianae; severely damaged 80 percent of soybean seedlings. (Miyahira, Kawamura).

Fruits - ORIENTAL FRUIT FLY (Dacus dorsalis) adults heavy in 5 acres of avocado, grapefruit, and pummelo at Lihue, Kauai. Oviposition in fresh and fallen fruits. A parasitic BRACONID (Opius sp.) light. (Sugawa).

Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) heavy in debris at base of monkey-pod trees and under loose bark at Naalehu, Hawaii. (Yoshioka).

Beneficial Insects - Larvae of a SYRPHID FLY (Allograpta obliqua) and a brown lacewing feeding on nymphs and adults of Psylla uncatoides (a psyllid) along Mauna Loa strip road and at Kipuka Ki, Hawaii Volcanoes National Park, Hawaii, June 22, 1970. No predators of P. uncatoides previously reported in Hawaii. On August 28, larvae of a brown lacewing and a GREEN LACEWING (Anomalochrysa hepatica) in same area under same host situation. (Beardsley).

#### DETECTION

New State Records - A CONIFER APHID (Cinara palmerae) MARYLAND - Prince Georges County (p. 712). A MEGALOPYGID MOTH (Norape ovina) SOUTH CAROLINA - York County (p. 712).

New County Records - ELM LEAF BEETLE (Pyrrhalta luteola) IOWA - Monona (p. 712). FACE FLY (Musca autumnalis) NORTH DAKOTA - Divide, Williams (p. 713). JAPANESE BEETLE (Popillia japonica) ILLINOIS - Winnebago (p. 714). A WHITE-FRINGED BEETLE (Graphognathus peregrinus) TEXAS - Jasper (p. 715).











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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

To facilitate mailroom handling, all reports, inquiries, and other matters pertaining to this release, including the mailing list, should be sent to:

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**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

EUROPEAN CORN BORER fall surveys indicate higher than usual infestations in Michigan and decrease in populations in North Dakota. (p. 719).

SORGHUM MIDGE damage to sorghum heads has been more severe and widespread than usual in Alabama. (p. 719).

CABBAGE LOOPER troublesome on several crops in Oklahoma, Arizona, and Tennessee. (p. 721).

HORN FLY heavy on cattle in Oklahoma and decreased in central Maryland. (p. 723).

Detection

New State records include a MOSQUITO from Pennsylvania and a TACHINA FLY from Oregon. (p. 723).

For new county and parish records see page 725.

Special Report

Survey Methods. Selected References - 1967. Part XXXI. (pp. 727-732).

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WEATHER OF THE WEEK ENDING OCTOBER 12

HIGHLIGHTS: An early winter storm spread subfreezing weather over the Rockies and nearby areas. Snow fell as far south as the Texas Panhandle. Generous rain fell ahead of the storm and along the frontal area.

PRECIPITATION: Only meager precipitation fell early in the week. This included light rain in Washington and northwestern Oregon and scattered showers in southern New Mexico, southwestern Texas, and southern Florida. A large storm developed Tuesday over the northern Great Plains. Warm moist air streamed northward ahead of the storm setting off showers and local thunderstorms from the upper Mississippi River Valley to eastern Texas. Snow fell in the cold arctic air behind the storm, driven by strong northerly winds. By 2 p.m. Wednesday the snow at Wheatland, Wyoming, had accumulated to 12 inches. Three to 7 inches covered other parts of Wyoming. By evening, snow up to 12 inches covered the Colorado Rockies and 5- to 7-inch depths were common over Wyoming and western Nebraska. The snow pushed southward and eastward. By midnight Wednesday, moderate snow was falling as far south as Clovis, New Mexico, and Dalhart, Texas. Thursday evening and Friday morning, snow reached measurable depths at Grand Island and Lincoln, Nebraska. This was the first time either of those localities has seen more than a few flakes of snow so early in the season. About midweek a tropical depression produced torrential rains in the Caribbean and caused flooding in parts of some of the islands. At dawn Friday, 16 rivers in Puerto Rico overflowed as the result of 25-33 inches of rain in 5 consecutive days. The flooding waters destroyed or damaged hundreds of houses and numerous bridges. Early Thursday morning, heavy local downpours of from over 5 inches to almost 12 inches in 6 hours caused flash floods in Oklahoma. As the weekend approached, light rains continued in the Pacific Northwest, snow fell from western Minnesota to eastern Kansas, bright sunny weather prevailed from California to western Texas and widespread thundershowers covered the large area from the Great Lakes to the Gulf of Mexico. These showers were especially heavy in southeastern Texas and southwestern Louisiana. Beaumont, Texas, received 11.50 inches of rain Sunday. Much of the Southwest received no rain or only widely scattered sprinkles. Weather of the week continued on page 724.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrostelus fascifrons) - OKLAHOMA - Very heavy on young oats in Payne County. (Okla. Coop. Sur.). WISCONSIN - Ranged from 1 per 20 sweeps to 15 per 10 sweeps of alfalfa in southwest area. (Wis. Ins. Sur.).

CORN EARWORM (Heliothis zea) - ARIZONA - Early instars averaged 80 per 100 corn silks in Yuma Valley field, Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Moderate on Stephens County alfalfa. (Okla. Coop. Sur.). ALABAMA - Larvae of this species and Celama sorghiella (sorghum webworm) heavy on several hundred acres of late grain sorghum heads in lower Baldwin County. (Wilson). H. zea larvae nearly destroyed all pods in 30-acre soybean field in Cleburne County. (Ventress).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Very light on wheat in Curry, Roosevelt, Quay, and Chaves Counties. (Mathews).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OREGON - Light in Malheur County week of October 2. (Goeden). ARIZONA - Counts of 800 per 100 sweeps in forage legume field in Yuma Valley, Yuma County. (Ariz. Coop. Sur.). NEBRASKA - Ranged 2-282 per 100 sweeps in 12 alfalfa fields in Dawson County. (Manglitz, Stevens). WISCONSIN - Dissections show about 50 percent oviparae, some males. Predators and parasites keeping numbers light in most alfalfa. (Wis. Ins. Sur.).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Few adults still in black-light trap in Lenawee County. Fall survey underway and indications of higher than normal infestations noted. (Sauer, Oct. 5). IOWA - Caused up to 9 (averaged 3) ears per 100 row feet to drop in 9 fields in central area by October 7. (Iowa Ins. Sur.). NORTH DAKOTA - Fall survey shows decrease in populations in all 5 major grain corn producing counties in southeastern area. (Brandvik).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - KANSAS - Fall surveys completed. Average percent cornstalks infested (and girdled) by district as follows: Central 30 (12), south-central 34 (11), and southeast 23 (1.8). (Bell).

SORGHUM MIDGE (Contarinia sorghicola) - ARKANSAS - Very little insecticide applied and no insect losses to early sorghum. Pest caused light to total loss to some sorghum planted after June 1. (Boyer, Jones). ALABAMA - Damage to grain sorghum heads more widespread and severe than usual. Samples of grain heads from several counties show 10-100 percent of grain destroyed. (Carroll et al.).

### SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Early instars averaged 7 per square foot of small grain in scattered fields in Carter County. Heavy on small grain in Stephens County. Light on volunteer wheat in Ellis County. (Okla. Coop. Sur.).

### TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larval infestations reoccurring in scattered lawns and sports fields in Chilton and Henry Counties. (Futral et al.). Larvae damaging fall grazing areas of 1 to 2-acre fields of wheat and crimson clover in Cleburne County. (Ventress).

A MARCH FLY (Dilophus orbatus) - CALIFORNIA - Counts of 250 per square yard on dichondra lawns at Rialto, San Bernardino County, at Berkeley, Alameda County, and at Richmond, Contra Costa County. Many homeowners concerned about mass populations of flies entering premises. Unusually abundant this fall. (Cal. Coop. Rpt.).

A SCARAB (Phyllophaga anxia) - SOUTH DAKOTA - Larval controls applied to 60 acres of Black Hills National Forest rangeland in September. (PPD).

## FORAGE LEGUMES

NOCTUID MOTHS - IDAHO - Prodenia praefica (western yellow-striped armyworm) larval feeding heavy in 160 acres of alfalfa at Grandview, Elmore County; prohibited livestock grazing. (Hemerway, Edwards, Oct. 1). CALIFORNIA - Spodoptera exigua (beet armyworm) larvae 8 per sweep of alfalfa at Woodland, YoTo County. (Cal. Coop. Rpt.). ARIZONA - Autographa californica (alfalfa looper) larvae per 100 sweeps of alfalfa averaged 10 on Yuma Mesa and 20 in Yuma Valley. (Ariz. Coop. Sur.). OKLAHOMA - S. frugiperda (fall armyworm) heavy on Harmon and Stephens County alfalfa. Plathypena scabra (green cloverworm) heavy on Stephens County alfalfa. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae averaged 10 per 100 sweeps of alfalfa at Yuma Valley and Yuma Mesa, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Adults generally light to medium, larvae up to 6 per 25 sweeps, on alfalfa in Chaves, Eddy, and Dona Ana Counties. (N.M. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - UTAH - Recovered 2 adults from maple leaf mold (Berlese funnel) in Logan Green Canyon, Cache County, 2 miles from nearest alfalfa field. (Knowlton). NEBRASKA - One adult and one larva in 12 Dawson County fields; 100 sweeps per field. (Manglitz, Stevens).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Generally light on alfalfa in Chaves and Dona Ana Counties. (Mathews, Campbell). NEBRASKA - Ranged 2-109 per 100 sweeps in 12 Dawson County alfalfa fields. (Manglitz, Stevens). WISCONSIN - Dissections show about 50 percent oviparae. Predators and parasites controlling populations in most alfalfa. (Wis. Ins. Sur.).

## SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - ALABAMA - Early instars heavy on late soybeans in large planting in Wilcox County. Controls applied. Controls also applied in Covington County. (Martin et al.). MISSISSIPPI - Larval averages per 2 row feet as follows: 1.5 in 5 Oktibbeha County fields, 1 in Jefferson Davis County field, and 1 in 2 Leake County fields. (Sartor).

SOYBEAN LOOPER (Pseudoplusia includens) - MISSISSIPPI - Larvae averaged 1 per 2 row feet in 5 Oktibbeha County fields. (Sartor).

GREEN STINK BUG (Acrosternum hilare) - MISSISSIPPI - Adults and nymphs averaged 2 per 2 row feet in 5 Oktibbeha County fields. (Sartor).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Older and diapaused weevils continue to enter hibernation statewide. Young adults emerging in heavy numbers in all fields where suitable squares and bolls present. Some egg laying continues. (Williams). MISSISSIPPI - Adults averaged 1,218 per acre in 4 untreated fields in Jefferson Davis County. (Sartor).

COTTON LEAFWORM (Alabama argillacea) - ARKANSAS - Very heavy, larvae 20+ per row foot on cotton in Clay County. Infestation not economic. Infestations rare. (Boyer, Jones).

## POTATOES, TOMATOES, PEPPERS

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - COLORADO - Caused severe wilting of tomato plants in greenhouse at Canon City, Fremont County. Controls used. (Hantsbarger).

## BEANS AND PEAS

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Light to moderate damage to 70 acres of commercial snap beans in Tulsa County. Controls ineffective. (Okla. Coop. Sur.).

## COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - TENNESSEE - Damaged commercial greens on Cumberland Ridge and in eastern area. (Mullett).

## GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Larvae decreased on lettuce in Dona Ana County. Adults decreased with cooler temperatures. (N.M. Coop. Rpt.). ARIZONA - Major pest in complex including Spodoptera exigua (beet armyworm) and Prodenia ornithogalli (yellow-striped armyworm) in several lettuce fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

BROWN GARDEN SNAIL (Helix aspersa) - OREGON - Becoming increasingly abundant at Empire, Coos County. (Keir).

## DECIDUOUS FRUITS AND NUTS

APPLE MAGGOT (Rhagoletis pomonella) - RHODE ISLAND - Caused much damage in poorly protected apple orchard in Providence County. (Field).

PEAR PSYLLA (Psylla pyricola) - RHODE ISLAND - Damaged pears in Providence County. (Field).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Larvae heavy on pecan trees in west-central area. Heavy in Dallas and Montgomery Counties. (Miller et al.).

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Still heavy on pecans in scattered areas of Payne County. Three different instars present. (Okla. Coop. Sur.).

TWIG GIRDLER (Oncideres cingulata) - WEST VIRGINIA - Damage moderate to heavy on hickory and English walnut in southern Wayne and Cabell Counties September 24. (Lilly).

APHIDS - ALABAMA - Myzocallis caryaefoliae (black pecan aphid), Monellia spp., and mites still defoliating pecan trees in major pecan belt. (McQueen et al.). ARIZONA - Monellia costalis (black-margined aphid) heavy in pecan grove in residential area of Yuma, Yuma County. Honeydew a nuisance. (Ariz. Coop. Sur.).

## CITRUS

BEE TERN ARMYWORM (Spodoptera exigua) - ARIZONA - Nursery treated to protect new growth at Yuma, Yuma County. (Ariz. Coop. Sur.).

## SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Heavy in grape vineyards at Litchfield, Maricopa County. (Ariz. Coop. Sur.).

GRAPE LEAF FOLDER (Desmia funeralis) - CALIFORNIA - Larvae of this pest and Platynota stultana (a leaf roller moth) medium on grapevines at Clovis, Fresno County. (Cal. Coop. Rpt.).

## ORNAMENTALS

HOLLYHOCK WEEVIL (Apion longirostre) - MISSOURI - Collected during 1970 in Jasper, Lawrence, Stone, and Christian Counties by J.E. Francka. These are new county records. (Munson).

A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) - SOUTH CAROLINA - Collected in Barnwell and Richland Counties for new county records. (Nettles, Oct. 7).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Occurrence and damage throughout State on shrubs and trees more widespread than in most years. Pupated throughout north area. Mating completed. Egg cases filled with eggs for overwintering. (Kauskolekas et al.).

EUONYMUS SCALE (Unaspis euonymi) - NEW MEXICO - Heavy on euonymus at Albuquerque, Bernalillo County. (N.M. Coop. Rpt.).

BROWN GARDEN SNAIL (Helix aspersa) - LOUISIANA - Adults collected from roses in nursery at Metairie, Jefferson Parish, by Harris and Mayeux July 30, 1969. Determined by W.J. Byas. This is a new parish record. (PPD).

## FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MISSOURI - Adults reared from larvae and pupae collected in Lincoln, Warren, St. Charles, Dallas, Barton, Jasper, and Vernon Counties. These are new county records. (Kearby).

WHITE-PINE WEEVIL (Pissodes strobi) - MASSACHUSETTS - Larvae severely damaged spruce terminals in Hampden County. (Jensen, Oct. 2).

ROUNDHEADED PINE BEETLE (Dendroctonus adjunctus) - NEVADA - Fall flight underway in Spring Mountains, Clark County. (Long).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - WEST VIRGINIA - Larvae defoliated 80-90 percent of 2 Virginia pines in Marion County by October 1. Larvae defoliated 10 percent of 5 acres of Virginia pine in Putnam County. (Miller). TENNESSEE - Heavy on few isolated pines at Nashville, Davidson County. (Bogard).

EASTERN SPRUCE GALL APHID (Adelges abietis) - MASSACHUSETTS - Very severe on white spruce in Hampden County. (Jensen, Oct. 2).

OAK SKELETONIZER (Bucculatrix ainsliella) - MASSACHUSETTS - More severe statewide than in many years. (Garland).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Moderately defoliated oak at Rattan, Pushmataha County. On ornamental oaks in southern Tulsa County and at Shawnee, Pottawatomie County. (Okla. Coop. Sur.).

ELM SPANWORM (Ennomos subsignarius) - CONNECTICUT - Egg counts of 1,000-1,500 per tree not uncommon at Wolcott, New Haven County, and Bristol, Hartford County. (Doane).

TWIG GIRDLER (Oncideres cingulata) - OKLAHOMA - Very heavy on shade trees in Washita County. Heavy damage on elms and on birch tree in Payne County. (Okla. Coop. Sur.).

BOXELDER BUG (Leptocoris trivittatus) - OKLAHOMA - Heavy on goldenrain-trees in Mayes County. (Okla. Coop. Sur.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. October 4-10 in Luna County, NEW MEXICO. Total of 178 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 80, Chihuahua 91, Coahuila 1, Nuevo Leon 3, Tamaulipas 3. Total of 46 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 36,698,000; New Mexico 6,620,000; Arizona 6,620,000; Mexico 87,660,000. (Anim. Health Div.).

A MOSQUITO (Culex tarsalis) - PENNSYLVANIA - Larva collected from pool in drainage ditchbed near Marsh Run, New Cumberland Army Depot, Cumberland County. Collected by C.G. Briet September 2, 1970. Determined by F.C. Thompson; confirmed by A. Stone. This is a new State record. (First Army Med. Lab., Ent. Div.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 1,000 per head of cattle checked in Major County. Heavy in Mayes and Marshall Counties. (Okla. Coop. Sur.). MARYLAND - Decreased quickly in central counties. Ranged 10-30 per head in most heavily infested herds in Frederick, Montgomery, and Carroll Counties. (U. Md., Ent. Dept.).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Adults annoying along waterfront in Wicomico, Worcester, and Somerset Counties. (U. Md., Ent. Dept.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - TENNESSEE - Specimens collected in Perry County for a new county record. (Gordon).

## STORED PRODUCTS

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Heavy in farm-stored pelleted cow feed in Payne County. (Okla. Coop. Sur.).

## BENEFICIAL INSECTS

A FLOWER BUG (Orius tristicolor) - UTAH - Heavy on blossoms of rubber rabbitbrush heavily infested with Frankliniella occidentalis (western flower thrips) in Cache and Box Elder Counties. (Knowlton).

A TACHINA FLY (Erynniopsis rondanii) - OREGON - Adults collected from elm harboring large population of Pyrrhalta luteola (elm leaf beetle) at Medford, Jackson County, week of August 6. Flies abundant on litter around tree bases. Mating on lower leaves in sunlight. One adult just emerged from elm leaf beetle pupa. This parasite introduced into 10 States; known to be established only in California. Medford collection represents new record of establishment or spread from California. Identified by C.W. Sabrosky. (Berry et al.).

HYMENOPTEROUS PARASITES - COLORADO - Lysiphlebus testaceipes (a braconid), Pachyneuron siphonophorae and Asaphes lucens (pteromalid wasps), and Charips sp. (a cynipid wasp) reduced greenbug numbers by 90-95 percent last of August to first of September in Arkansas Valley. Determined by P.M. Marsh and B.D. Burks. (Burchett).

HONEY BEE (Apis mellifera) - TENNESSEE - Short of winter stores due to light honey flow this spring and lack of moisture this fall. Early spring feeding in 1971 necessary to prevent starvation. Very little brood present October 7. Many colonies of mostly old bees will not survive winter. Increase of American foulbrood expected. (Little).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (*Tipula paludosa*) - WASHINGTON - Many males in light trap at Mt. Vernon, Skagit County, September 1-14. (Eide).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - CALIFORNIA - About 15,000 sterile flies released each week at San Ysidro, San Diego County. Release began September 23 after recovery of 13 native flies since July 7. Will attempt to coincide weekly releases with those on Mexico side of border. (PPD).

GRASSHOPPERS - ARIZONA - Extensive feeding injury in 3 older citrus groves in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - CALIFORNIA - Single fly taken October 12 in Garden Grove, Orange County. This catch is 3 miles east of location where third fly was taken in Garden Grove September 18. Since September 4, a total of 7 flies has been trapped in adjacent Orange and Los Angeles Counties. (PPD).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Two fourth instars collected from separate cotton bolls in 40-acre field at Bakersfield, Kern County, October 5. (Cal. Coop. Rpt.). This is same field where first native moths trapped this year. State personnel to apply controls 2 or 3 times to this field and those within 1-mile radius. Cotton will be harvested about November 1. All trash from this and surrounding fields will be processed to recover larvae. Released 5,716,545 sterile moths October 2-8 at Bakersfield; total to date 64,889,185. ARIZONA - Released 67,500 sterile moths at Redington, Pima County, during same period; total to date 1,484,800. First moths sterilized at reduced dosage of 15 kilorad released at Redington. Boll infestation in 500-boll sample taken at this location was 6.6 percent; infestation 19 percent previous week. Four native and six sterile moths trapped for respective totals of 43 and 241. (PPD). Late-planted cotton, formerly 15-20 percent infested, now 100 percent infested at Safford, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Infested up to 32 percent of bolls in 1-2 fields in southern Eddy County and up to 50 percent in 2 fields in southern Dona Ana County. (N.M. Coop. Rpt.).

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Weather of the week continued from page 718.

TEMPERATURE: High pressure, sunny skies, and pleasant temperatures prevailed over most of the Nation early in the week. Late Monday a storm strengthened over the northern Great Plains. Warm moist air streamed northward ahead of the storm. Cold arctic air plunged southward behind the storm. Freezing temperatures occurred in spots in the central Appalachians Tuesday morning, October 5, when Elkins, West Virginia, registered 31°. Subfreezing temperatures spread through the Rocky Mountains, the Grate Basin, and the western portions of the Great Plains. Sharp temperature drops occurred as the cold air replaced warmer weather. Billings, Montana, registered 81° Tuesday afternoon but only 39° on Wednesday. The maximum temperatures at Miles City, Montana, on Wednesday and Thursday were 86° and 39°, respectively. More than a dozen States saw subfreezing weather Thursday morning with minimums ranging from a few degrees below zero in parts of Wyoming to 26° at Flagstaff, Arizona, and 27° at Grants, New Mexico. Laramie, Wyoming, registered 7° below zero. Strong winds reaching 50 m.p.h., raised clouds of dust in parts of Arizona and New Mexico. In general, the western and central portions of the Nation cooled during the week, becoming especially cold on Saturday when maximums over the northern and central Rocky Mountains and northern and central Great Plains were mostly in the 30's and 40's. Most of this area averaged 6-16° below normal and 15-20° colder than the previous week. The East warmed sharply. Portions of the Northeast averaged 3-9° above normal and 5-10° warmer than the previous week. (Summary supplied by Environmental Data Service, ESSA.)

HAWAII INSECT REPORT

General Vegetables - POTATO TUBERWORM (*Phthorimaea operculella*) feeding moderate on 15 percent of leaves on 60 eggplants; as many as 8 (averaged 3) larvae in 1 affected leaf at Pearl City, Oahu. Mines of LEAF MINER FLIES (*Liriomyza* spp.) light in 0.25 acre of seequa (*Luffa acutangula*) and in 0.1 acre of yardlongbeans, at Pearl City; adults trace. All stages of CARMINE SPIDER MITE (*Tetranychus cinnabarinus*) light to moderate in 0.5 acre of eggplant at Pearl City; adults and nymphs averaged 25 per square inch of lower leaf surface. BEAN FLY (*Melanagromyza phaseoli*) larvae heavy on petiole of yard planting of snap beans at Makawao, Maui; parasites nil. Larvae moderate on petioles of small planting of long beans at Pearl City; adults trace. (Kawamura).

Fruits and Nuts - COCONUT SCALE (*Aspidiotus destructor*) colonies light to moderate on about 20 percent of leaves on all banana plants in 1 acre at Waimanalo, Oahu. Colonies moderate on 10 percent of leaves in small planting at Pearl City. Nymphs and adults of Telsimia nitida (a lady beetle), adults of Lindorus lophanthae (a lady beetle), and Aphytis sp. (a eulophid wasp) among scale colonies at Pearl City. (Kawamura). COCONUT LEAF ROLLER (*Hedylepta blackburni*) damage moderate to 30 percent of fronds of 50+ coconut trees at Kahului, Maui. (Miyahira).

Man and Animals - VEXANS MOSQUITO (*Aedes vexans nocturnus*) numbered 166 and SOUTHERN HOUSE MOSQUITO (*Culex pipiens quinquefasciatus*) 1,736 in 57 light traps on Oahu during September. Aedes up to 102 at Punaluu. Culex up to 284 at Waialua. (Mosq. Contr. Br., Dept. of Health).

Miscellaneous Pests - Destroyed 322 GIANT AFRICAN SNAIL (*Achatina fulica*) specimens during September at Poipu, Kauai; none observed at Wahiawa. Poison baits continue. (Sugawa). CLUSTER FLY (*Pollenia rudis*) still building up at Kahua Ranch in North Kohala, Hawaii. Many clustering in pavilion below main ranch house. (Yoshioka).

**DETECTION**

New State Records - A MOSQUITO (*Culex tarsalis*) PENNSYLVANIA - Cumberland County (p. 723). A TACHINA FLY (*Erynniopsis rondanii*) OREGON - Jackson County (p. 723).

New County and Parish Records - BROWN GARDEN SNAIL (*Helix aspersa*) LOUISIANA - Jefferson (p. 722). BROWN RECLUSE SPIDER (*Loxosceles reclusa*) TENNESSEE - Perry (p. 723). HOLLYHOCK WEEVIL (*Apion longirostre*) MISSOURI - Christian, Jasper, Lawrence, Stone (p. 722). A JAPANESE WEEVIL (*Pseudocnerorhinus bifasciatus*) SOUTH CAROLINA - Barnwell, Richland (p. 722). NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) MISSOURI - Barton, Dallas, Jasper, Lincoln, St. Charles, Vernon, Warren (p. 722).

**CORRECTIONS**

CEIR 20(34):601, 610, 613 - AN ERIOPHYID MITE (*Setoptus jonesi*) - PENNSYLVANIA - ... This is a new State record. Should read AN ERIOPHYID MITE (*Setoptus strobacus*) ... delete This is a new State record. (Simons).

CEIR 20(41):713 - ... *Octobius megnini* (ear tick) OREGON ... should be *Otobius megnini* (ear tick) OREGON ...





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Additional copies of Parts I through XXXI of this bibliography are available from Economic Insect Survey and Detection.

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

To facilitate mailroom handling, all reports, inquiries, and other matters pertaining to this release, including the mailing list, should be sent to:

The Editors, CEIR  
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Federal Center Building  
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

FALL ARMYWORM destroyed several rye pastures in Alabama. (p. 735).

First ASPARAGUS APHID eggs found in New Jersey. (p. 737).

NOCTUID larvae required controls on lettuce in Arizona. (p. 737).

LODGEPOLE NEEDLE MINER killing lodgepole pine in Yosemite National Park. (p. 738).

DOUGLAS-FIR TUSsock MOTH epidemic in El Dorado National Forest, California. (p. 738).

Detection

New State records include SADDLEBACK CATERPILLAR in Michigan (p. 735), an APHID in Oklahoma (p. 736), and EUROPEAN PINE SHOOT MOTH in Nebraska (p. 738).

For new county and parish records see page 741.

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Reports in this issue are for week ending October 16 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-OCTOBER TO MID-NOVEMBER

The National Weather Service's 30-day outlook for mid-October to mid-November is for temperatures to average above seasonal normals over the Northeast, the Great Lakes, the western Great Basin, and California. Below normal temperatures are indicated for the southern Rockies, the central and southern Plains, and the gulf coast region. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Midwest and along the north Pacific coast. Subnormal totals are indicated for the Southwest and the northern Plains. 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 741.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Generally light on wheat in Curry and Roosevelt Counties. Heavier, 37 per linear foot, in field near Clovis, Curry County. (Mathews).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Averages per 100 sweeps of alfalfa: 175 in Yuma Valley and 1,800 in Parker Valley, Yuma County; 2,000 at Ocotillo, Maricopa County. (Ariz. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - ALABAMA - Larvae light on grain sorghum at Megargel, Monroe County. This is a new county record. Larvae light to medium on late corn but few on grain sorghum in Elmore County. (McQueen). VIRGINIA - Severe lodging of corn widespread in Warren County. (Allen, Conklin, Oct. 7). IOWA - Caused 8.6 bushels of dropped ears per acre by October 15 in Crawford County. Caused 3 percent dropped ears in Boone and Webster Counties. (Iowa Ins. Sur.).

SADDLEBACK CATERPILLAR (*Sibine stimulea*) - MICHIGAN - Larvae moderate in corn-field at Centreville, St. Joseph County. Collected by F. Henningsen August 26, 1970. This is a new State record. Collected at Traverse City, Grand Traverse County, by W.H. Wallner September 28 for a new county record. Determined by H. Newman. (Sauer).

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - COLORADO - Larvae of this pest and *Heliothis zea* (corn earworm) ranged 0-20 per 100 row feet of corn throughout northeastern area. Heaviest in Kit Carson and Yuma Counties. Little economic loss. (Johnson).

SORGHUM MIDGE (*Contarinia sorghicola*) - OKLAHOMA - Adults up to 45 per head in occasional late sorghum head in Payne County field; most heads in field nearly mature and not susceptible. (Okla. Coop. Sur.).

## SMALL GRAINS

FALL ARMYWORM (*Spodoptera frugiperda*) - TENNESSEE - Caused little or no damage to winter grains in central area; none expected. (Gordon). VIRGINIA - Severe; destroyed seedling rye field in Charles City County. (Davis, Allen, Oct. 1).

## TURF, PASTURES, RANGELAND

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - Heavy and widespread; small to medium-sized larvae destroyed several fields of Abruzzes rye planted for winter grazing in southern Mobile County. Spotted and scattered infestations still in grass crops in Jefferson County. (Robinson et al.).

LYGUS BUGS - UTAH - Averaged 5 per 10 sweeps on *Chrysothamnus* blossoms. Apparently moved to big sagebrush, ranged 8-23 per sweep (99 percent adults), in Blacksmith Fork Canyon, Cache County. (Knowlton).

A MARCH FLY (*Dilophus orbatus*) - CALIFORNIA - Increasing and extending its range. Large swarms on lawns or walls. Several hundred flies per square yard. Statewide complaints. (Cal. Coop. Rpt.).

BANKS GRASS MITE (*Oligonychus pratensis*) - NEVADA - Heavy in experimental plots of Kentucky bluegrass seed at Sparks, Washoe County. (Arnett).

#### FORAGE LEGUMES

BEET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Average per 100 sweeps of alfalfa: 35 at Yuma Mesa and Yuma Valley, and 375 in Parker Valley, Yuma County; 20 in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - Larvae averaged 70 per 100 sweeps of alfalfa on east side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Light on alfalfa in Albuquerque area, Bernalillo County. (Heninger).

ALFALFA WEEVIL (*Hypera postica*) - IOWA - Adult collected in Boone County by Lentz October 13 for a new county record. Determined by B. Stoltzfus. (Iowa Ins. Sur.). UTAH - None found in Cache County alfalfa field. (Davis). Adults 1-2 per 0.5 pound of litter in Berlese funnels a mile or more from alfalfa fields. (Davis, Knowlton).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - MISSOURI - Ranged 8-600 per 100 sweeps of alfalfa in Scott and Mississippi Counties. Girdled less than 1 percent of stems. (Munson).

LYGUS BUGS - UTAH - One per sweep, 95 percent adults, of alfalfa at North Logan and Hyde Park, Cache County. (Davis). ARIZONA - *Lygus* sp. per 100 sweeps of alfalfa averaged 90 at Yuma Mesa and Yuma Valley, Yuma County, and 200 nymphs in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

PEA APHID (*Acyrtosiphon pisum*) - NEW MEXICO - Light on Bernalillo County alfalfa. (Heninger). UTAH - Counts of 20 per sweep at North Logan and Hyde Park, and 30 per sweep at Hyrum, Cache County. (Davis, Knowlton). WISCONSIN - Very light on alfalfa in Langlade, Marathon, Lincoln, and Taylor Counties, and most of Clark County. Began to increase in southern Clark County. Prevalent in Pepin, Dunn, Eau Claire, and Pierce Counties. (Wis. Ins. Sur.).

#### SOYBEANS

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - MISSISSIPPI - Larvae averaged less than 1 per 2 row feet in 6 Oktibbeha County fields. (Sartor).

#### PEANUTS

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - NEW MEXICO - Infestation averaged as high as 25-30 percent of terminals in some fields around Portales, Roosevelt County. (Mathews). OKLAHOMA - Averaged about 40 larvae per 100 terminals at Perkins, Payne County. Damaged nearly all terminals. (Okla. Coop. Sur.).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - ALABAMA - Adults 1-5 per 10 row feet in all fields examined in Mobile, Baldwin, Monroe, Butler, Crenshaw, Macon, and Elmore Counties. Many will enter successful hibernation if first killing frost occurs no earlier than usual. (McQueen).

#### MISCELLANEOUS FIELD CROPS

AN APHID (*Aphis helianthi*) - OKLAHOMA - Collected on wild sunflower at Ingalls, Payne County, by C.E. Rogers, July 17, 1970. Determined by L.M. Russell. This is a new State record. (Okla. Coop. Sur.).

#### COLE CROPS

CABBAGE LOOPER (*Trichoplusia ni*) - MICHIGAN - Adults, 2-3 per night, at all blacklight stations. (Sauer, Oct. 19).

## GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - NEW JERSEY - Eggs on leaves of asparagus plants at Somerset, Somerset County. Found by J.P. Reed October 1, 1970. First report of eggs laid by this aphid in North America. Eggs small and shiny black. (Race).

NOCTUID MOTHS - ARIZONA - Spodoptera exigua (beet armyworm) and Trichoplusia ni (cabbage looper) still active in lettuce statewide. Most growers on regular spray program. Treatments in lettuce for Estigmene acrea (salt-marsh caterpillar) required as migration started at Yuma, Yuma County. (Ariz. Coop. Sur.).

A SAP BEETLE (Conotelus mexicanus) - NEW MEXICO - Migrated since frost from cotton into lettuce in Dona Ana County. (N.M. Coop. Rpt.).

## DECIDUOUS FRUITS AND NUTS

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Small numbers of adults still active in southwestern area orchards. (Sauer, Oct. 12).

PEAR-SLUG (Caliroa cerasi) - UTAH - Last larvae gone from cherry, pear, and cotoneaster foliage in Cache County. (Davis).

PECAN WEEVIL (Curculio caryae) - ALABAMA - Larvae 1-2 per pecan nut in small home orchard in Elmore County; 25 percent of crop fallen. Larvae have entered soil to pupate. Larval damage in some orchards in Covington County. (Bayles et al.).  
NEW MEXICO - All surveys negative at Tularosa, Otero County. No infestation outside infested area. (Riddle, Campbell).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Infested black walnuts at Chico, Butte County. Over 200 larvae emerging per sack of walnuts. Adults still trapped at Richmond, Contra Costa County. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Moderate in Marshall County pecans. Light in Payne County. (Okla. Coop. Sur.).

## CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Moderate in 3 nurseries in Lake County: Adults on 5 percent of 1,400 grapefruit plants at Astatula, October 9; adults on 10 percent of 10,820 orange plants at Montverde; and adults and larvae on 5 percent of 15,000 orange plants at Ferndale. (DeWolf). All stages moderate on kumquat stems in Lake Monroe, Seminole County (VanPelt).

CHAFF SCALE (Parlatoria pergandii) - FLORIDA - Adults moderate on 10 percent of 10,820 orange plants in nursery at Montverde, Lake County. (DeWolf).

## ORNAMENTALS

APHIDS - OKLAHOMA - Aphis hederæ (ivy aphid) ranged 50-400 per terminal of English ivy checked at Stillwater, Payne County Parasitism light. (Okla. Coop. Sur.). CALIFORNIA - Macrosiphoniella sanborni (chrysanthemum aphid) and Paraphytoptus chrysanthemi (an eriophyid mite) up to 500 per leaf on chrysanthemum plants at La Mesa, San Diego County. (Cal. Coop. Rpt.). WASHINGTON - A. fabae (bean aphid) heavy on nasturtiums with apterous and alate viviparæ at Federal Way, King County, October 6. (Barstow).

ARMORED SCALES - FLORIDA - Phenacaspis cockerelli adults infested Carolina jessamine (Gelsemium sempervirens) leaves in nursery at Gainesville, Alachua County. (Graham, Mar. 4). This is a new county and host record. (Fla. Coop. Sur.) All stages severe on 40 percent of 100 magnolia plants in nursery at Orlando, Orange County. All stages of this and Fiorinia theae (tea scale) severe on 35 percent of 200 camellia plants in nursery at Orlando. (Graddy, Oct. 9).

## FOREST AND SHADE TREES

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - NEBRASKA - Adult reared from Austrian pine at Lincoln, Lancaster County. Larva collected by J.J. Deuser, June 1970. Determined by G. Munson. This is a new State record. (Roselle).

LOGEPOLE NEEDLE MINER (Coleotechnites milleri) - CALIFORNIA - Severe needle killing in upper areas of Yosemite National Park. High usage areas show damage. Over 50,000 acres of native lodgepole pine reddening in semiwilderness areas of park; high percentage dead. (Cal. Coop. Rpt.).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - CALIFORNIA - Epidemic numbers in El Dorado National Forest. Infested 2 areas of about 30,000 acres. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - VIRGINIA - Defoliation widely evident on eastern redcedars and other tree species, notably in Richmond County. Defoliation moderate to cedar and spruce in scattered locations in Prince William, Orange, Campbell, and Prince Edward Counties. (For. Pest Sur. Rpt., Sept.).

PINE WEBWORM (Tetralopa robustella) - NEW HAMPSHIRE - Destroyed 50 percent of 2-year-old Scotch pine in Strafford County plantation by October 5. (Mason, Conklin).

ROUNDHEADED PINE BEETLE (Dendroctonus adjunctus) - NEVADA - Fall flights continuing in Spring Mountains, Clark County. Adults numerous. Weather more favorable than in 1969 when adverse conditions abruptly shortened flight period. (Long et al.).

A MARGARODID SCALE (Matsucoccus sp.) - OREGON - Moderate on about 30 percent of 5,000 seedling Scotch pines shipped to nursery at Silverton, Marion County. All plants treated. (Wheeler, Long).

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Widespread; defoliation light in various hardwoods in Richmond, Essex, Brunswick, Surry, and Sussex Counties. Active in occasional locations in Nelson County. Present throughout Loudoun County; defoliation light. Occasionally in Lunenburg County. (For. Pest Sur. Rpt., Sept.).

FALL CANKERWORM (Alsophila pomataria) - NORTH DAKOTA - Adults emerged at Fargo, Cass County. Appear to be up from 1969 with 105 females on 5 tanglefoot-banded trees. (Anderson).

OAK SKELETONIZER (Bucculatrix ainliella) - CONNECTICUT - Heavy throughout Bristol, Litchfield County. (Gray). MASSACHUSETTS - Larvae and pupae statewide. (Jensen). NEW HAMPSHIRE - Larvae pupating. Very numerous over all of southern area October 1-9. (Conklin).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Heavy on elms at Truth or Consequences, Sierra County. (Hare).

A BARK BEETLE (Xylosandrus compactus) - FLORIDA - Adults moderate on all sweetgum plants in nursery at Sarasota, Sarasota County. (McFarlin, Bickner, Oct. 7).

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Extremely numerous on and around boxelder trees and entering homes at Bothwell, Box Elder County. Control sprays partly effective. (Knowlton). Much annoyance to Cache County residents. (Davis).



## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. October 11-17 in San Diego County, California. Total of 185 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 126, Chihuahua 56, Coahuila 1, Nuevo Leon 1, Tamaulipas 1. Total of 37 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 33,278,000; New Mexico 4,860,000; Arizona 6,222,000; Mexico 94,920,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 500 per head of cattle checked in Payne County. Heavy in Mayes County. Moderate in Marshall County. (Okla. Coop. Sur.).

HORSE BOT FLY (Gasterophilus intestinalis) - MISSISSIPPI - Ovipositing adults averaged less than 1 per head on 7 horses in Oktibbeha County. (Sartor). MARYLAND - Egg laying heavy at isolated farms in Frederick, Baltimore, and Wicomico Counties. (U. Md., Ent. Dept.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate to very heavy on hogs checked in Payne County. (Okla. Coop. Sur.).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - OKLAHOMA - Bit people in 2 homes at Stillwater, Payne County. (Okla. Coop. Sur.).

BLACK WIDOW SPIDER (Latrodectus mactans) - UTAH - Unusually numerous under rocks in mouths of Providence and Green Canyons, Cache County. (Davis). Several in and around homes in Cache and Weber Counties. Two reports of persons bitten. (Knowlton). NEVADA - Large numbers still entering homes and garages in southern Washoe County. (Nev. Coop. Rpt.).

## HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - CALIFORNIA - R. hesperus (western subterranean termite) heavy in residence at San Francisco, San Francisco County. Many calls received at Sacramento, Sacramento County. (Cal. Coop. Rpt.). MARYLAND - Season's first swarm of R. virginicus at Rockville, Montgomery County. (U. Md., Ent. Dept.).

## BENEFICIAL INSECTS

A FLOWER BUG (Orius tristicolor) - UTAH - Ranged 1-4 per sweep on thrips-infested Chrysothamnus, and 1 per sweep on big sagebrush in Millville and Blacksmith Fork Canyon area of Cache County. (Knowlton).

DAMSEL BUGS - UTAH - Often 1 per sweep in pea aphid-infested alfalfa fields in Cache County. (Davis). WISCONSIN - Nabis ferus still prevalent in most alfalfa fields. (Wis. Ins. Sur.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Adults light on cotton on farm at Seminole, Gaines County, for a new county record. Collected by J.D. Meekma October 9. Determined by R.E. Warner. (PPD).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - Grubs severely damaged some Page County lawns. (Saunders, Allen).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Release of 5,247,975 sterile moths October 9-15; 70,137,160 to date at Bakersfield, Kern County. Two native moths trapped October 8. One, 1 mile north of intensive drop zone; other at Comanche Point in same field where moth collected in 1967. With total find

of 7 moths and 2 larvae this season, general feeling now, infestation very light in Kern County. ARIZONA - Sterile release of 67,500 at Redington, Pima County; 1,552,300 to date. Two native moths caught for season total of 45. Infested 86 bolls, a 17.2-percent boll infestation. (PPD). Larval counts in top crop by area. Yuma County: 1-4 per boll in Parker Valley; 1-6 per boll at Cibola; 2.5 per 5 bolls at Bouse; larvae few, harvest beginning, major part of crop still green at Salome and Wenden. Mohave County: 1 per 20 bolls at Bullhead City, harvest underway. (Ariz. Coop. Sur.). NEW MEXICO - Infested 0-12 percent of bolls around Artesia, Eddy County. (Mathews).

SOYBEAN CYST NEMATODE (*Heterodera glycines*) - NORTH CAROLINA - Cysts light on farm at Beaulaville, Duplin County, for a new county record. Collected by W.E. Mobley October 8. Determined by V.H. Owens; confirmed by A.M. Golden. (PPD).

A WHITE-FRINGED BEETLE (*Graphognathus peregrinus*) - LOUISIANA - Adults light on canphor weed in vacant commercial lot at Shreveport, Caddo Parish. Collected by F.L. Hughes September 29. Determined by V.H. Owens; confirmed by R.E. Warner. (PPD).

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#### HAWAII INSECT REPORT

Sugarcane - SUGARCANE APHID (*Longiunguis sacchari*) nymphs and adults generally light in about 10 acres of 4 to 6-month-old sugarcane at Kekaha, Kauai; moderate to heavy in spots. Predators nil. (Sugawa).

Turf - Several adults of a SKIPPER (*Hylephila phylaeus*) in grassy areas at naval housing area, Oahu. Adults first collected on Bermuda grass at Salt Lake, Oahu, September 8; subsequently taken at Moanalua, Aiea Heights, and Honolulu International Airport. (Takabayashi).

General Vegetables - BEET ARMYWORM (*Spodoptera exigua*) damage light in 0.25 acre of green onions at Waimanalo, Oahu; affected about 5 percent of leaves on each plant. Egg masses on 1 per 4 plants. (Kawamura). BEAN FLY (*Melanagromyza phaseoli*) light in small planting of yardlongbeans in community garden at Puunene, Maui; infested 15 percent of petioles. (Ah Sam). Larval mines of LEAF MINER FLIES (*Liriomyza* spp.) light to moderate in 5,000 square feet of green onions at Koko Head, Oahu; affected about 15 percent of leaves. Larval mines trace in 0.25 acre of Chinese waxgourd (*Benincasa hispida*). All stages of GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) moderate in same planting and adjacent row of tomatoes. (Kawamura).

Fruits and Nuts - BARNACLE SCALE (*Ceroplastes cirripediformis*) moderate to heavy in 20 of 135 acres of passionfruit at Kahului, Maui; some dead or dying vines in heavily infested acres. Heavy on 10 fiddlewood trees (*Citharexylum spinosum*) at Hawaii Kai, Oahu; 100+ scales per 2 inches on some pencil-sized branches. Severely affected or killed 15 percent of branches. (Miyahira, Kawamura).

Ornamentals - COWPEA APHID (*Aphis craccivora*) nymphs and adults light to moderate on 40 percent of buds and flowers on 0.25 acre of tuberose. (Kawamura). Colonies of an ARMORED SCALE (*Pinnaspis strachani*) light to moderate on hibiscus hedge at Wailuku but heavy at Lahaina, Maui. Light on hibiscus bush at Honolulu, Oahu. (Miyahira, Kawamura).

Forest and Shade Trees - LONG-TAILED MEALYBUG (*Pseudococcus longispinus*) light on 80 percent of leaves on 20+ kamani trees (*Calophyllum inophyllum*) at Hawaii Kai. Adults of a LADY BEETLE (*Scymnus bipunctatus*) light. (Kawamura).

## DETECTION

New State Records - An APHID (Aphis helianthi) OKLAHOMA - Payne County (p. 736). EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) NEBRASKA - Lancaster County (p. 738). SADDLEBACK CATERPILLAR (Sibine stimulea) MICHIGAN - St. Joseph County (p. 735).

New County and Parish Records - ALFALFA WEEVIL (Hypera postica) IOWA - Boone (p. 736). An ARMORED SCALE (Phenacaspis cockerelli) FLORIDA - Alachua (p. 737). BOLL WEEVIL (Anthonomus grandis) TEXAS - Gaines (p. 739). EUROPEAN CORN BORER (Ostrinia nubilalis) ALABAMA - Monroe (p. 735). SADDLEBACK CATERPILLAR (Sibine stimulea) MICHIGAN - Grand Traverse (p. 735). SOYBEAN CYST NEMATODE (Heterodera glycines) NORTH CAROLINA - Duplin (p. 740). A WHITE-FRINGED BEETLE (Graphognathus peregrinus) LOUISIANA - Caddo (p. 740).

Weather continued from page 734.

## WEATHER OF THE WEEK ENDING OCTOBER 19

**HIGHLIGHTS:** Most of the Nation enjoyed sunny, cool autumn weather. Snow fell in the central Rockies, in the Syracuse, New York, vicinity, and in northern Maine. Heavy thundershowers and a few tornadoes occurred in Mississippi.

**PRECIPITATION:** Early in the week, precipitation continued along a front that stretched from the lower Great Lakes to southwestern Louisiana. Numerous locations in Louisiana and Mississippi received more than 1.0 inch in the 6-hour period ending at 8 a.m., Monday, October 5. Lake Charles, Louisiana, received 4.8 inches in the 24-hour period ending at that time. A few tornadoes occurred Tuesday morning in Louisiana and Mississippi, and many more in the forenoon in Mississippi. Damages were mostly light. A wide band of rainy weather spotted by thunderstorms preceded the front as it moved eastward toward the Atlantic Ocean. Snow flurries fell in southern Wyoming, northern Colorado, and western Nebraska, and a mixture of rain and snow fell from the northern and central Great Plains to the Ohio River Valley and the lower Great Lakes Wednesday. In the afternoon and evening, snow continued in southeastern Colorado and spread to northern New Mexico. Albuquerque, New Mexico, measured 5 inches late Thursday. Showers continued ahead of the cold front from New England to the southern Atlantic States on Thursday. Light rain was still falling along the coast on Friday. Oklahoma and northern Texas received light, scattered weekend showers. The weekend also brought 5-10 inches of wet snow to some communities in the Syracuse, New York, area; 5 inches at Pompey and 10 inches at Marcellus, early Saturday morning. Several inches of snow fell in northern Maine Sunday forenoon. Elsewhere the weekend was mostly sunny due to the large high-pressure area that extended from the Great Basin to the Atlantic Ocean and from Canada to Mexico.

**TEMPERATURE:** Sunny, mild weather prevailed over most of the Nation early in the week. Afternoon temperatures were mostly in the 40's and 50's in the North and the 70's and 80's in the South. The main exception to the fine weather was a cloudy, rainy area from Arkansas to the Great Lakes along and ahead of a front that separated two high-pressure areas. By Wednesday much cooler weather was spilling across the Nation's midsection. The front moved eastward and by Thursday high pressure dominated the weather from the Rocky Mountains to the Appalachians. This was accompanied by sunny, cool, dry weather over most of the Nation. North Platte, Nebraska, registered 19° Thursday morning. In contrast, Macon, Georgia, still in the warm air ahead of the front, registered 91°. By Saturday the cold front had moved off the coast, and Sunday morning subfreezing temperatures were common in the central Appalachians and Piedmont. Columbia, South Carolina, registered 31° Sunday morning. The Atlantic Coast States averaged near or slightly warmer than normal in spite of the cool weekend. Elsewhere over the Nation, weekly mean temperatures were mostly below normal. A large area from the central Rocky Mountains to the middle Mississippi River Valley and southward to New Mexico and Texas averaged 6-14° cooler than normal. (Summary supplied by Environmental Data Service, ESSA.)









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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

To facilitate mailroom handling, all reports, inquiries, and other matters pertaining to this release, including the mailing list, should be sent to:

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Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

BEET LEAFHOPPER could overwinter in large numbers in lower San Joaquin Valley of California. (p. 745).

BROWN WHEAT MITE injured range grasses in Utah. (p. 746).

BOLL WEEVIL may overwinter in heavy numbers in Oklahoma. (p. 746).

BEET ARMYWORM treated on sugar beets, carrots, and onions in Arizona. (p. 746).

GRASSHOPPERS threatening some rangeland in Arizona. (p. 749).

Detection

New State records include an APHID in Idaho (p. 748) and a DERMESTID BEETLE in Hawaii (p. 750).

For new county and island records see page 750.

Special Report

On the Scientific Name of the Brown-Banded Cockroach, Supella longipalpa (Fabricius). (pp. 752-754).

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WEATHER OF THE WEEK ENDING OCTOBER 26

HIGHLIGHTS: The rainy season is getting underway in the Pacific Northwest. Generous rains fell in the Deep South early in the week and over the weekend. Mid-week rains soaked the central and southern Great Plains. Light autumn weather prevailed over the northern Great Plains.

PRECIPITATION: Skies were mostly clear as the week began. The main exception was an area from the central Great Plains to the Gulf of Mexico where clouds produced intermittent rain. Heavy amounts fell at a few places, 5.89 inches at Meridian, Mississippi, in the 24-hour period ending at 8:00 p.m. Monday. The rains spread eastward over the Deep South with numerous localities from Alabama to Georgia receiving 24-hour totals ranging from 2 to more than 3 inches. Light rains also fell in the Pacific Northwest as the week progressed. A series of fronts brought a changeable weather pattern, clouds and snow alternating with sunny skies. As one system moved to the Atlantic late Thursday another produced thunderstorms, some with winds and hail over the central Great Plains, and a third system, the most intense, dotted the Washington coast with winds up to 70 m.p.h., soaked coastal areas with heavy rains, and covered the mountains with snow. Snow depth accumulated to over 30 inches in some of the higher mountains of Idaho and Washington. A large area from the southwestern deserts to the western portions of Kansas, Oklahoma, and Texas received no rain or only widely scattered light sprinkles during the entire week. To the other extreme, spots in the Deep South received over 4 inches. Key West, Florida, received 6.88 inches and 4 to more than 6 inches fell along the northern Pacific coast where the rainy season is getting underway.

TEMPERATURES: High pressure continued to bring clear skies and moderate temperatures to most of the Nation at the beginning of the week. As the week progressed, a series of cold fronts brought clouds and in general, smaller daily temperature ranges. The temperature range at Elkins, West Virginia, Monday was 45°, from 22° in the morning to 67° in the afternoon. On Thursday the range was 8°, from 52° in the morning to 60° in the afternoon. Subfreezing minimum temperatures occurred on 1 or 2 mornings over parts of the northern Great Plains and on several mornings over the central Rocky Mountains. Alamosa, Colorado, registered 22° Monday morning. A warmer trend occurred over the central and southern Great Plains during the week. Maximums in Oklahoma increased from the 60's on Monday to the 70's on Tuesday and the 80's on Wednesday and Thursday and dropped to the 60's and 70's on Saturday. Weather of the week continued on page 751.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrostoteles fascifrons) - OKLAHOMA - Leafhoppers, mostly this species, averaged about 5 per linear foot of young wheat in Payne County. (Okla. Coop. Sur.).

BEEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Begun October 8, fall treatment slowed due to high winds. Organic phosphate sprayed on Russian-thistle stands not so effective as a chlorinated hydrocarbon. Numbers heaviest since 1965, ranged from 150 per sweep up to uncountable numbers. Thistle plants very large this season. Populations in lower San Joaquin Valley treatment areas indicate overwintering population on winter annuals could be large now that rains are starting. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - OKLAHOMA - Averaged 20 per 10 sweeps of Payne County alfalfa. Heavy on Tillman County alfalfa. (Okla. Coop. Sur.). ARKANSAS - Third and fourth instars 100 in 100 sweeps of Washington County alfalfa October 16. Currently declined, larvae 12-15 in 100 sweeps. (Boyer). MICHIGAN - Light trap catches began increasing again. High of 34 on October 8 in Benzie County. During past week 94 taken in Lenawee County. (Sauer, Oct. 19).

GREENBUG (Schizaphis graminum) - NEVADA - Appearing on fall-planted small grains 2 to 8-inches high in Virgin Valley, Clark County. Very light and spotted. (Bechtel, Zoller).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Averaged 15 per 10 sweeps of Payne County alfalfa. (Okla. Coop. Sur.). OREGON - Medium on alfalfa south of Medford, Jackson County. (Goeden, Penrose).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Moths reappearing in light traps. During past week 12 moths taken at Lenawee County station. May represent beginning of third brood. (Sauer, Oct. 19). MINNESOTA - Most stalk breakage above ears. Much stalk breakage due to larval feeding and stalk rot disease. Percent stalk breakage below the ear (and percent dropped ears) by district: Southwest 8.9 (3.3), south-central 5.4 (1.1), southeast 37 (0.5), west-central 2 (0.6), central 2 (0.3), east-central 2.5 (0.5), and northwest 1.4 (0). (Minn. Pest Rpt.).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARKANSAS - About 25 percent of overwintering larvae in corn roots dead. (Boyer).

### SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Averaged 1 per 10 linear feet of wheat in Payne County. Light on Jackson and Tillman County wheat. Probably this species, moderate on Love County small grain. (Okla. Coop. Sur.). VIRGINIA - Severely damaged several rye fields in King and Queen County. (Allen, Oct. 15).

### TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - SOUTH CAROLINA - Especially damaging to rye for winter grazing in Jasper County past week to 10 days. One dairyman lost 40 acres. Currently pupating. (Nettles, Oct. 19).

SCARABS - TENNESSEE - Cotinis nitida (green June beetle) larvae numerous in some pastures in western area. Some light damage. Many larvae surfaced after heavy rains. (Locke). VIRGINIA - Cyclocephala borealis (northern masked chafer) larvae increased in turf in many areas. (Allen).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Adults 1 per 75 sweeps of Oktibbeha County oats. (Sartor).

A WHITEFLY (Aleurocybotus occiduus) - ARIZONA - Controls applied for this pest and Heterococcus sp. (a mealybug) on Bermuda grass seed fields at Yuma, Yuma County, October 12. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Injury, mostly by this mite, conspicuous in 5,000 acres of range grasses in Garfield and Kane Counties. (Lindsay).

#### FORAGE LEGUMES

NOCTUID MOTHS - ARIZONA - Spodoptera exigua (beet armyworm) larvae ranged 30-120 per 100 sweeps in Gila and Yuma Valleys, Yuma County. Colias eurytheme (alfalfa caterpillar) averaged 5 per 100 sweeps of alfalfa in Yuma Valley. (Ariz. Coop. Sur.). UTAH - C. eurytheme 0.5 in 10 sweeps of alfalfa at Newton, Cache County. (Knowlton). OKLAHOMA - Plathypena scabra (green cloverworm), Trichoplusia ni (cabbage looper), and Pseudoplusia includens (soybean looper) heavy on Tillman County alfalfa. P. scabra averaged 5 per 10 sweeps and T. ni averaged 1 per 30 sweeps in Payne County. (Okla. Coop. Sur.). ARKANSAS - Occasional P. includens larva picked up from northwestern area alfalfa. (Boyer).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Adults averaged 4 per 10 sweeps on Payne County alfalfa. (Okla. Coop. Sur.). MISSOURI - Adults declining. Ranged 5-31 per 100 sweeps of alfalfa in Butler and Dunklin Counties. (Munson).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - Still active on northwestern area alfalfa; nymphs still present. (Boyer). MASSACHUSETTS - Light to medium in Hampshire County field. (Miller, Oct. 21).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Adults still active and heavy in many southwestern area fields. Indicates large overwintering population in some areas. (Okla. Coop. Sur.).

#### SUGAR BEETS

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae 1 per plant on 200+ acres at Casa Grande, Pinal County. Controls applied. (Ariz. Coop. Sur.).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Maggot finds by county: Grand Forks at Johnstown, Thompson, and north of Manvel; Traill north of Taft and west of Caledonia; Richland west of Galchutt, farthest south that maggots found in State. (Brandvik, Kaatz).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light in 2 fields on western side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### BEANS AND PEAS

SOUTHERN BEET WEBWORM (Herpetogramma bipunctalis) - FLORIDA - Larvae moderate in 135 acres of commercial snap beans near Live Oak, Suwannee County. (Massimaino, Oct. 14).

#### GENERAL VEGETABLES

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Treatments applied to carrots and onions at Yuma, Yuma County. (Ariz. Coop. Sur.).

CARROT WEEVIL (Listronotus oregonensis) - MASSACHUSETTS - Larval damage moderate to carrots in Essex County. (Jensen, Oct. 16).

COWPEA APHID (Aphis craccivora) - OREGON - Moderate on asparagus at Milton-Freewater, Umatilla County. Nymphs and adult apterae and alatae present; last stage predominant. (Goeden, Westcott, Oct. 16).

#### DECIDUOUS FRUITS AND NUTS

RAIN BEETLES (Pleocomma spp.) - OREGON - P. oregonensis adult activity starting at The Dalles, Wasco County. Locally, however, beetles out for several weeks, especially in irrigated areas. Skunks eating many females in such areas. P. minor emerging in numbers at Hood River, Hood River County. (Zwick).

CODLING MOTH (Laspeyresia pomonella) - UTAH - Infested almost all apples in some Logan and other Cache County home orchards. (Thornley, Knowlton).

TWIG GIRDLER (Oncideres cingulata) - MISSISSIPPI - Damage light to pecans in Tate County. (Sartor). TENNESSEE - Damaged pecan trees in western area. (Locke).

#### CITRUS

Citrus Insect Situation in Florida - Mid-October - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 81 (norm 67) percent of groves; economic in 65 (norm 41) percent. Still in high range. Population on leaves highest for mid-October in 19 years of record. Near record high level on fruit. Decrease expected in November. Highest districts south, west, north, central, and east. CITRUS RED MITE (Panonychus citri) in 26 (norm 23) percent of groves; economic in 8 (norm 5) percent. Above normal but still at low level in all districts. Highest district central. Fall increase started. Scattered heavy infestations may be expected. TEXAS CITRUS MITE (Eutetranychus banksi) in 20 (norm 18) percent of groves; economic in 6 (norm 4) percent. Near normal and low in all districts. Buildup expected, especially in young groves. Highest district central. GLOVER SCALE (Lepidosaphes gloverii) in 60 (norm 56) percent of groves; economic in 6 (norm 7) percent. Near normal and moderate. Little change expected. Highest district south. PURPLE SCALE (L. beckii) in 52 (norm 53) percent of groves; economic in 3 (norm 2) percent. Normal and low. Increase expected but will not be severe. Highest district north. BLACK SCALE (Saissetia oleae) in 44 (norm 35) percent of groves; economic in 18 (norm 13) percent. At low level but above normal. Decrease expected through October; little change in November. Central district high. YELLOW SCALE (Aonidiella citrina) and CHAFF SCALE (Parlatoria pergandii) will remain very low in all districts. An ARMORED SCALE (Unaspis citri) in 28 percent of groves; moderate to heavy in 15 percent. Record high level of September persisted into October. Decrease expected in late October with little change thereafter. WHITEFLIES infested 88 percent of groves; economic in 29 percent. Increased and near record high October level of year ago. Decrease to moderate level expected in November. Highest districts north and east. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

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 30-day Outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Insect and Disease Summary" usually released twice each month by this station.

CITRUS RUST MITE will continue in high range until December. Increase expected until mid-November followed by gradual decrease. Heavy infestations will occur in about 20 percent of groves. CITRUS RED MITE and TEXAS CITRUS MITE will increase steadily until year's end. Statewide population not expected to exceed normal low to moderate level. Heavy infestations of either species may build up rapidly in young groves. WHITEFLIES will increase in October, then decrease in November and December. Expected to be above average and in high range in most districts. GLOVER SCALE, PURPLE SCALE, YELLOW SCALE, and BLACK SCALE will gradually increase through December but not expected to become troublesome during rest of year. An ARMORED SCALE (Unaspis citri) will attain higher statewide level than in any

prior month due to intensification within groves and probable spread to previously uninfested groves by picking crews and equipment. MEALYBUGS will continue to decline to very low level. (W.A. Simanton).

#### ORNAMENTALS

A PYRALID MOTH (Hyblaea puera) - FLORIDA - Larvae infested all 300 plants of black calabash (Crescentia spp.) in nursery at Lauderdale Lakes, Broward County. (Clinton, Oct. 5). This is a new host record. (Fla. Coop. Sur.).

AN APHID (Liosomaphis berberidis) - IDAHO - Nymphs medium on Oregon-grape at Twin Falls, Twin Falls County. Collected by D.W.S. Sutherland June 5, 1970. Determined by L.M. Russell. This is a new State record. (Sutherland).

A PIT SCALE (Cerococcus dekley) - FLORIDA - Severely infested all 3,090 hibiscus plants in nursery at Miami, Dade County. (Brewton, Oct. 14).

A GROUND MEALYBUG (Rhizoecus americanus) - FLORIDA - Eggs moderate on 20 percent of 1,000 nursery plants of Norfolk Island pine (Araucaria excelsa) at Palmetto, Manatee County. (McFarlin, Oct. 14).

WHITE GRUBS (Phyllophaga spp.) - VIRGINIA - Damaged fibrous roots of azaleas in field in Accomack County. (Greenwood, Oct. 14).

A FALSE SPIDER MITE (Tenuipalpus pacificus) - FLORIDA - All stages moderate to severe on 10 percent of 5,000 cattleya orchid plants in nursery at Tampa, Hillsborough County. (Hale, Oct. 15).

#### FOREST AND SHADE TREES

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - CALIFORNIA - Extensive survey in El Dorado National Forest October 5-9. Infestation light in about 30,000 acres of fir on Baltic Ridge, Plummer Ridge, Alder Ridge, and Iron Mountain, between U.S. Highway 50 and State Highway 88; mostly on Forest Service lands. Heavy in spots on white fir on Plummer and Baltic Ridges, and Iron Mountain. No virus disease in pupae. (USFS).

ROUNDHEADED PINE BEETLE (Dendroctonus adjunctus) - NEVADA - Flights in Spring Mountains, Clark County, almost ended due to cool temperatures. If temperatures rise, flights will continue as many adults are ready to emerge. (Young).

EASTERN SPRUCE GALL APHID (Adelges abietis) - WEST VIRGINIA - Infested 80 percent of 25-acre Norway spruce plantation in Marion County. In 10 percent of trees in 1-acre Norway spruce plantation in Taylor County October 21. (Atkins).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - MISSISSIPPI - Moderate on Chinese, American, and winged elms in Hinds County. (Sartor).

TWIG GIRDLER (Oncideres cingulata) - TENNESSEE - Damaged hickory, elm, and ash trees in western area. (Locke).

LYONETIID MOTHS (Eucculatrix spp.) - MISSISSIPPI - Moderate to heavy on Nuttall oak in Sharkey County. (Sartor). MASSACHUSETTS - B. ainsliella (oak skeletonizer) larvae and pupae still causing many complaints statewide. (Jensen).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. October 18-24 in Dimmit County, Texas. Total of 170 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 131, Chihuahua 26, Coahuila 2, Nuevo Leon 1, Tamaulipas 10. Total of 37 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm



flies released: Texas 26,538,000; New Mexico 4,860,000; Arizona 6,020,000; California 400,000; Mexico 90,560,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 47 per head of beef cattle at Gainesville, Alachua County. (Butler, Oct. 22). OKLAHOMA - Averaged 150 per head on cattle checked in Payne County. Still heavy in Mayes County. (Okla. Coop. Sur.). UTAH - Greatly reduced in Cache County range and in canyons since recent frosts. (Thornley, Knowlton).

FACE FLY (Musca autumnalis) - MARYLAND - Adults still active in Frederick County. Heaviest counts ranged 1-3 per head on dairy cattle near Thurmont. (U. Md., Ent. Dept.). UTAH - Greatly reduced in Cache County range and in canyons since recent frosts. (Thornley, Knowlton).

#### HOUSEHOLDS AND STRUCTURES

SPECKLED COCKROACH (Nauphoeta cinerea) - CALIFORNIA - Specimens collected in residence at San Francisco, San Francisco County, August 12, 1970, by E. Carter. Determined by A.B. Gurney. This is a new county record. Origin of infestation unknown; may have been associated with vermicelli flour from Orient. Known to occur in East Africa, Germany, Australia, Hawaii, and Florida. Infests grain, fruit, and vegetables; also feeds on other cockroaches. Only other record in State is for Oakland, Alameda County. (Cal. Coop. Rpt.).

#### STORED PRODUCTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - MICHIGAN - Continues problem in stored grain and in households. (Sauer, Oct. 19).

#### BENEFICIAL INSECTS

LADY BEETLES - ARKANSAS - Mostly Hippodamia convergens (convergent lady beetle) and Coleomegilla maculata still active in light numbers with a few larvae on alfalfa in northwestern area. (Boyer).

GREEN LACEWINGS (Chrysopa spp.) - ARKANSAS - Larvae on Washington County alfalfa. (Boyer, Oct. 16).

A FLOWER BUG (Orius insidiosus) - ARKANSAS - Continues active in alfalfa. Light in northwestern area. (Boyer).

DAMSEL BUGS (Nabis spp.) - ARKANSAS - Continue active in low numbers in northwest area. (Boyer).

SPIDERS - OKLAHOMA - Only beneficial arthropods in any number on Payne County alfalfa. Averaged 45 per 10 sweeps. Six families collected but Oxyopes sp. (a lynx spider) most abundant, 30-35 per 10 sweeps. (Okla. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae in 25 calamondins checked in nursery at Daytona Beach, Volusia County. (Pott, Oct. 14). First larvae found at this nursery in 1970. (Fla. Coop. Sur.).

GRASSHOPPERS - ARIZONA - Late infestation of Boopedon nubilum, Morseiella flaviventris, and Melanoplus lakinus threatened 45,000 acres of private rangeland at Sasabe, Pima County. Ranged 10-30 per square yard. Ranchers decided against controls. Grasshoppers light to threatening on much acreage in vicinity of Seligman, Yavapai County, where economic infestations not found for several years. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Sterile moth releases of 6,633,989 (76,771,149 to date) October 16-22 at Bakersfield, Kern County. Total of 11 native moths and 2 larvae found to date in Kern County. ARIZONA - Sterile release of 67,500 (1,619,800 to date) in field at Redington, Pima County. Four native moths caught for season total of 49. Boll infestation down to 8.2 percent. Boll infestations 30 miles to north and south, 62.4 percent and 26.4 percent respectively. (PPD). Larvae infested 90 percent of top crop in 2 cotton fields at Gadsden Valley, Yuma County. (Ariz. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Adults numerous around lights at Raton, Colfax County. (Mathews).

WHITE-FRINGED BEETLES (Graphognathus spp.) - MISSOURI - New infestation at Malden, Dunklin County. Adults heavy on several properties. (Thompson). VIRGINIA - G. peregrinus adults light on wild aster at city of Petersburg for a new record. Collected by Drewry and Jenkins October 20. Determined by R.E. Warner. (PPD).

#### HAWAII INSECT REPORT

New State Record - Thirty larvae of a DERMESTID BEETLE (Trogoderma variabile) taken from trogotrap baited with dog biscuits in feed store at Honolulu, Oahu. Collected by F.J. Olson September 16, 1970. Determined by C.J. Hansel. (Olson).

Corn - CORN PLANTHOPPER (Peregrinus maidis) nymphs and adults trace to light in whorls of 3 to 4-foot corn in 5-acre planting at Waianae, Oahu. Nymphs and adults of a PREDACIOUS CAPSID BUG (Cyrtorhinus lividipennis) trace. TUMID SPIDER MITE (Tetranychus tumidus) trace. (Kawamura).

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) light to moderate, 5-40 per square inch, on leaves in 5,000 square feet of eggplant at Kahului, Maui. Moderate to heavy in 3 acres of snap beans at Waianae; 60+ per square inch on some older leaves. (Miyahira, Kawamura).

Ornamentals - An APHID (Lachnus salignus) nymphs and adults heavy on leaves and terminal twigs of pussy willow (Salix discolor) at Volcano, Hawaii, for a new host record. Previously reported only on a native shrub, Osteomeles anthyllidifolia in Hawaii, although recorded from willow and other hosts elsewhere. (Davis).

Beneficial Insects - Two specimens of a parasitic ENCYRTID WASP (Coccidoxenus mexicanus) emerged from passionfruit twigs heavily infested with BARNACLE SCALE (Ceroplastes cirripediformis) collected at Kahului in early October. Twelve also emerged from Fiddlewood (Citharexylum spinosum) twigs heavily infested with barnacle scale collected at Hawaii Kai, Oahu, in mid-October. C. mexicanus introduced into Hawaii from Trinidad in June 1967 to control Ceroplastes and Saissetia spp. Only one release of 25 adults at Kahului July 17, 1967. None released on Oahu. (Funasaki et al.). Larvae and adults of a KLAMATH-WEED BEETLE (Chrysolina quadrigemina) light on Hypericum degeneri at Kilauea Forest Reserve, Hawaii; eggs numerous, averaged 6 per plant. Three thousand released June 8, 1964, on Hualalai, Hawaii, to control Klamath-weed (Hypericum perforatum). (Davis).

Miscellaneous Insects - Adults and nymphs of SPINY ASSASSIN BUG (Polididus armatissimus) swept from fern at night along Kaulalewalewe-Puu Trail, Maui, for a new island record. Previously recorded only on Kauai, Oahu, and Hawaii. (Gagne).

#### DETECTION

New State Records - AN APHID (Liosomaphis berberidis) IDAHO - Twin Falls County (p. 748). A DERMESTID BEETLE (Trogoderma variabile) HAWAII - Oahu Island (p. 750).

New County and Island Records - An ENCYRTID WASP (Coccidoxenus mexicanus) HAWAII - Oahu (p. 750). SPECKLED COCKROACH (Nauphoeta cinerea) CALIFORNIA - San Francisco County (p. 749). SPINY ASSASSIN BUG (Polididus armatissimus) HAWAII - Maui (p. 750). A WHITE-FRINGED BEETLE (Graphognathus peregrinus) VIRGINIA - Independent City of Petersburg (p. 750).



On the Scientific Name of the Brown-Banded Cockroach, Supella  
longipalpa (Fabricius) (Dictyoptera, Blattaria, Blattellidae)

Ashley B. Gurney 1/

Ten years ago, my friend Dr. Karlis Princis of Lund, Sweden, reported finding that the above Fabrician name applies to the species then almost universally known as Supella supellectilium (Serville) (Princis, 1960, p. 193). Personally, I wish that conservation of supellectilium (Serville, 1838) had been requested from the International Commission on Zoological Nomenclature. However, that was not done, and during the past 10 years there has been sufficient use of S. longipalpa (F.) 1798 to make any current effort to conserve supellectilium unwarranted. For this reason, I have recommended that S. longipalpa be adopted in the forthcoming edition of the Common Name List.

That longipalpa has priority over supellectilium is clear. Fabricius (1798, p. 185) described Blatta longipalpa from "India orientali Dom. Daldorff," i.e., eastern India, Mr. Daldorff (collector). Princis (1960) examined the type specimen, a male, which also was recorded by Zimsen (1964, p. 614) as part of the Fabrician Collection in Copenhagen, Denmark, it having been obtained from a collection of Fabrician specimens in Kiel, Germany. Earlier, Shelford (1908, p. 468) had reported the unavailability of the type, but he was unaware of its presence at that time in Kiel. Judging from the travels of D.K. (or I.K.) Daldorff, as reported by Henriksen (1923, p. 121) and Zimsen (1964, p. 12), the type of longipalpa probably was collected in Tranquebar, which is in the State of Madras, on the eastern side of the Indian peninsula. It is not known how early longipalpa was established there, but Annandale (1907) said that it was "found throughout the Peninsular region." Daldorff arrived in Tranquebar in early 1791 and was there or nearby much of the time for 7 years or longer. Princis (1963, p. 249) mistakenly listed the type locality of longipalpa as "Ile-de-France (=Mauritius)," probably by inadvertence while thinking in terms of supellectilium.

Serville (1838, p. 114) described Blatta supellectilium from "Ile de France." Now known as Mauritius, located in the Indian Ocean about 500 miles east of Madagascar, the island was called Ile de France by the French who colonized it during 1715-1810, but since then it has been under British administration. Prior to the French, the island was colonized by the Dutch, so there was a long history of international shipping to and from the island. Serville said that supellectilium was reported to be very common on Mauritius only in houses, occurring always amidst furniture, especially in the drawers of chests, and he referred to it (in French, "Blatte des meubles") as the furniture cockroach, a common name which has persisted in some countries. The species name is from the Latin noun "supellex," meaning household goods, furniture, utensils, and the like. The logical depository for the type specimen of supellectilium is the Paris Museum, but Rehn (1947, p. 65) said that Dr. L. Chopard wrote him that the type had been lost. Even in the absence of a type specimen, however, it appears that what usually has been called supellectilium is indeed the species agreeing in description and behavior with Serville's species, and with longipalpa, so there is no reason to question the synonymy reported by Princis (1960). Related species of Supella have been reviewed by Rehn (1947, pp. 60-92) and Princis (1963, pp. 248-252; 1969).

Evidence from related species and early records of longipalpa (usually under the name supellectilium) indicate clearly that the brown-banded cockroach is native to Africa, whence it spread by association with man. Rehn (1945, 1947, pp. 68-70) has discussed its occurrence in Africa and the history of its growing distribution.

Prior to 1960 there was very little use of the name longipalpa in entomological literature, consisting of only about a half-dozen catalogue-style listings. Beginning in 1967, there have been at least 5 widely circulated papers on

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cockroach biology by Dr. Louis M. Roth, including an important review paper (Roth, 1970) in which the name longipalpa is used. Also, usage of longipalpa has begun in Canada, and a very strong precedent for accepting longipalpa has been its use by Princis (1969) in a carefully prepared world catalogue of the cockroach fauna. Usage of the name supellectilium grew rapidly after 1900, as the species became more generally established and came to the attention of entomologists in numerous countries, so that the list of references under that name by Princis (1969) occupies the equivalent of about 4 full pages in the Junk Catalogue format. In spite of this wide contrast in usage, the name longipalpa should now be adopted because of priority and the extent to which longipalpa is already being accepted in substantial literature.

Family and ordinal placement - In the most generally used or "modern" classification, living (not fossil) cockroaches are placed in 5 families, in contrast to the traditional recognition of only one family (Blattidae) or of numerous families, as has been done by several entomologists. Accordingly, Supella now is placed in the family Blattellidae, following the conclusions of McKittrick (1964), which are supported in large part by current fundamental studies such as those of Roth (1970).

Similarly, current usage favors removal of cockroaches from the Orthoptera in a restricted modern sense and placing them as a suborder, the Blattaria, in the order Dictyoptera. The subordinal names Blattaria and Blattariae both were used for suprageneric categories earlier than Blattoidea and several other more recent names. Blattaria was introduced by Burmeister (1829, p. 32) and is preferable to Blattariae, established by Latreille (1810, p. 244), because the ae ending is the standard one for insect families and subfamilies, thus is misleading if used in a subordinal sense. Blattaria is now used in the revised Imms textbook (1960 printing) and many other standard works.

The modern classification of this species, therefore, now stands as follows:

Order: Dictyoptera  
Suborder: Blattaria  
Family: Blattellidae  
Genus: Supella  
Species: longipalpa (F.)

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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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The Editors, CEIR  
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Plant Protection Division, ARS, USDA  
Federal Center Building  
Hyattsville, Maryland 20782

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

SPOTTED ALFALFA APHID building up on alfalfa in Arizona. (p. 757).

SORGHUM MIDGE damaged late-planted sorghum in west Tennessee. (p. 757).

BLACK-MARGINED APHID required controls in Arizona. (p. 759).

Detection

New State records include an APHID from Utah, ASPARAGUS APHID from Virginia (p. 759), a SEED BEETLE from Utah (p. 760), a SPIDER MITE from Florida (p. 759), a WALSHIID MOTH from Missouri (p. 758), and NORTHERN CORN ROOTWORM from North Carolina (p. 757).

For new county records see page 761.

Special Reports

Survey Methods. Additional Selected References - 1968. Part XXXII. (pp. 763-767).

Distribution of Face Fly. Map. (p. 768).

Reports in this issue are for week ending October 30 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

NOVEMBER 1970

The National Weather Service's 30-day outlook for November is for temperatures to average above seasonal normals in northern border States extending from the Rockies to the Appalachians and also in California and portions of the central and southern Plateau. Below normal averages are indicated for the South and the southern Plains. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal along the central and north Pacific coast and from the Mississippi Valley to the east coast except for near to below normal in the Northeast. Subnormal precipitation is indicated for the Southwest. In unspecified areas near normal amounts are expected.

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

WEATHER OF THE WEEK ENDING NOVEMBER 2

HIGHLIGHTS: Flood producing rains fell in southwest Texas and nearby parts of Louisiana. The West continued relatively cool, the East mild.

PRECIPITATION: A front stretched across the middle of the Nation from Wisconsin to Texas early in the week. A blocking high pressure area lay east of the front. By midweek, the southern end of the front had drifted only to Louisiana. A snow-storm moved out of the central Rocky Mountains to the central Great Plains. Several inches of snow fell Monday in parts of Nebraska and Kansas; 7 inches at Hays Center in the latter State. Severe thunderstorms, heavy showers, several funnel clouds, and a few tornadoes occurred in the warm moist air east of the front. Five to eight inches of rain fell in some localities in Arkansas on Tuesday forenoon, 8.20 inches at Jessierville, 6.12 inches at Little Fork. Deweyville, Texas, received 17.53 inches in the 24-hour period ending at 7:00 p.m. Central Standard Time and the rain was still falling at that time. Soaking rains occurred Tuesday night over a wide area from the Great Lakes to the Gulf of Mexico. As the far end approached, the southern part of the front swung east to Georgia. It brought rainy weather over a wide band from New York to Georgia. A low, centered over eastern South Dakota, produced snow flurries over the northern Great Plains and rain showers over the central Great Plains. A high in the Far West was accompanied by fair weather. Weather continued on page 762.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrosteles fascifrons) - OKLAHOMA - Heavy on small grains in several counties in north-central, northwest, and south-central areas. (Okla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - VIRGINIA - Averaged 15 per 100 sweeps of alfalfa in Page and Orange Counties. Negative in Frederick and Fauquier Counties. (Allen).

GREENBUG (Schizaphis graminum) - SOUTH DAKOTA - Trace, less than 1 infested plant in 200, in winter wheatfield south of Presho, Lyman County. (Jones). KANSAS - Light, 40 per square foot, in field of volunteer wheat. (Bell). OKLAHOMA - Light in rank early planted wheat in Noble County. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Building up in Yuma County. Counts per 100 sweeps of alfalfa ranged 6,000-7,000 in 3 Parker Valley fields October 22; 1,600-2,300 in 2 fields and 3,600 in 1 field in Yuma Valley October 26. (Ariz. Coop. Sur.). KANSAS - Counts per 10 sweeps of alfalfa: 12 in field of 8-inch alfalfa in Pottawatomie County (Bell); 8 in field in Sumner County; up to 5 in 2 fields in Sedgwick County; 18-27 in 2 fields in Harvey County; and none in one field in Cowley County. (Redding). FLORIDA - Nymphs and adults numerous in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - In southeast district, plants averaged 93.0 percent infested, 52.4 percent of stalks broken, and 0.8 percent of ears fallen. In south, plants averaged 84.6 percent infested, 36.0 percent broken, and 1.6 percent of ears fallen. (Keith, Berogan, Oct. 23). KANSAS - Middle to last instars averaged 42 per 10 plants in field of very late-planted corn in Wabaunsee County. Earlier survey during first week in September revealed no signs of infestation by first or second-generation larvae, only eggs and young larvae of third generation. (Bell). Surveyed 3 fields in Sumner County and 8 percent of stalks lodged below ear. (Redding).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI - Percent infested plants in 5 southwest counties ranged 3.0-7.6, and ranged 0.8-2.0 percent girdled. Total of 50 plants dissected in 5 fields per county. (Munson). ARKANSAS - Surveys showed average of 815 lodged corn plants per acre compared with 517 in 1969. Infestations heavier in early corn compared with late corn. (Boyer). ALABAMA - Reported for first time from Cherokee, Calhoun, and Cleburne Counties. (McQueen, Oct. 23). OKLAHOMA - Lodged 4-6 percent of stalks in several irrigated cornfields checked in Cimarron County. Larvae in overwintering stage. (Okla. Coop. Sur.).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - NORTH CAROLINA - Adults collected in Caldwell and Alleghany Counties on corn silks August 18 and 19, 1970, by J.R. Bradley. Determined by D.L. Stephan. This is a new State record. (Hunt).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - UTAH - Adults collected from corn at Ogden, Weber County, by L. Rogers July 25. Determined by R.E. White. This is a new county record. (Knowlton).

SORGHUM MIDGE (Contarinia sorghicola) - TENNESSEE - Damaged grain sorghum planted after June 1 in many western areas. Extent of damage not known; however, yield reduction noted. (Johnson).

## SMALL GRAINS

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Heavy numbers destroyed about 30 acres of 70-acre wheatfield at Snyder, Kiowa County. (Okla. Coop. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larvae heavy; damaged 40-acre oatfield in Etowah County. Destroyed several fields of emerging small grain in Lawrence County. (Sanderson, McClendon, Oct. 23). Many larvae on ryegrass and other temporary grazing crops in Mobile County; treated. (Vickery, Oct. 23).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MISSISSIPPI - Adults 7.5 per 100 sweeps of Oktibbeha County oats. (Sartor).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Activity increased noticeably; numbers built up and oviposition well underway in Dane County. (Wis. Ins. Sur., Oct. 23). KANSAS - Averaged 20 per square foot in field of volunteer wheat in Pottawatomie County but none in 2 fields of sown wheat. (Bell).

#### TURF, PASTURES, RANGELAND

NORTHERN MASKED CHAFER (Cyclocephala borealis) - DELAWARE - Grubs very numerous in many areas; heavy injury in some lawns. (Bray).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Specimen submitted from field near Elderon, Marathon County, verified by R.E. Warner for a new county record. Heavy, 1 per foot, along beach at Whitefish Point and Cave Point, Door County. On October 29, 1 per linear yard at Whitefish Point and few at Cave Point, farther north. (Wis. Ins. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidulus) - KANSAS - Adults per 10 sweeps averaged 17 in field of alfalfa in Pottawatomie County, 1 in field of red clover in Brown County. (Bell).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - KANSAS - Adults per 10 sweeps averaged 4 in field of alfalfa in Pottawatomie County (Bell); 3 in field in Sumner County, up to 1 in 2 fields in Sedgwick County, and 2-3 in 2 fields in Harvey County (Redding).

A WEEVIL (Sciaphilus asperatus) - WISCONSIN - Common on alfalfa in Langlade County. Determined by R.E. Warner. This is a new county record. (Wis. Ins. Sur.).

A WALSHIID MOTH (Walshia miscecolorella) - MISSOURI - Adult collected at lights in Boone County by W.S. Craig. Determined by R.W. Hodges. This is a new State record. (Munson).

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Average per 100 sweeps of alfalfa in Yuma County: 45 in Yuma and Gila Valleys, and 400 in Parker Valley. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Ranged 60-260 per 100 sweeps of alfalfa in Gila and Yuma Valleys, Yuma County. (Ariz. Coop. Sur.).

A PLANT BUG (Taylorilygus pallidulus) - FLORIDA - Adults 32 in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

PEA APHID (Acyrtosiphon pisum) - VIRGINIA - Increasing, ranged 200-400 per 100 sweeps of alfalfa, in Frederick and Fauquier Counties. (Allen).

#### SUGAR BEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Maggots up to 30 (averaged 5) per root in infested fields surveyed in Walsh and Pembina Counties. In 1969, counts in same areas ranged up to 100 (averaged 20) per root. Sugar beet harvesting completed; yields somewhat less than in 1969. (Kaatz).

## COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Larvae of P. rapae, Trichoplusia ni (cabbage looper), Plutella xylostella (diamondback moth), and Evergestis rimosalis (cross-striped cabbageworm) increasing on cabbage and collards throughout State in commercial and home plantings. Damaging in Jefferson, Elmore, Coosa, and Lee Counties; controls applied. (Johns et al.).

TURNIP APHID (Hyadaphis pseudobrassicae) - ALABAMA - Increased on young turnip greens statewide in commercial plantings and gardens. Medium throughout entire commercial planting in Tuscaloosa County. (Pitts et al., Oct. 23).

## GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - VIRGINIA - Single specimen collected from asparagus at Blacksburg, Montgomery County, October 8, 1970, by W.A. Allen. Determined by L.M. Russell. This is a new State record. (Allen).

## DECIDUOUS FRUITS AND NUTS

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Infested English and black walnuts at Farmington and Sunset, Davis County, and at Salt Lake City, Salt Lake County. Infested 4 English walnuts at Providence, Cache County. This is a new county record. (Knowlton). OREGON - Two infestations in walnut crop in Washington County. Few husks found infested in commercial orchard on Grabhorn Road near Hazeldale. Nuts were extra large variety grafted to Franquette tree. About one gallon of infested walnuts found on ungrafted limb in a Franquette tree in Sherwood area. Infested nuts destroyed by burning. (Baron).

LESSER MEALWORM (Alphitobius diaperinus) - CALIFORNIA - Adults 3-4 per limb on almond trees in one-half acre planting at Encinitas, San Diego County. (Okla. Coop. Rpt.).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Averaged one larva per nut in 2-acre almond orchard at Bonsall, San Diego County. (Cal. Coop. Rpt.).

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae 5 per stem of almond nursery stock at Modesto, Stanislaus County. (Cal. Coop. Rpt.).

TWIG GIRDLER (Oncideres cingulata) - MISSISSIPPI - Damage light to Hinds County pecans. (Sartor). ALABAMA - Limbs in Tuscaloosa County girdled and falling from pecan and hickory trees on lawns. Ten to 20 limbs falling from all hickory trees on drives in Little River Mouth Canyon Park in Cherokee County. Lighter on pecan and hickory in Montgomery, Macon, Lee, Crenshaw, and other central counties. (Pitts et al.).

BLACK-MARGINED APHID (Monellia costalis) - ARIZONA - Treatments required on pecan trees at Yuma, Yuma County. (Ariz. Coop. Sur.).

## ORNAMENTALS

A SPIDER MITE (Tetranychus canadensis) - FLORIDA - Adults moderate to severe on redbud, Cercis canadensis, at Oakland, Orange County, September 23, 1970. Collected by F.L. Ware. Determined by H.A. Denmark. This is a new State record. (Fla. Coop. Sur.).

## FOREST AND SHADE TREES

AN APHID (Pemphigus monophagus) - UTAH - Galls heavy on Populus angustifolia at Garden City, Rich County, August 20 and 22, 1969. Collected by G.F. Knowlton. Determined by H.L.G. Stroyan. This is a new State record. (Knowlton).

## MAN AND ANIMALS

**SCREW-WORM (*Cochliomyia hominivorax*)** - Three cases reported in U.S. October 25-31, as follows: TEXAS: Maverick 1, Dimmit 1, Lavaca 1. Total of 148 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 89, Chihuahua 33, Coahuila 9, Nuevo Leon 3, Tamaulipas 14. Total of 24 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 22,918,000; New Mexico 1,150,000; Arizona 2,910,000; California 400,000; Mexico 81,520,000. (Anim. Health Div.).

**HORN FLY (*Haematobia irritans*)** - OKLAHOMA - Averaged 100 per head on cattle checked in Payne County. (Okla. Coop. Sur.). **MISSISSIPPI** - Adults averaged 150 per head on Oktibbeha County cattle. (Sartor).

**FACE FLY (*Musca autumnalis*)** - CALIFORNIA - Adults collected from cattle at Sierraville, Sierra County, October 6, 1970, by E.C. Loomis. This is a new county record. (Cal. Coop. Rpt.).

**HORSE BOT FLIES (*Gasterophilus* spp.)** - OKLAHOMA - Many eggs on horses checked in Kay County; some adults still alive. (Okla. Coop. Sur.).

**BROWN DOG TICK (*Rhipicephalus sanguineus*)** - NEVADA - Heavy in homes, more common than usual, in Boulder City and Las Vegas, Clark County. (Zoller et al.).

**BLACK WIDOW SPIDER (*Latrodectus mactans*)** - COLORADO - Populations heavier than previous 3 to 4 year's, many entering homes in Fort Collins area of Larimer County. (Harmston).

## STORED PRODUCTS

**LESSER MEALWORM (*Alphitobius diaperinus*)** - WISCONSIN - Specimens found in hatchery at Verona, Dane County, for a new county record. Determined by L. Bayer. (Wis. Ins. Sur., Oct. 23).

## BENEFICIAL INSECTS

**A SEED BEETLE (*Acanthoscelides aureolus*)** - UTAH - Adults emerged from seeds of patterson loco (*Astragalus pattersoni*) collected at Black Rock, Millard County, by H.C. Williams, July 13, 1970. Determined by J.M. Kingsolver. This is a new State record. (Knowlton).

**A LADY BEETLE (*Coleomegilla maculata*)** - MISSISSIPPI - Adults aggregating in Oktibbeha and Noxubee Counties. (Sartor).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

**EUROPEAN CRANE FLY (*Tipula paludosa*)** - WASHINGTON - Collected 4 males September 22 from Strawberry Point on Lake Whatcom, Bellingham, Whatcom County. (Holmes).

**PINK BOLLWORM (*Pectinophora gossypiella*)** - CALIFORNIA - Sterile moth releases of 6,348,733 (83,119,882 to date) October 23-29 at Bakersfield, Kern County. Third larva for season found in gin trash October 21. ARIZONA - Sterile moth releases of 67,500 (1,687,300 to date) at Redington, Pima County; 6 native moths trapped for season total of 55. Boll infestations increased to 20.8 percent. (PPD). Larvae (all stages) up to 4 per boll in top-crop cotton at Wellton, Yuma County. Moderate in okra planting in South Phoenix area, Maricopa County. (Ariz. Coop. Sur.). FLORIDA - Native male moth collected in trap at Key Largo, Monroe County, October 13 by H.S. Creamer. Determined by V.H. Owens. (Fla. Coop. Sur.).

**A WHITE-FRINGED BEETLE (*Graphognathus leucoloma fecundus*)** - VIRGINIA - Adult collected on aster at Woodbridge, Prince William County, October 21 by N. Trammell and R. Norris. Determined by R.E. Warner. This is a new county record. (PPD).



HAWAII INSECT REPORT

Turf, Pasture - Larvae of a GRASS WEBWORM (Herpetogramma licarsisalis) light, averaged 3 per square foot, on Bermuda (Cynodon sp.) and Hilo (Paspalum conjugatum) grasses at Hilo, Hawaii. Adults 2-6 per sweep in border mixed stand of grass at golf course and memorial park on windward Oahu; larvae trace in both areas, less than 1 per square yard. (Yoshioka, Kawamura).

General Vegetables - TOMATO PINWORM (Keiferia lycopersicella) larvae severe in 5,000 square feet of old tomato planting at Halawa, Oahu; one or more larvae on every leaf. Damage moderate to older leaves and fruits 3 months ago at this farm. (Kawamura). Larval mines of LEAF MINER FLIES (Liriomyza spp.) heavy in acre of green onion at Waianae, Oahu; adults light. Mines and adults heavy in 5,000 square feet of pumpkin and 0.25 acre of zucchini at Kahului, Maui; 15-25 adults per young leaf. (Miyahira, Kawamura). CORN EARWORM (Heliothis zea) one or more on about 5 percent of mature fruits in 0.25 acre of bell peppers at Halawa. (Kawamura).

Nuts - COCONUT SCALE (Aspidiotus destructor) moderate to heavy on many coconut trees (less than 30 feet tall) at Kaneohe; moderate colonies on 30 percent of fronds on 40 coconut trees at memorial park in same area and on 50 percent of fronds on 25 coconut trees at Hawaii Kai; generally light on same host throughout Waianae. Nymphs and adults of LADY BEETLES (Telsimia nitida and Lindorus lophanthae) light to moderate in these areas of Oahu. (Funasaki, Kawamura).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) heavy on roadside kiawe trees at Puunene and Keawakapu, Maui; heavy under loose bark and in debris at base of monkey-pod trees throughout Kau, Hawaii. Random survey of monkey-pod trees along boulevard stretch at Honolulu revealed 40 percent of larvae were this species and 60 percent were MONKEYPOD MOTH (Polydesma umbricola). Similar survey in mid-August revealed larval percentages of 60 and 40, respectively. (Miyahira et al.).

Beneficial Insects - A DUNG BEETLE (Copris incertus prociduus) moderate at light at Makawao, Maui. Introduced in 1923 to control Haematobia irritans (horn fly). (Miyahira). Larvae of another NOCTUID MOTH (Catabena esula) heavy in 1,000 acres of lantana at South Point, Kau, Hawaii; defoliation severe. Introduced to control lantana. (Yoshioka).

Miscellaneous Insects - Nymphs and adults of a LEAFHOPPER (Protalebrella brasiliensis) heavy in landscape planting of wedelia at Moanalua, Oahu; averaged 2 nymphs and/or adults per leaf. (Kashiwai).

DETECTION

New State Records - AN APHID (Pemphigus monophagus) UTAH - Rich County (p. 759). ASPARAGUS APHID (Brachycolus asparagi) VIRGINIA - Montgomery County (p. 759). NORTHERN CORN ROOTWORM (Diabrotica longicornis) NORTH CAROLINA - Caldwell County (p. 757). A SEED BEETLE (Acanthosceides aureolus) UTAH - Millard County (p. 760). A SPIDER MITE (Tetranychus canadensis) FLORIDA - Orange County (p. 759). A WALSHIID MOTH (Walshia miscecolorella) MISSOURI - Boone County (p. 758).

New County Records - ALFALFA WEEVIL (Hypera postica) WISCONSIN - Marathon (p. 758). FACE FLY (Musca autumnalis) CALIFORNIA - Sierra (p. 760). LESSER MEALWORM (Alphitobius diaperinus) WISCONSIN - Dane (p. 760). NORTHERN CORN ROOTWORM (D. longicornis) NORTH CAROLINA - Alleghany (p. 757). SOUTHWESTERN CORN BORER (Diatraea grandiosella) ALABAMA - Calhoun, Cherokee, and Cleburne (p. 757). WALNUT HUSK FLY (Rhagoletis completa) UTAH - Cache (p. 759). A WEEVIL (Sciaphilus asperatus) WISCONSIN - Langlade (p. 758). WESTERN CORN ROOTWORM (Diabrotica virgifera) UTAH - Weber (p. 757). A WHITE-FRINGED BEETLE (Graphognathus Teucoloma fecundus) VIRGINIA - Prince William (p. 760).



## SURVEY METHODS

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### Part XXXII

Additional copies of Parts I through XXXII of this bibliography are available from Economic Insect Survey and Detection.

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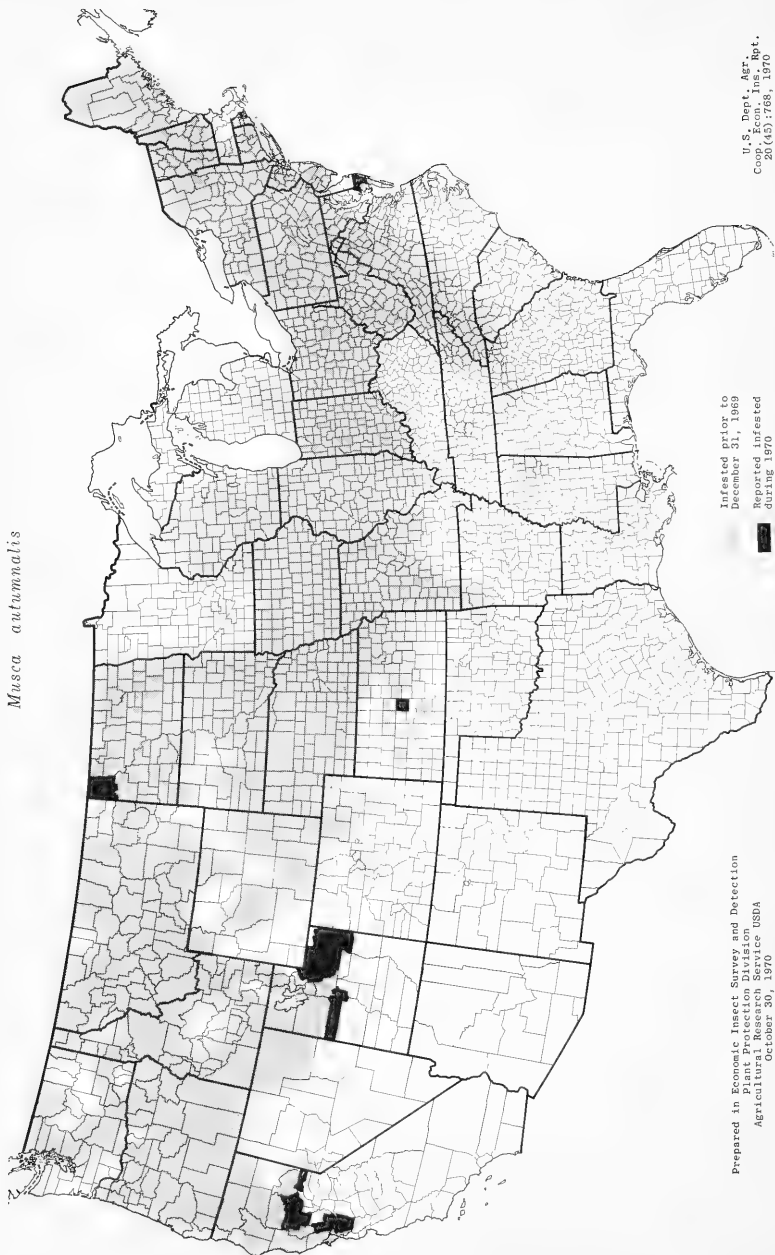
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# Distribution of Face Fly

*Musca autumnalis*



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**ECONOMIC INSECT  
REPORT**

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**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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

A WHITEFLY heavy on Bermuda grass seed fields in Arizona. (p. 772).

SAN JOSE SCALE heavy on apple trees in California and Maryland. (p. 773).

CITRUS RUST MITE infestation on Florida citrus heaviest for October in 19 years of record. (p. 773).

SOUTHERN PINE BEETLE surveys indicate potential for severe timber loss in Mississippi. (p. 774).

BLACK TURPENTINE BEETLE heavy on 96,000-acre Sandhills State Forest in South Carolina. (p. 774).

VARIABLE OAK LEAF CATERPILLAR and other defoliators caused moderate to heavy defoliation on 1.5 million acres of hardwoods in Arkansas. (p. 774).

Detection

New State records include an OTITID FLY from Arizona (p. 777), RED-BACKED CUTWORM from California (p. 777), BEET ARMYWORM from North Carolina (p. 772); a CYDNID BUG (p. 772), an ENCYRTID WASP (p. 775), a PYRALID MOTH (p. 775). SPRUCE BUD SCALE (p. 774), and a WEEVIL (p. 774) from Oregon.

For new county and island records see page 777.

Reports in this issue are for week ending November 6 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING NOVEMBER 9

HIGHLIGHTS: Heavy rain fell along the Pacific coast from Washington to northern California.

PRECIPITATION: Snow fell along the eastern slopes of the central Rocky Mountains and the northern Great Plains early in the week, while rain or drizzle fell from the central Great Plains to the upper Great Lakes and showers from the upper Ohio River Valley to the middle Atlantic States. Midweek brought heavy snow to the middle Appalachians early Thursday morning. Montebello and Hot Springs, both in Virginia, measured 13 and 9 inches respectively. Washington, D.C., received 2.44 inches of rain Wednesday afternoon and evening. Thursday was wet in New England but pleasant dry weather covered most of the rest of the Nation. Weekend rain fell in the Far West while light snow mixed with cold rain fell in the central Rocky Mountains and the western edge of the central Great Plains. Showers fell from southern Minnesota to Missouri Sunday afternoon and evening.

TEMPERATURE: Cold air from the north penetrated deep into the interior of the Nation early in the week. Subfreezing temperatures covered most of western Texas Wednesday morning. San Antonio registered 32° Friday morning. Birmingham, Alabama, registered 31° on Tuesday and Wednesday, and 32° on Friday. The lowest temperature at Tallahassee, Florida, on Friday was 35°, the same as the minimums at Detroit, Michigan and Toledo, Ohio. Afternoon temperatures in the Deep South remained in the 50's Wednesday afternoon except in the Florida Peninsula where the 60's were common in the north and 70's in the south. Maximums over the West ranged mostly from the 50's in the north to the 80's in the southwestern deserts. Last week was the coldest week of the season in the Deep South. A warming trend began in the West late in the week. The Far West averaged warmer than normal. Much of the South averaged 3-8° cooler than normal. (Summary supplied by Environmental Data Service, ESSA).



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Averaged 17 per 100 sweeps on rye in southern Sauk County; 75 percent of population females. (Wis. Ins. Sur.).

CORN EARWORM (Heliothis zea) - ARKANSAS - Pod damage noticeable on soybeans ready to harvest. Observations indicate that recommended treatment level satisfactory. (Boyer). KANSAS - Average per 10 sweeps as follows: 0.5 in field of 8-inch alfalfa in Wabaunsee County; zero in Riley and Cloud Counties; 1 in field of 7-inch red clover in Shawnee County. (Bell).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Generally light on young barley in Chaves County. (Mathews). KANSAS - Averaged 11 per linear foot in field of 6-inch sown wheat in Washington County. (Bell). WISCONSIN - Alates common on rye, no nymphs. (Wis. Ins. Sur.).

GREENBUG (Schizaphis graminum) - KANSAS - Averaged 38 per square foot in field of 9-inch volunteer wheat in Riley County. Counts per drill row as follows: Up to 0.5 in 2 fields of wheat in Clay County, 4 in 6-inch wheat in Washington County, 2 in field of 10-inch wheat in Cloud County; none in 2 fields of 3 to 4-inch wheat in Wabaunsee County. (Bell). Counts per row foot of wheat: up to 6 in 4 fields in Crawford County, up to 30 in 4 fields in Labette County, up to 27 in 4 fields in Montgomery County, and up to 24 in 4 fields in Neosho County. (Redding). NEW MEXICO - Very light on barley at Roswell, Chaves County. (Mathews).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Averaged 3,500 per 100 sweeps in 3 fields of alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.). KANSAS - Average counts per 10 sweeps of alfalfa 4-10 inches tall: 10 in field in Riley County; zero in seedling field and 60 in established field in Cloud County; 80 in field in Wabaunsee County; 20 in field in Shawnee County (Bell); and zero in Crawford County field (Redding). WISCONSIN - Averaged 15 per sweep of alfalfa in sandy areas in southern Sauk County. Oviparae 90 percent and alates 5 percent of population. (Wis. Ins. Sur.).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - IOWA - Ear drop survey of 6 fields in Carroll County October 29 showed average of 14 bushels per acre on ground in picked portion of fields and 7 bushels per acre in unpicked portions of same fields. (Iowa Ins. Sur.).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI - Percent infested corn (and percent girdled plants) by county in southeast district: Scott 61.6 (16.8); Dunklin 50.4 (2.4); Mississippi 48.4 (4.0); Stoddard 40.8 (3.2); Pemisot 29.6 (5.6); New Madrid 23.6 (5.2); Butler 21.6 (2.8); Cape Girardeau 12.4 (6.8). District averages: 36.05 percent infested and 5.85 percent girdled. (Munson).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - DELAWARE - First adults emerging from field-infested corn. (Burbutis, Kelsey).

## SMALL GRAINS

APPLE GRAIN APHID (Rhopalosiphum fitchii) - KANSAS - Averaged 38 per square foot in 9-inch volunteer wheat in Riley County, counts in sown wheat zero in fields surveyed in Clay, Washington, Cloud, and Wabaunsee Counties. (Bell).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Light, 5 per 100 sweeps of rye; alates 30 percent and all apterous and alate forms viviparae. (Wis. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Adults 1 per 100 sweeps of Oktibbeha County oats. (Sartor).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Moderate to heavy in several fields of barley in Comanche County. (Okla. Coop. Sur.).

#### TURF, PASTURES, RANGELAND

A CYDNID BUG (Sehirus cinctus albonotatus) - OREGON - Adult swept from bitterbrush Purshia tridentata at Roxy Ann Butte, Jackson County, June 24, 1970, by R.L. Westcott and B. Brown. Determined by R.L. Westcott. Additional records from Jackson County: Talent, April 2, 1938, by L.G. Gentner; near Central Point late July 1970 on rose. This is a new State record. (Westcott).

A WHITEFLY (Aleurocybotus occiduus) - ARIZONA - Buildup heavy in Bermuda grass seed fields at Yuma, Yuma County. Controls applied. (Ariz. Coop. Sur.).

#### FORAGE LEGUMES

GREEN CLOVERWORM (Plathypena scabra) - KANSAS - Average count per 10 sweeps as follows: 4 in field of 7-inch red clover and 0.3 in field of 7-inch alfalfa in Shawnee County, and 1 in field of 5-inch seedling alfalfa in Cloud County. (Bell).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 30 per 100 sweeps of alfalfa in Gila and Yuma Valley fields, Yuma County. (Ariz. Coop. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidulus) - KANSAS - Average counts per 10 sweeps as follows: 8 in field of 8-inch alfalfa in Wabaunsee County, 0.3 in field of 7-inch alfalfa and 20.5 in field of 7-inch red clover in Shawnee County, zero in field in Riley County, and zero in 2 fields in Clay County. (Bell). WISCONSIN - Adults averaged 3 per sweep in northern Dane and southern Columbia County alfalfa and 3 per 50 sweeps in southern Dane County. (Wis. Ins. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - KANSAS - Adults averaged 3 per 10 sweeps in field of 8-inch alfalfa in Wabaunsee County, and 4.7 in field of 7-inch alfalfa in Shawnee County. (Bell).

RICE STINK BUG (Oebalus pugnax) - KANSAS - One adult found while sweeping alfalfa in Shawnee County. (Bell).

YELLOW CLOVER APHID (Therioaphis trifolii) - KANSAS - Averaged 19.5 per 10 sweeps in field of 7-inch red clover in Shawnee County. (Bell).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Ranged 15-35 per sweep of alfalfa in Dane and Columbia Counties. Nymphs more numerous in Columbia County than in Dane County. Nymphs 28 percent, apterous reproducers 30 percent, and 19 percent contained parasite larvae. Viviparous alates 16 percent; wing pads on 23 percent. (Wis. Ins. Sur.).

#### SOYBEANS

BEEF ARMYWORM (Spodoptera exigua) - NORTH CAROLINA - Larvae collected from soybeans during August 1970 in Robeson County by T. Player. Determined by D. Stephan. This is a new State record. (Hunt).

CONCHUELA (Chlorochroa ligata) - OKLAHOMA - Moderate, mostly large nymphs, in late soybeans in McCurtain County. (Okla. Coop. Sur.).

#### COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Larvae of P. rapae, Trichoplusia ni (cabbage looper), Plutella xylostella (diamondback moth), and Evergestis rimosalis (cross-striped cabbageworm) still on commercial and garden plantings of cabbage and collards statewide. Damaging in Elmore and Mobile Counties. Recent rains prevented regular control in Elmore County and damage increased. (Morris et al.).

## GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - NEW YORK - Specimen found on asparagus at New City, Rockland County, August 14, by Carolyn Klass. Determined by M.D. Leonard, confirmed by L.M. Russell. First record of this species on asparagus in New York. This is a new county record. (Leonard).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Aluminum barriers placed around some lettuce fields in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## DECIDUOUS FRUITS AND NUTS

SAN JOSE SCALE (Quadraspidiotus perniciosus) - MARYLAND - Heavy on 600 acres of apples at Hancock, Washington County. Will require controls this winter. (U. Md., Ent. Dept.). CALIFORNIA - Heavy on apple trees at Ojai, Ventura County. (Cal. Coop. Rpt.).

GIANT BARK APHID (Longistigma caryae) - MISSISSIPPI - Light on Pike County pecans. (Sartor).

## CITRUS

Citrus Insect Situation in Florida - End of October - CITRUS RUST MITE (Phyllocoptiruta oleivora) infested 86 (norm 70) percent of groves; economic in 69 (norm 49) percent. Population on leaves and fruit highest for October in 19 years of record. Decrease from present high level expected at mid-November. All districts high. CITRUS RED MITE (Panonychus citri) in 29 (norm 28) percent of groves; economic in 8 (norm 7) percent. Near normal and in low range. Little change expected. Highest districts west and central. TEXAS CITRUS MITE (Eutetranychus banksi) in 25 (norm 23) percent of groves; economic in 12 (norm 7) percent. Near normal abundance and at low level. Slight increase expected. Highest district central. GLOVER SCALE (Lepidosaphes gloverii) in 67 (norm 62) percent of groves; economic in 6 (norm 9) percent. Near average and will remain in moderate range despite slight increase. Highest district north. PURPLE SCALE (L. beckii) in 62 (norm 56) percent of groves; economic in 2 (norm 3) percent. Will continue light to moderate. Highest district north. BLACK SCALE (Saissetia oleae) in 47 (norm 32) percent of groves; economic in 16 (norm 10) percent. Will be above normal but mostly in low range. Slight increase expected until cold weather occurs. Only highest district, central, is likely to have noteworthy infestations. YELLOW SCALE (Aonidiella citrina) in 41 (norm 55) percent of groves; none economic (norm 9 percent). Will remain light in all districts. CHAFF SCALE (Parlatoria pergandii) in 37 (norm 41) percent of groves; none economic (norm 4 percent). Only light infestations expected in any district. An ARMORED SCALE (Unaspis citri) in 25 percent of groves; moderate or heavy in 15 percent. Highest on record for October but less than in September. Increase expected in November if mild weather continues. WHITEFLIES in 89 (norm 66) percent of groves; economic in 18 (norm 12) percent. Still above normal and in high range. Recent downward trend expected to lower population to moderate level in November. Highest districts east and north. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Counts 100 per lemon on trees at Willows, Glenn County. (Cal. Coop. Rpt.).

## ORNAMENTALS

A MEALYBUG (Pseudococcus microcirculus) - CALIFORNIA - Heavy on cattleya orchids in orchid house at Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

IVY APHID (Aphis hederæ) - OKLAHOMA - Increased, 700-800 per terminal common on English ivy in Payne County since mid-October. (Okla. Coop. Sur.).

FULLER ROSE WEEVIL (Pantomorus cervinus) - CALIFORNIA - Adults averaged 3 per sweep on pyracantha shrubs at Hardwick, Kings County, and 1 per leaf on geraniums at Madera, Madera County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - LOUISIANA - Larvae 324 per square foot of bark surface during July in Kisatchie National Forest. Increased in Caldwell, east Winn, and north La Salle Parishes. Control by salvage continuing. (La. For. Com.). MISSISSIPPI - Population previously endemic for several years. July surveys indicated heavy brood densities. Potential for severe timber loss in Homochitto National Forest. NORTH CAROLINA - Scattered areas of increased activity; general decline in most areas. TENNESSEE - Survey during August showed large number of infested trees per thousand acres of host type in Cherokee National Forest. Salvage underway. Light in other areas surveyed. (South. For. Pest Rptr., Oct.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - MISSISSIPPI - Much damage in areas affected by Hurricane Camille, especially in coastal suburbs where heavy equipment removed debris. LOUISIANA - Heavy in large pole-sized loblolly pine in Catahoula District. (South. For. Pest Rptr., Oct.). SOUTH CAROLINA - Heavy infestation on 96,000-acre Sandhills State Forest, spots ranged 2-500 trees. (S.C. Com. For.).

SPRUCE BUD SCALE (Physokermes piceae) - OREGON - Infested twigs of Engelmann and blue spruce trees in park at Ashland, Jackson County, in May 1970. Adults numerous under bud scales; blackened honeydew covered needles. (Berry). Collected by R.L. Westcott June 25, 1970. Confirmed by R.F. Wilkey. This is a new State record. (Westcott).

HEMLOCK LOOPER (Lambdina fiscellaria) - WEST VIRGINIA - Defoliation 80-90 percent on 20 hemlocks in Marion County October 2. (W. Va. Ins. Sur.).

A WEEVIL (Rhyncolus spretus) - OREGON - Adults collected from dead portion of trunk of living Pacific dogwood tree (Cornus nuttallii) at Mehama, Marion County, by R.L. Westcott March 23, 1970. Determined by R.E. Warner. This is a new State and Pacific Northwest record. Species previously only recorded from northwestern British Columbia in the Northwest. (Westcott).

BRONZE BIRCH BORER (Agrilus anxius) - MINNESOTA - Infested 197 of 12,000 nursery birch trees, improvement over past few years. Controls improving. (Minn. Pest Rpt.).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - ARKANSAS - Larvae, mainly this species, secondarily H. guttivitta (saddled prominent), and other species, defoliated 2.5 million acres of hardwood. About 1.5 million acres had moderate to heavy defoliation. Oaks most heavily defoliated. Some defoliation occurred in spring, but defoliation heavier in fall. (Ark. For. Com.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - CALIFORNIA - Infested native poplar trees in 200-acre stand at Bonsall, San Diego County. Galls averaged 50 or more per limb on scattered trees at San Luis Rey Golf Course. (Cal. Coop. Rpt.).

COWPEA APHID (Aphis craccivora) - CALIFORNIA - Averaged 500 aphids per pod on silk-oak trees at Chowchilla, Madera County. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 3 cases reported in U.S. November 1-7 as follows: TEXAS - Jim Hogg, Terrell, Val Verde. Total of 212 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 135, Chihuahua 47, Coahuila 3, Nuevo Leon 7, Tamaulipas 20. Total of 45 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 24,648,000; Arizona 570,000; California 400,000; Mexico 84,240,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - ALABAMA - Adults 1-15 per animal on beef and dairy cattle in many herds past 21 days in Mobile, Baldwin, Monroe, Butler, Crenshaw, Macon, Elmore, Coosa, Cleburne, Clay, and Cherokee Counties. (McQueen).

HOG LOUSE (Haematopinus suis) - MISSISSIPPI - Less than 1 adult behind each ear on 30 hogs in Oktibbeha County. (Sartor).

WESTERN BLOODSUCKING CONENOSE (Triatoma protracta) - UTAH - Bit several members of sleeping family at Andersons Junction, Washington County. Two children became unconscious while others had rapid heartbeat. (Huber, Roberts, Oct. 27).

TICK SURVEILLANCE - Survey throughout the U.S. is to show seasonal distribution of potential vectors and hosts of livestock diseases, and to detect exotic species. These were some of the more interesting determinations for October: Boophilus annulatus (cattle tick) TEXAS - bovine. Otobius megnini (ear tick) TEXAS - bovine; OREGON - feline; COLORADO - equine; HAWAII - bovine. Ixodes scapularis (black-legged tick) ARKANSAS - bovine. Amblyomma cajennense (Cayenne tick) TEXAS - bovine. (Anim. Health Div.).

## STORED PRODUCTS

A PYRALID MOTH (Aglossa pinguinalis) - OREGON - Three adults reared from trash collected under loading ramp of feed mill on outskirts of Hermiston (locally called Feedville), Umatilla County, by K. Gray. Composed of broken grain and chaff, trash collected May 13, 1968. Two adults known to have emerged May 22 and 28. Determined by D.C. Ferguson. Origin of material harboring larvae of A. pinguinalis not determined. This is a new State record. (Gray).

## BENEFICIAL INSECTS

LADY BEETLES - KANSAS - Still light on alfalfa and red clover in east-central district. Averages per 10 sweeps of 7-inch red clover in Shawnee County field: Hippodamia convergens (convergent lady beetle) 4, Coleomegilla maculata and Cycloneda sp. I. (Bell).

LACEWINGS - KANSAS - Averages per 10 sweeps by county: Wabaunsee - Chrysopa spp. adults 5 and brown lacewing adults 0.5 in 8-inch alfalfa; Shawnee - Chrysopa spp. adults 1 and larvae 1, and brown lacewings 1 in 7-inch red clover. (Bell).

HETEROPTEROUS PREDATORS - KANSAS - Averages per 10 sweeps by county: Wabaunsee - Nabis spp. 3 in field of 8-inch alfalfa; Shawnee - Nabis spp. and big-eyed bugs 2 per 10 sweeps in field of 7-inch red clover; and Cloud - Nabis spp. and Orius insidiosus 1 in field of 10-inch alfalfa. (Bell).

AN ENCYRTID WASP (Holcencyrtus physokermis) - OREGON - Adults collected and reared from Physokermes piceae (spruce bud scale) infesting Engelmann and blue spruce in park at Ashland, Jackson County. Collected by R.L. Westcott June 25, 1970. Determined by B.D. Burks. This is a new State record. (Westcott).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS MS

RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) - WISCONSIN - Still noticeable on alfalfa but steadily decreasing. (Wis. Ins. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Sterile moth releases of 5,503,448 (88,623,330 to date) October 30 to November 5 at Bakersfield, Kern County. No native moths or additional larvae recovered in county. ARIZONA - Sterile release of 67,500 (1,754,800 to date) in field at Redington, Pima County. Five native moths trapped in Redington field for total of 60. Infested 16.6 percent of bolls. (PPD). Averaged up to 4 larvae per young top crop boll at Aztec, Yuma County. Fields untreated. (Ariz. Coop. Sur.). NEW MEXICO - Increased in green bolls in many cotton fields near Texas State line in southern Dona Ana County. (Nielsen, Oct. 30). Heavy in bolls in few southern Dona Ana and Eddy County fields. (Mathews, Riddle).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Following adults collected for new county records. Determined by V.H. Owens; confirmed by R.E. Warner. SOUTH CAROLINA - G. leucoloma fecundus light on road shoulder of farm at Kershaw, Kershaw County. Collected by J.T. Squires October 15, 1970. ARKANSAS - G. peregrinus on pyracantha, azalea, and weeds in yard at El Dorado, Union County. Collected by G. Lee October 19, 1970. (PPD).

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HAWAII INSECT REPORT

General Vegetables - All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) moderate in 2 acres of bittermelon at Pupukea, Oahu. Light in 0.25 acre of bittermelon and in 1.5 acres of eggplant at Haleiwa, Oahu. Heavy in 5,000 square feet of pumpkin at Kahului, Maui. (Miyahira, Kawamura). CARMINE SPIDER MITE (Tetranychus cinnabarinus) light to moderate, averaged 15 per square inch of leaf, in 1.5 acres of eggplant at Haleiwa. Negligible in 0.25 acre of same crop in same area. (Kawamura). BEAN FLY (Melanogromyza phaseoli) heavily infested petioles of backyard snap bean planting at Makawao, Maui; parasites Opus sp. (a braconid) and Halticoptera patellana (a pteromalid wasp) recovered for first time in this area. Moderate in small planting of long beans at Pearl City, Oahu. (Miyahira, Kawamura). SOUTHERN GREEN STINK BUG (Nezara viridula) moderate in backyard snap bean plantings at Kurtistown, Hawaii; 12-15 adults and nymphs per plant. (Yoshioka). BEET ARMYWORM (Spodoptera exigua) moderate in acre of green onion at Waianae, Oahu; infested 30-50 percent of leaves. (Kawamura). GREEN PEACH APHID (Myzus persicae) nymphs and adults moderate, 10-20 per leaf, in 0.25 acre of bell pepper at Kahului, Maui. (Miyahira).

Fruits - BARNACLE SCALE (Ceroplastes cirripediformis) heavy in 60 of 120 acres of passionfruit at Kahului; parasitism poor. (Miyahira).

Forest and Shade Trees - A PSYLLID (Psylla uncatoides) trace on Acacia confusa trees at Nuuanu and Punchbowl, Oahu; averaged one nymph or adult per sweep at both locations. (Kawamura). All stages of GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) heavy on young pines at Waimea, Hawaii; some trees severely affected. (Yoshioka).

Beneficial Insects - Adults of a BRACONID (Apanteles militaris) emerged from cocoons collected at Puu Oo Trail, Kilauea Forest Reserve, Hawaii, 70 miles from original release site. This is a new locality record. Introduced from California to control Pseudaletia unipuncta (armyworm) and released at Parker and Kahua Ranches, Hawaii, in May 1960. (Bianchi).

Miscellaneous Pests - Specimens of a MUSCID FLY (Musca sorbens) collected from Hawaii, Maui, and Molokai for new island records. Previously reported only on Oahu where first specimen taken at Waianae in September 1949. (Ikeda).

## DETECTION

### New State Records

AN OTITID FLY (Diacrita plana) ARIZONA - Collected around windows of State inspection station at Cameron, Coconino County, by E.S. Seeley during June 1970. Determined by R.H. Foote. (Ariz. Coop. Sur.).

RED-BACKED CUTWORM (Euxoa ochrogaster) CALIFORNIA - One female trapped in light trap in Modoc County 20 miles southwest of Alturas. Collected by R.L. Dalleske August 3, 1970. Identified by W.R. Bauer. (Cal. Coop. Rpt.).

BEE T ARMYWORM (Spodoptera exigua) NORTH CAROLINA - Robeson County (p. 772). A CYDNIID BUG (Sehirus cinctus albonotatus) OREGON - Jackson County (p. 772). An ENCYRTID WASP (Holcencyrtus physokermis) OREGON - Jackson County (p. 775). A PYRALID MOTH (Aglossa pinguinalis) OREGON - Umatilla County (p. 775). SPRUCE BUD SCALE (Physokermes piceae) OREGON - Jackson County (p. 774). A WEEVIL (Rhyncholus spretus) OREGON - Marion County (p. 774).

New County and Island Records - ASPARAGUS APHID (Brachycolus asparagi) NEW YORK - Rockland (p. 773). A MUSCID FLY (Musca sorbens) HAWAII - Hawaii, Maui, Molokai (p. 776). WHITE-FRINGED BEETLES (Graphognathus spp.) ARKANSAS - G. peregrinus in Union; SOUTH CAROLINA - G. leucoloma fecundus in Kershaw (p. 776).

## CORRECTIONS

CEIR 20(45):759 - WALNUT HUSK FLY (Rhagoletis completa) - OREGON - Add "This is a new county record." (Baron).

LIGHT TRAP COLLECTIONS

| Locality                             | Date | Time | Precipitation | Wind direction | Wind speed | Temperature | Humidity | Moon phase | Crops |       |
|--------------------------------------|------|------|---------------|----------------|------------|-------------|----------|------------|-------|-------|
|                                      |      |      |               |                |            |             |          |            | Area  | Yield |
| FLORIDA<br>Gainesville 10/30-11/5    | BL   |      |               |                |            |             |          |            | 1     | 1     |
| MISSISSIPPI<br>Stoneville 10/30-11/5 | 2BL  | 10   | 0.02          | 36-74          | 9          | 31          |          |            | 6     | 11    |
| TEXAS<br>Waco 10/31-11/6             | BL   | 3    |               |                | 34         | 7           |          |            | 1     | 25    |









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November 20, 1970

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

SMITHSONIAN  
DEC 9 1970

*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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

An APHID damaged winter wheat in Washington. (p. 781).

WESTERN PINE BEETLE continues troublesome on Trinity National Forest and a WEEVIL damaged ponderosa pine on Stanislaus National Forest in California. A CONIFER SAWFLY damaged loblolly pine in Virginia. (p. 783).

Detection

A SPHECID WASP reported for the first time from Hawaii. This widely distributed oriental species is a new Western Hemisphere record. (p. 785).

For new county records see page 785.

Special Report

Distribution of Western Bean Cutworm. Map. (p. 786).

Reports in this issue are for the week ending November 13 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING NOVEMBER 16

HIGHLIGHTS: Temperatures averaged above normal in the Northwest and from the Great Lakes region to the Northeast and below normal over the South from Arizona to Alabama. General rain fell in most of the Deep South.

PRECIPITATION: Early in the week a cold front extended from a storm centered in southern Minnesota to the Gulf of Mexico. Lines of showers and thunderstorms occurred in advance of the front. A few light snow flurries were noted in Minnesota to the front and across the country from west to east during the week, causing alternating periods of fair and inclement weather. Snow whitened the northern Great Plains. Rainy, windy weather prevailed in the Far Northwest with snow in the mountains. As the weekend approached, snow fell in the Rocky Mountains and in the Great Plains from the Dakotas to Oklahoma. Rain flooded lowlands along some streams in south-central Pennsylvania, northeastern West Virginia, and extreme northern Virginia late Thursday night. The weekend weather was mostly gloomy and depressing. The rains continued in the Pacific Northwest and generally inclement weather prevailed from the Mississippi River to the Atlantic Ocean

TEMPERATURES: A cooling trend held afternoon temperatures over the northern Great Plains to near freezing; elsewhere there was little temperature change during the week. In both the West and the East maximums ranged from the 50's near the Canadian border to the 70's across the South. Freezing temperatures occurred on several mornings over the Great Basin, the Rocky Mountains, and the northern and central Great Plains. Douglas, Arizona, registered 28° on November 9. Subfreezing weather occurred on 1 or 2 mornings early in the week in the central Appalachians. Weekly mean temperatures were generally slightly above normal in the West and from the Great Lakes region to the Northeast and much below normal in most of the Deep South. (Summary supplied by Environmental Data Service, ESSA.)



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrosteles fascifrons) - OKLAHOMA - Remains moderate in small grains in Cotton County. Declining in Payne County wheat. (Okla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - ARIZONA - Larvae 20 per 100 sweeps in field of alfalfa in Yuma County. (Ariz. Coop. Sur.). KANSAS - Larval averages per 10 sweeps: 0.7 and 1.3 in 2 fields of 8 to 10-inch alfalfa in Anderson County; 1 in 10-inch alfalfa in Sedgwick County; and 1 in field in Sumner County. (Redding, Bell).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Medium on barley at Las Cruces, Dona Ana County. (N.M. Coop. Rpt.). KANSAS - Counts per row foot of wheat: 0.3 in field in Nemaha County, 1 in field in Saline County, 1-9 in 3 fields in Sedgwick County, 6 in field in Sumner County, 4-5 in 2 fields in Elk County, and 7-45 in 2 fields in Chautauqua County. One per square foot of volunteer wheat in Dickinson County. (Redding, Bell).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Averaged 8 and 0.5 per linear foot in 2 early planted wheatfields in Payne County. Up to 5 per linear foot in early planted and volunteer wheat in Cimarron County. (Okla. Coop. Sur.). ARKANSAS - Ranged 15-20 per 100 sweeps of wheat in Washington County; first of fall season. (Boyer). KANSAS - Counts generally light in wheat examined in northeast, east-central, southeast, central and south-central crop districts. (Redding, Bell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Ranged 2,500-3,500 per 100 sweeps of alfalfa in 3 Parker Valley fields and 300-500 in seedling fields in Yuma County. (Ariz. Coop. Sur.). KANSAS - Counts per 10 sweeps of alfalfa as follows: 11 in field in Marshall County, 13 in field in Nemaha County, 3-4 in 2 fields in Jackson County, 35 in field in Franklin County; 16 and 45 in 2 fields in Anderson County; 65 in field in Saline County; zero and 10 in 2 fields in Sedgwick County; 5-10 in 2 fields in Sumner County; 25 in field in Elk County; and 90 in field in Chautauqua County. (Redding, Bell).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH DAKOTA - Fall abundance survey completed in Gregory, Kingsbury, Lake, Lyman, Moody, and Tripp Counties. Populations still heavy in Kingsbury, Lake, and Moody Counties. Although overwintering populations in Gregory and Lyman Counties relatively low compared with those in eastern area, numbers increased over those present in 1969 and 1968. (Jones).

### SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - NORTH CAROLINA - Many larvae still active on oats in Edgecombe County November 5. (Hunt).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Adults averaged 2 per 100 sweeps of Oktibbeha County oats. (Sartor).

AN APHID (Rhopalosiphum padi) - WASHINGTON - Infested about half of 40,000 acres of winter wheat in Franklin County by November. Damage light to severe; 3 acres of plants killed in one field. (Hokanson, Retan).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - KANSAS - Average per row foot of wheat: 0.3 in field in Marshall County and 0.3 in field in Nemaha County. Counts per square foot of volunteer wheat: One in Franklin County field and 1 in Dickinson County field. (Bell).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Averaged 1 and 9 per linear foot in 2 early planted wheatfields in Payne County. (Okla. Coop. Sur.).

#### FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae 40 per 100 sweeps in Yuma area alfalfa, Yuma County. (Ariz. Coop. Sur.). KANSAS - Larval averages per 10 sweeps of alfalfa: 0.3 in Nemaha County field, 1.7 in Jackson County field, 1.5 in Franklin County field, 0.7 in Anderson County. Averaged 0.5 per 10 sweeps of red clover in Johnson County. (Bell).

GREEN CLOVERWORM (Plathypena scabra) - KANSAS - Counts per 10 sweeps of alfalfa: 0.3 in Marshall County, 1 in Jackson County; and 0.3 and 3.0 in 2 fields in Anderson County. (Bell).

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae ranged 50-100 per 100 sweeps in most alfalfa throughout Parker Valley; 50-65 in seedling fields in some areas. (Ariz. Coop. Sur.).

CELERY LOOPER (Anagrapha falcifera) - KANSAS - Larval averages per 10 sweeps of alfalfa: 0.7 in 1 field in Marshall County, 0.7 in Jackson County field; 2.0 and 2.7 in 2 fields in Anderson County; and 0.3 in Saline County field. (Bell).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - KANSAS - Adult averages per 10 sweeps of alfalfa: 0.3 in Marshall County field, 1.3 in Jackson County field, 5 and 11 in 2 fields in Anderson County, 1 in field of seedling alfalfa in Franklin County, and 1 per 10 sweeps in 5-inch alfalfa in Saline County. One per 10 sweeps of red clover in Johnson County field. (Bell).

CLOVER ROOT CURCULIO (Sitona hispidulus) - KANSAS - Counts per 10 sweeps of alfalfa: 2 in Franklin County field and 0.3 in Anderson County field. One per 10 sweeps of red clover field in Johnson County. Surveys negative in Marshall, Nemaha, and Jackson Counties. (Bell).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - KANSAS - Adults per 10 sweeps of alfalfa averaged 1.3 in Nemaha County field and 0.3 in Anderson County field. (Bell).

RICE STINK BUG (Oebalus pugnax) - KANSAS - Adults averaged 0.5 per 10 sweeps in field of red clover in Johnson County. This is a new county record. (Bell).

PEA APHID (Acyrtosiphon pisum) - KANSAS - Averages per 10 sweeps of alfalfa: 1.7 in Marshall County field, 2.3 in Nemaha County field, 10 in Jackson County field, and 2 in Anderson County field. (Bell).

#### COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Larvae of P. rapae, Trichoplusia ni (cabbage looper), Plutella xylostella (diamondback moth) continue to damage commercial plantings of cabbage in Mobile and Coosa Counties. Controls applied. (Vickery, Dowdell).

#### GENERAL VEGETABLES

BLACK CUTWORM (Agrotis ipsilon) - CALIFORNIA - One larva per square yard of celery at Chula Vista, San Diego County. (Cal. Coop. Rpt.).

#### CITRUS

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Adults infested 60 percent of 2,000 mixed young citrus trees in nursery at Turkey Creek, Hillsborough County. (Vaughan, Nov. 4).

## ORNAMENTALS

A CONIFER APHID (Cinara tujafilina) - OKLAHOMA - First individuals and small colonies (4-15 per colony) of season on Payne County arborvitae. (Okla. Coop. Sur.).

A MEALYBUG (Rhizoecus americanus) - FLORIDA - Adults on roots of about 16,000 African violets in nursery at Winter Garden, Orange County. (Ware, Nov. 9).

A SPIDER MITE (Tetranychus evansi) - CALIFORNIA - Currently very heavy on night-shade at Oxnard, Ventura County. (Cal. Coop. Rpt.). All reports of Tetranychus marianae from California, first reported in CEIR 15(53):1344, should read T. evansi. (PPD).

Nursery Inspections in Suffolk County, New York - DOGWOOD BORER (Thamnosphesia scitula) larvae ranged 2-3 per tree on 7 dead or dying Chinese chestnuts (Castanea mollissima) in 2 rows on October 21. Determined by W.J. Goodwin and K.E. Brehm. PINE TUBE MOTH (Argyrotaenia pinatubana) damage light on few red pines (Pinus resinosa) scattered throughout 1-acre planting of Japanese black pine October 14; all tubes empty. Empty tubes light to moderate throughout block of Austrian pine (P. nigra); damage light. Overwintering nymphs (males and females) of JUNIPER SCALE (Diaspis carueli) on several large American arborvitae (Thuja occidentalis) in 0.5 to 0.75-acre block October 14; damage light. Determined by K.E. Brehm. Migrating nymphs of FLETCHER SCALE (Lecanium fletcheri) moderate throughout 0.5-acre block of American arborvitae. Except for L. fletcheri on arborvitae, occurrences of other species unusual on hosts observed. (Goodwin, Brehm, Brown).

## FOREST AND SHADE TREES

A WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Severely damaged ponderosa pines in plantation at Stanislaus National Forest in Tuolumne and Mariposa Counties. (Gilkey, USFS).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Infestations that started in 1968 continue in 500 acres of ponderosa pine in Bell Creek, Canyon Creek, and Bidden Creek in Trinity National Forest. Salvage sales proposed. (Griffin, Lunn, USFS).

A CONIFER SAWFLY (Neodiprion hetricki) - Severely defoliated pole-sized and mature loblolly pines past 5 years in Caroline County. (For. Pest Sur. Rpt., Oct.).

OBSCURE SCALE (Melanaspis obscura) - MARYLAND - Overwintering forms heavy on many street plantings of oak at College Park, Prince Georges County. (U. Md., Ent. Dept.).

## MAN AND ANIMALS

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 25 per head of beef cattle and 8 per head of dairy cattle near Gainesville, Alachua County. (Butler). MISSISSIPPI - Averaged 10 per head on 7 cattle at State College, Oktibbeha County, and 40 checked in Yazoo County. (Sartor).

FACE FLY (Musca autumnalis) - CALIFORNIA - Specimens collected at Milpitas, Santa Clara County, by R.G. Blair and W. Dana, October 14, 1970. Determined by Blair and Jamison. This is a new county record. (Cal. Coop. Rpt.).

STABLE FLY (Stomoxys calcitrans) - FLORIDA - Adults averaged 1 per 5 beef cattle near Gainesville, Alachua County. (Butler).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. November 8-14. Total of 159 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 80, Chihuahua 47, Coahuila 6, Nuevo Leon 16, Tamaulipas 10. Total of 22 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 24,468,000; Arizona 570,000; California 400,000; Mexico 75,040,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Averaged 6 per head in backs of beef cows in Payne County. (Okla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - OKLAHOMA - Light on sheep in Logan and Payne Counties. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - FLORIDA - Buildup beginning on swine at Gainesville, Alachua County. (Butler).

BLACK-LEGGED TICK (Ixodes scapularis) - ALABAMA - Sample of 10+ collected from cow in Barbour County by M. Stringer November 3, 1970. Determined by Emrick. (McQueen).

#### BENEFICIAL INSECTS

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Counts of 20-50 per stem on alfalfa in laboratory at Albany, Alameda County. Thrips entering stems of alfalfa used to propagate Hypera postica (alfalfa weevil) and destroying weevil eggs by sucking fluids. First experience with this species performing in this manner. Destroyed all eggs in some cages. (Cal. Coop. Rpt., Oct. 9).

CONVERGENT LADY BEETLE (Hippodamia convergens) - KANSAS - Adults averaged 0.3 per row foot of 9-inch wheat in Nemaha County and 1.3 per 10 sweeps of 5-inch alfalfa in Saline County. (Bell).

LACEWINGS - KANSAS - Adults of Chrysopa carnea (a green lacewing) per 10 sweeps of alfalfa averaged 0.3 in Marshall County, 0.3 in one Nemaha County field 0.7 in one Jackson County field, and 0.3-1.3 in 2 fields in Anderson County. Larvae averaged 0.7 per 10 sweeps in field of alfalfa in Anderson County. Unspecified brown lacewings averaged 0.3 larvae per 10 sweeps in 2 fields of alfalfa in same county. (Bell).

HETEROPTEROUS PREDATORS - KANSAS - Nabis spp. (damselfly bugs) adults and nymphs per 10 sweeps of alfalfa averaged 3.7 in Marshall County field, 4.3 in Nemaha County field, 1.5 in Jackson County field, 1 in Franklin County field, and 0.7 in 2 Anderson County fields. Averaged 0.7 per row foot in field of 9-inch wheat in Nemaha County. Orius insidiosus (a flower bug) averaged 0.3 and 1 per 10 sweeps in 2 alfalfa fields in Anderson County. (Bell).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Specimens taken from pomegranate fruit in 10-acre planting at Porterville, Tulare County. (Cal. Coop. Rpt.).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Bait applications applied in suspect area of Orange County. Detection negative for any form of fly. (Cal. Coop. Rpt.).

ORIENTAL WOOD BORER (Heterobostrychus aequalis) - OREGON - Adults and larvae found infesting dried mahogany veneer at lumber company in Douglas County during September 1970. Veneer from Malaysia. Species found several years ago at same lumber company in veneer imported from Philippines. Normal processing of lumber at this company reduces probability of establishment. Determined by T.J. Spilman. According to R.E. Woodruff, H. aequalis has been intercepted in 14 States but only known to be established along eastern coastal tip of Florida. (Ritcher et al.).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released November 6-12. CALIFORNIA - Bakersfield, Kern County 4,964,575, total to date 93,587,906. ARIZONA - Redington, Pima County, 67,500, total to date 1,822,300. Infested 56 bolls, an 11.2 percent infestation. (PPD).

PISTACHIO SEED CHALCID (Megastigmus pistaciae) - CALIFORNIA - Sticky-board traps in 6 commercial orchards in Butte, Glenn, Solano, and Tehama Counties negative. Traps removed. Nuts collected for future examination. (PPD).

#### HAWAII INSECT REPORT

New State Record - A SPHECID WASP (Liris laboriosa (Smith)), previously unrecorded from Hawaii but present at least 7 years. Eight females in University of Hawaii collection; the oldest collected at Honolulu, Oahu Island, by P. Howell October 14, 1963. L. laboriosa belongs to subfamily Larrinae, a group which provisions nests with paralyzed crickets. It was described from the Philippine Islands and is a widely distributed oriental species. It also occurs in several localities in the Mariana Islands. Determined by A.S. Menke. (Beardsley). This is a new Western Hemisphere record. (PPD).

Turf, Pasture, Rangeland - Larvae of a GRASS WEBWORM (Herpetogramma licarsisalis) active only in windward areas of Haiku and Hana, Maui; light, averaging 2.0 larvae per square foot. Parasitism nearly 100 percent by Trichogramma semifumatum (a minute egg parasite) but 4 percent by larval parasite Casinarina infesta (an ichneumon wasp). (Miyahira).

Beneficial Insects - Larvae of a LADY BEETLE (Cryptolaemus montrouzieri) heavy, averaged 2 per leaf, and preying on nymphs of Ceroplastes cirripediformis (barnacle scale) heavily infesting fiddlewood trees at Hawaii Kai, Oahu. (Funasaki). A PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) affected 58.3 percent of 60 internodes of Tribulus cistoides at Lahaina, Maui, and 83.3 percent of 60 internodes at Waikapu. Absent in material from Kihei and Puunene. (Miyahira). Progeny of a TINGID BUG (Leptobyrsa decora) found on lantana for first time at Kokee, Kauai, since release in June 1970. All stages of nymphs and adults on lantana sprigs in June 1970. All stages of nymphs and adults on lantana sprigs at release site. Range extension appears nominal now. (Sugawa). Nymphs and adults of LANTANA LACE BUG (Teleonemia scrupulosa) generally light, heavy in scattered spots, in 1,000 acres of lantana at Ulupalakua, Maui. Larvae and adults of LANTANA HISPID (Uroplata girardi) and LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) light at Ulupalakua. (Miyahira, Ah Sam).

#### DETECTION

New Western Hemisphere Record - A SPHECID WASP (Liris laboriosa (Smith)) HAWAII - Oahu Island (p. 785).

New County Records - RICE STINK BUG (Oebalus pugnax) - KANSAS - Johnson (p. 782). FACE FLY (Musca autumnalis) - CALIFORNIA - Santa Clara (p. 783).

#### CORRECTIONS

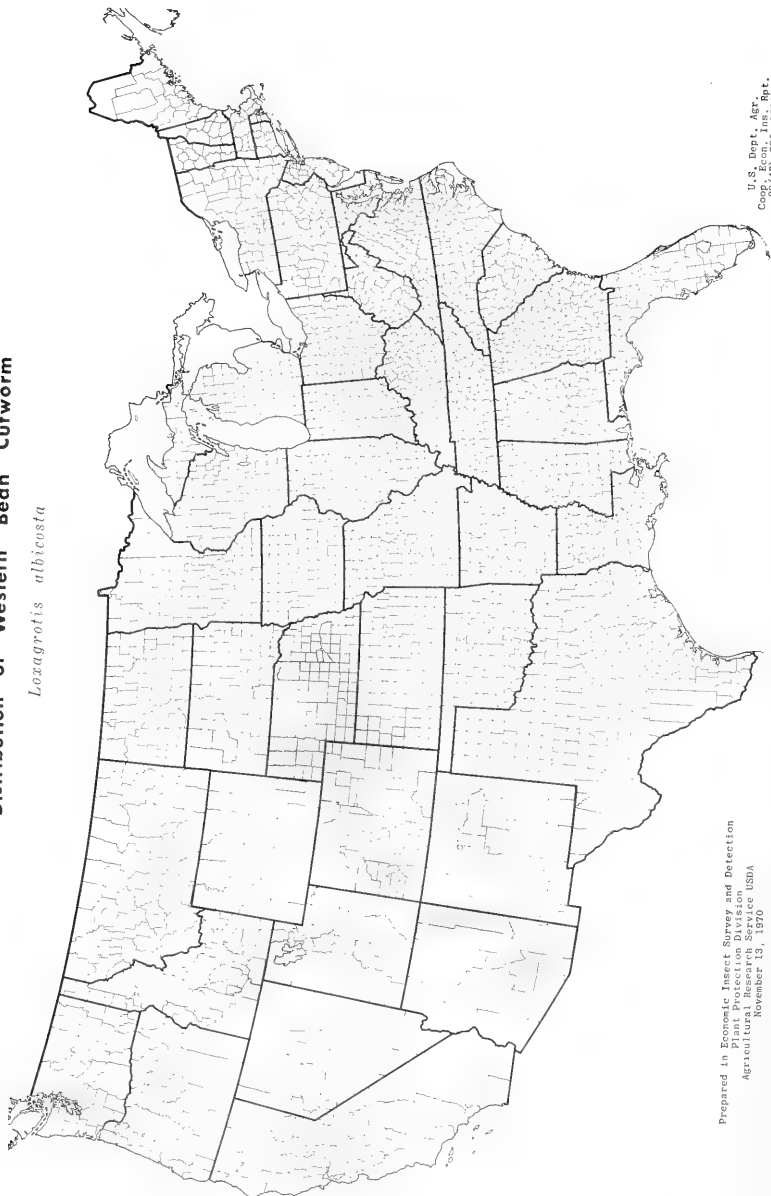
All reports of Tetranychus marianae from California, first reported in CEIR 15(53):1344, should read T. evansi. (PPD).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 11/6-12, BL - Armyworm (Pseudaletia unipuncta) 1, black cutworm (Agrotis epsilon) 1. MISSISSIPPI - Stoneville, 11/6-12, 2BL, 37°-76°F., precip. 1.41 - Armyworm 29, beet armyworm (Spodoptera exigua) 13, black cutworm 57, corn earworm (Heliothis zea) 13, fall armyworm (S. frugiperda) 15, granulate cutworm (Feltia subterranea) 70, yellow-striped armyworm (Prodenia ornithogalli) 4. TEXAS - Waco, 11/7-13, BL - Armyworm 92, beet armyworm 122, black cutworm 14, cabbage looper (Trichoplusia ni) 9, fall armyworm 5, granulate cutworm 74, variegated cutworm (Peridroma saucia) 32, yellow-striped armyworm 2.

# Distribution of Western Bean Cutworm

*Loxagrotis albicosta*



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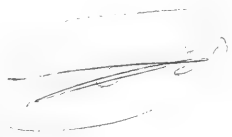
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November 27, 1970

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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

GREENBUG remains light on small grains in New Mexico, Oklahoma, and Kansas. (p. 789).

SPOTTED ALFALFA APHID caused some injury to alfalfa in Arizona. (p. 789).

THREE-CORNERED ALFALFA HOPPER moderate in alfalfa in Arizona. (p. 790).

#### Detection

A FLATID BUG reported for the first time from Hawaii. This is a new United States record. (p. 793).

A WALSHIID MOTH recovered from Missouri (p. 790) and SMALLER EUROPEAN ELM BARK BEETLE from Wyoming (p. 791) for new State records.

For new county and island records see page 793.

Reports in this issue are for week ending November 20 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-NOVEMBER TO MID-DECEMBER 1970

The National Weather Service's 30-day outlook for mid-November to mid-December is for temperatures to average above seasonal normals over the western half of the Nation and in New England. Below normal temperatures are indicated for the South. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Atlantic Coast States, the lower Great Lakes and the central and north Pacific coast. Subnormal totals are indicated for the central and southern Plains as well as eastern portions of the intermountain region. 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 National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price \$5.00 a year.

For Weather of the week see page 794.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - CALIFORNIA - Larvae and adults infested 40-acre potato planting at Shafter, Kern County. (Cal. Coop. Rpt.). ARIZONA - Damaged 8 of 10 ears in 1 field of corn in Yuma County. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEW MEXICO - Generally light to medium on Dona Ana County barley. (N.M. Coop. Rpt.). KANSAS - Counts per drill row foot of wheat: None in 2 Riley County fields, 4 in Morris County field, up to 9 in 3 Cowley County fields, up to 1 in 4 Harper County fields, 2-6 in 3 Barber County fields, none in 3 Edwards County fields, up to 7 in 4 Kingman County fields, up to 1 in 3 Kiowa County fields, up to 5 in 3 Pratt County fields, and none in 3 Ford County fields. (Redding, Bell).

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Generally light on wheat and barley in Chaves and Curry Counties. (Mathews). OKLAHOMA - Counts per linear foot, 1-10 on wheat in Cotton, Jackson, and Harmon Counties. Averaged 3 per linear foot on volunteer barley in Cotton County. Up to 10 on wheat in Payne County. (Okla. Coop. Sur.). KANSAS - Counts per drill row foot of wheat: 1-3 in 2 Riley County fields, none in 1 Morris County field, up to 6 in 3 Cowley County fields, up to 5 in 4 Harper County fields, 1-8 in 3 Barber County fields, none in 3 Edwards County fields, up to 4 in 4 Kingman County fields, none in 3 Kiowa County fields, up to 12 in 3 Pratt County fields, and up to 1 in 4 Ford County fields. (Redding, Bell).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Ranged 500-3,500 per 100 sweeps of mature alfalfa (1 seedling field replanted). Ranged 1,800-2,590 per 100 sweeps of alfalfa in 2 Parker Valley fields, 300-600 in older fields; and 400-2,500 in some seedling fields in Yuma County. Variable; some injury in Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Light, up to 3 per square foot on young alfalfa in Chaves County. (Mathews). KANSAS - Counts per 10 sweeps of alfalfa: 4 in Riley County field, 15 in Geary County field, 20-30 in 2 Cowley County fields, 25 in Harper County field, none in Barber County field, 150 in Kingman County field, 25 in Pratt County field, and 20 in Ford County field. (Redding, Bell).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MISSOURI - Average overwintering borers per 100 plants by crop district: West-central 95.12, central 186.96, and east-central 66.88. (Munson). SOUTH DAKOTA - Fall abundance surveys complete in Deuel, Grant, Marshall, and Roberts Counties. Larval populations about same as 1969 and 1968. Apparent reduction in Deuel County. (Jones).

### SMALL GRAINS

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - KANSAS - Counts per drill row foot of wheat: 1.3 and 2.3 in 2 Riley County fields, 2.3 in Morris County field, up to 38 in 3 Cowley County fields, up to 22 in 4 Harper County fields, up to 3 in 3 Barber County fields, none in 3 Edwards County fields, up to 2 in 4 Kingman County fields, none in 3 Kiowa County fields, up to 5 in 3 Pratt County fields, and 5-25 in 4 Ford County fields. (Redding, Bell).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - ARKANSAS - Ranged 75-100 in 100 sweeps of Washington County wheat, 60 percent winged. First of fall season. (Boyer).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - MISSISSIPPI - Average 4 adults per 100 sweeps of Oktibbeha County oats. (Sartor).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MISSISSIPPI - Average 4 adults per 100 sweeps of Oktibbeha County oats. (Sartor).

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Counts per linear foot, 1-50 in wheat in Cotton, Jackson, and Harmon Counties. Averaged 300 in 5 fields east of Walters, Cotton County. Ranged 15-20 on volunteer barley in Cotton County. (Okla. Coop. Sur.).

## TURF, PASTURES, RANGELAND

A MARCH FLY (Dilophus orbatus) - CALIFORNIA - Still nuisance on and in lawns in many areas. Infestations previously seasonal, now almost continuous and spreading. Thousands of adults cover lawns, grass, and dichondra. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Adults 20 per 100 sweeps of alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidulus) - KANSAS - Adult averages per 10 sweeps of alfalfa: 7.9 in Riley County field, 1.5 in Geary County field, and 1.5 in Wabaunsee County field. (Bell).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - KANSAS - Adult averages per 10 sweeps of alfalfa: 2.3 in Riley County field, 1 in Geary County field, 2.5 in Wabaunsee County field, 1 in Harper County field, and 2 in Barber County field. (Redding, Bell).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Ranged 800-1,500 per 100 sweeps of alfalfa in Yuma Valley and 350-700 in some old established fields in Yuma County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - KANSAS - Adult averages per 10 sweeps of alfalfa: 12.1 in Riley County field, 3.5 in Geary County field, and 3.0 in Wabaunsee County field. (Bell).

CELERY LOOPER (Anagrapha falcifera) - KANSAS - Larvae averaged 1.7 per 10 sweeps of alfalfa in Riley County field, none in Geary County field, and none in Wabaunsee County field. (Bell).

A WALSHIID MOTH (Walshia misecolorella) - MISSOURI - Collected at lights at Columbia, Boone County by W.S. Craig May 27, 1966; June 12 and September 17, 1967; and May 31, 1969. Determined by R.W. Hodges. This is a new State record. (Munson).

PEA APHID (Acyrtosiphon pisum) - KANSAS - Averages per 10 sweeps of alfalfa: 2 in Riley County field and 6 in Geary County field. (Bell).

## SOYBEANS

A CERAMBYCID BEETLE (Dectes texanus texanus) - NORTH CAROLINA - Larvae caused extensive damage to soybeans. Up to 30 percent lodging in some fields. Infestations reported from Washington, Beaufort, and Hyde Counties. First damage in 1968 and steadily increased. Adults reared from larvae collected by J.M. Falter. Determined by W.H. Tyson. (Hunt).

## POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - CALIFORNIA - Larvae infested 160-acre potato planting at Shafter, Kern County. Adults present. (Cal. Coop. Rpt.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - CALIFORNIA - Adults 10 per sweep of eggplants in 10-acre field at Buttonwillow, Kern County. (Cal. Coop. Rpt.).

CELERY LEAF TIER (Udea rubigalis) - CALIFORNIA - One adult per leaf on scattered potato plants in 320-acre planting at Shafter, Kern County. (Cal. Coop. Rpt.).

## DECIDUOUS FRUITS AND NUTS

RAIN BEETLES (*Pleocoma* spp.) - OREGON - *P. crinita* adult activity on apple and pear orchards at Hood River, Hood River County. Twenty males in 2 blacklight traps morning of November 20. Flights of *P. minor* and *P. oregonensis* at Hood River and The Dalles respectively for the most part appear to be terminated. (Zwick).

TWIG GIRDLER (*Oncideres cingulata*) - NORTH CAROLINA - Damage heavy on hickory and pecans in mountains and piedmont. Few new twigs found after frost of November 16 at Raleigh, Wake County. (Hunt).

## CITRUS

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - CALIFORNIA - Heavy on citrus at Orland, Glenn County, and medium to heavy on dooryard citrus at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

TEXAS CITRUS MITE (*Eutetranychus banksi*) - ARIZONA - Found in lemon grove on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

## ORNAMENTALS

JUNIPER WEBWORM (*Dichomeris marginella*) - DELAWARE - Larvae severely injured juniper in area of New Castle County. (Boys, McDaniels).

A MEALYBUG (*Antonina pretiosa*) - CALIFORNIA - Five per node on *Bambusa multiplex* nursery stock at Rancho Santa Fe, San Diego County. (Cal. Coop. Rpt.).

YUCCA PLANT BUG (*Halticotoma valida*) - TENNESSEE - Heavy in Knox County. (Williams).

A SPIDER MITE (*Tetranychus evansi*) - CALIFORNIA - Counts of 75 nymphs, eggs, and adults per leaf on *Solanum* sp. nursery stock at Vista, San Diego County. (Cal. Coop. Rpt.).

## FOREST AND SHADE TREES

A CONIFER APHID (*Cinara curvipes*) - OREGON - Generally infested 4,000 noble firs in Christmas tree plantation at West Salem, Polk County. Sporadic counts of 100 or more per inch of branch. Controls to be applied. (Larson).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - WYOMING - Adults heavy on American elm at Cheyenne, Laramie County, March 9, 1970. Collected by E.W. Spackman. Determination by D.M. Anderson. Damage moderate. This is a new State record. (PPD).

## MAN AND ANIMALS

SCREW-WORM (*Cochliomyia hominivorax*) - One case reported in U.S. November 15-21 in La Salle County, TEXAS. Total of 159 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 124, Chihuahua 20, Coahuila 2, Nuevo Leon 4, Tamaulipas 9. Total of 25 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 20,978,000; Arizona 570,000; California 400,000; Mexico 88,108,000. (Anim. Health Div.).

COMMON CATTLE GRUB (*Hypoderma lineatum*) - OKLAHOMA - Averaged 5 per steer in Payne County. Moderate in Kiowa and Craig Counties. Light in Choctaw County. (Okla. Coop. Sur.).

HORSE BOTS (*Gasterophilus* spp.) - OKLAHOMA - Moderate in Kiowa County. Still hatching in Payne County; occasional adults still found. (Okla. Coop. Sur.).

WRINKLED SUCKING LICE - OKLAHOMA - *Solenopotes capillatus* appearing on Payne County cattle; up to 5 per hair part. *Haematopinus eurytarnus* (short-nosed cattle louse) light on cattle in scattered areas of Payne County. (Okla. Coop. Sur.). MISSISSIPPI - *H. suis* (hog louse) averaged 1 behind each ear on 20 hogs at State College, Oktibbeha County. (Sartor).

#### HOUSEHOLDS AND STRUCTURES

WESTERN SUBTERRANEAN TERMITE (*Reticulitermes hesperus*) - CALIFORNIA - Adults heavy on house roofs at Atherton, San Mateo County. Many adults invading interiors of residences in Castro Valley and Piedmont, Alameda County. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - KANSAS - *Hippodamia convergens* (convergent lady beetle) adults averaged 0.3 per 10 sweeps of alfalfa in Riley County field. *Coleomegilla maculata* and *Scymnus* sp. adults each averaged 0.5 per 10 sweeps of alfalfa in Wabaunsee County. (Bell).

A GREEN LACEWING (*Chrysopa carnea*) - KANSAS - Adults per 10 sweeps of alfalfa averaged 2.3 in Riley County field and 0.1 in Geary County field. (Bell).

DAMSEL BUGS (*Nabis* spp.) - KANSAS - Adults averaged per 10 sweeps of alfalfa by county: Riley 2.8, Geary 4.5, and Wabaunsee 0.5. (Bell).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (*Pseudococcus comstocki*) - CALIFORNIA - Adults and eggs found on citrus for first time in State on 50 lemon trees in grove 2 miles from Porterville, Tulare County. Nearest infested mulberry about 2 miles away. Collected by D. Flaherty. (Cal. Coop. Rpt.).

PINK BOLLWORM (*Pectinophora gossypiella*) - Sterile moths released November 13-19. CALIFORNIA - Bakersfield, Kern County 4,190,620; total to date 97,778,526. Trapped 2 native moths November 12-13; total to date 13 adults and 3 larvae. ARIZONA - Redington, Pima County 67,500; total to date 1,889,800. Trapped 1 native moth; boll infestation 8.8 percent. (PPD).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - Following adults are new county records. Determined by V.H. Owens; confirmed by R.E. Warner. SOUTH CAROLINA - *G. leucoloma striatus* on aster on railroad property. Medium at Pelzer, Anderson County; collected by Langford et al; October 13, 1970. Light at Ft. Mill, York County, by S.W. Weaver, October 16, 1970. TEXAS - *G. peregrinus* light on iron weed at Woodville, Tyler County. Collected by I.O. Ochoa, November 12, 1970. (PPD).



HAWAII INSECT REPORT

New State Record - Nymphs and adults of a FLATID BUG (Melormenis antillarum (Kirkaldy)) abundant on guava tree near airport at Hilo, Hawaii. First specimen, an interception, taken at Hilo, Hawaii, by B. Hu in October 1967. Second specimen collected at Kapapala, Hawaii, by G. Smith April 4, 1970. Third specimen (first from Oahu) collected at large in Honolulu (Aina Haina), Oahu, by J.W. Beardsley September 15, 1970. Determined by J.P. Kramer. Collected in Puerto Rico on several plants including coffee, castorbean, Lantana camara, in grapefruit groves, and in sugarcane fields. (Beardsley). This is a new United States record. (PPD).

Fruits - COCONUT SCALE (Aspidiotus destructor) spreading on banana foliage in Waimanalo and other windward areas on Oahu. Light in several previously uninfested banana fields. Nymphs and adults of Telsimia nitida and Lindorus lophanthæ (lady beetles) light to moderate amid scale colonies. Aphytis chrysomphali and Aphytis sp. (eulophid wasps) parasitized some scale adults. Larvae of a NOCTUID MOTH (Phlegetonia delatrix) heavy; damage heavy to terminal foliage of many mountain-apple trees at Kalihi and Kaneohe, Oahu. (Kawamura).

Man and Animals - CLUSTER FLY (Pollenia rudis) again increasing at higher elevations on Hawaii. Adults entering dwellings at Paauilo and in Volcano District. (Yoshioka). VEXANS MOSQUITO (Aedes vexans nocturnus) 1,072 and SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) 2,528 in 57 light traps on Oahu during October. Aedes up to 526 per trap at Punaluu; Culex up to 684 at Waipahu. (Mosq. Contr. Br., Dept. of Health).

Beneficial Insects - Adults of SCIOMYZID FLIES (Sepedon macropus and S. sauteri) on California grass near stream at Waimanalo, Oahu. Introduced to control Galba viridis (liverfluke snail). (Kashiwai, Matsukado). Larvae and adults of LANTANA LEAF BEETLE (Octotoma scabripennis) moderate on lantana foliage along Keaouh Bay in Kona, Hawaii. Larvae and adults of LANTANA HISPID (Uroplata girardi) light to medium on lantana in Hawaii Volcanoes National Park, Hawaii. (Yoshioka).

Miscellaneous - Poison baits for GIANT AFRICAN SNAIL (Achatina fulica) applied at Kona (Kahaluu), Hawaii, and at Poipu and Wahiawa, Kauai, during October to eradicate it from these 2 islands. No live snails detected at Kona. Hundreds dead at Poipu; few live ones at Wahiawa. (Yoshioka, Sugawa).

**DETECTION**

New United States Record - A FLATID BUG (Melormenis antillarum (Kirkaldy)) HAWAII - Hawaii Island (p. 793).

New State Records - SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) WYOMING - Laramie County (p. 791). A WALSHIID MOTH (Walshia miscelorella) MISSOURI - Boone County (p. 790).

New County and Island Records - A FLATID BUG (M. antillarum) HAWAII - Oahu (p. 793). WHITE-FRINGED BEETLES (Graphognathus spp.) SOUTH CAROLINA - G. leucoloma striatus in Anderson and York; TEXAS - G. peregrinus in Tyler (p. 792).

**LIGHT TRAP COLLECTIONS**

FLORIDA - Gainesville, 11/14-19, BL - Black cutworm (Agrotis ipsilon) 3. MISSISSIPPI - Stoneville, 11/13-19, 2BL, 28-65°F., 1.39 precip. - Armyworm (Pseudaletia unipuncta) 24, beet armyworm (Spodoptera exigua) 1, black cutworm 29, corn earworm (Heliothis zea) 1, fall armyworm (S. frugiperda) 1, granulate cutworm (Feltia subterranea) 3. TEXAS - Waco, BL, 11/14-19 - Armyworm 149, beet armyworm 34, black cutworm 5, cabbage looper (Trichoplusia ni) 1, fall armyworm 6, granulate cutworm 28, variegated cutworm (Peridroma saucia) 36.

WEATHER OF THE WEEK ENDING NOVEMBER 23

**HIGHLIGHTS:** Subfreezing temperatures occurred over much of the Nation early in the week. A weekend storm brought subzero temperatures to the northern Rockies and the northern Great Plains, and strong winds accompanied by heavy snow and freezing rain to those areas eastward to the Great Lakes.

**PRECIPITATION:** Light rain continued in the Far Northwest. Elsewhere precipitation was mostly light and widely scattered early in the week. Snow flurries occurred in the northern border States. High pressure dominated the West and the East and a cold front lay between. The front brought little precipitation, however, and fair weather prevailed until about midweek. By Thursday, snow was occurring over a wide belt from the northern Rocky Mountains to the Great Lakes and cold rain fell from the central Great Plains to the middle Mississippi River Valley. Snow also fell in northern Maine and at higher elevations in the northern Appalachians. A storm developed in the central Great Plains. The storm center moved from central Oklahoma to Illinois on Thursday afternoon and evening setting off severe storms. Tornadoes associated with the storm caused considerable damage and a few injuries in Arkansas. Precipitation became widespread over the eastern half of the Nation. Snow and fog reduced visibilities in the northern Great Plains. Late Thursday evening, arctic air streamed southward at the western edge of the northern Great Plains causing intermittent snow accompanied by strong winds. This storm blanketed the eastern slopes of the northern Rocky Mountains and the northern Great Plains with 4-10 inches of snow. By late Sunday night, severe wintry weather and high winds with heavy snow or freezing rain covered a large area from the Great Lakes region to the southern Great Plains.

**TEMPERATURES:** A cooling trend early in the week brought subfreezing temperatures over most of the Nation. The middle Atlantic coast escaped the freezing temperatures. Savannah, Georgia, and Jacksonville, Florida, registered 28° and 29° respectively, however. Temperatures in the southern part of the Florida Peninsula dropped to the 40's, 41° at Fort Meyes and 46° at Miami. Southerly winds warmed the Great Plains. Grand Island and Lincoln, Nebraska, registered 62° Tuesday afternoon. As the weekend approached, cold temperatures and strong winds moved down across the western edge of the northern Great Plains. The temperatures at Cut Bank, Montana, dropped 17° in 30 minutes Thursday afternoon, and by Friday morning had fallen to 4° from 43° the previous afternoon. The weekend brought cold weather to much of the Nation. Subzero temperatures occurred in the northern Rockies Monday morning and subfreezing weather as far east as the northern Appalachians, and as far south as Little Rock, Arkansas, and Memphis, Tennessee. Weekly mean temperatures averaged below normal from Montana and North Dakota to western Colorado, and from the Ohio River Valley to the Gulf of Mexico and the middle and southern Atlantic coast. The Great Basin and the wide band from Minnesota to Michigan southwestward to Arizona, New Mexico, and Texas, averaged warmer than normal. (Summary supplied by Environmental Data Service, ESSA.)



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December 4, 1970

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

To facilitate mailroom handling, all reports, inquiries, and other matters pertaining to this release, including the mailing list, should be sent to:

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Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

An APHID continues to damage wheat in Washington. (p. 797).

Damage to pecans by BLACK PECAN APHID and other pests appearing at harvest in Alabama. (p. 798).

#### Prediction

PALE WESTERN CUTWORM poses potential threat for outbreak in southwestern and panhandle areas of Nebraska in 1971. (p. 797).

#### Detection

New State records include NORTHERN CORN ROOTWORM from Utah (p. 797), an ERIOCOCCID SCALE from Maryland (p. 797), and a TINGID from California (p. 798).

#### Special Reports

Distribution of Pine False Webworm. Map. (p. 820).

Estimated Losses and Production Cost Attributed to Insects and Related Arthropods - 1969. (pp. 801-819).

Reports in this issue are for week ending November 27 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING NOVEMBER 30

**HIGHLIGHT:** Warming trends occurred over most of the South. Temperatures were quite erratic over the northern border States and averaged below normal. Heavy rains fell along the Pacific coast. Light to moderate precipitation occurred over the Northern States. Little or none over the South.

**PRECIPITATION:** Only sparse precipitation occurred over much of Nation last week. The area with little or no precipitation extended from Arizona to the Atlantic coast. Cold air blowing across the relatively warm waters of the Great Lakes became loaded with moisture and dumped heavy snow on the south and east shores of the Lakes especially in western portions of Pennsylvania and New York where snow depths ranged up to about 12 inches. Some roads became completely blocked. A new surge of arctic air swept down into the northern and central Great Plains at midweek. Winds at Minot, North Dakota, gusted to 58 m.p.h. Wednesday. Heavy snow fell at some localities in the northern border States. As the weekend approached, a Pacific storm centered off the Washington coast was bringing rain along the coast as far south as northern California and snow in the coastal ranges and Cascades and eastward to the western edge of the northern Great Plains. At elevations of 3,000 to 5,000 feet in the Cascades snow depths now range from 30 to 50 inches. Another low brought heavy weekend rains to southern California and heavy snow at Mount Shasta where 35 inches fell in 36 hours Friday and Saturday.

**TEMPERATURE:** The week began with a cold wave pushing southward over central and eastern portions of the United States. On Monday morning temperatures in Iowa had tumbled close to the zero mark and by Wednesday morning many Floridians shivered in subfreezing weather with Tallahassee recording 13°. A warming trend occurred over the West. The mercury at Chardon, Nebraska, climbed from 7° Monday morning to 69° Tuesday afternoon and the minimum temperature at Salt Lake City, Utah, Wednesday morning was 57°. Denver, Colorado, registered 76° Wednesday afternoon, the warmest in that city so late in autumn. Temperatures were erratic over the northern Great Plains, climbing from much below zero in northern Montana Monday morning to 40° and 50° Tuesday afternoon, and tumbling back to near zero Wednesday morning as a new cold wave moved in from Canada. Imperial, Nebraska, registered 77° Wednesday afternoon before falling back to 27° Thursday and remaining below freezing all day Thursday. A warming trend pushed afternoon temperatures to 60° over Nebraska and Kansas on Saturday. Oklahoma and Texas warmed to 70° and 80°. North Dakota remained below freezing. Weekly mean temperatures were 6° to 12° below normal along the Canadian border from northeastern Washington to the Great Lakes and 6° to 12° above normal from the Great Basin to the Nebraska Panhandle. (Summary supplied by Environmental Data Service, ESSA.)



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG** (*Schizaphis graminum*) - OKLAHOMA - Ranged 2-3 per linear foot in wheat-fields in Caddo, Washita, and Kiowa Counties. (Okla. Coop. Sur.). SOUTH DAKOTA - Trace on winter wheat in western Meade County November 20. Ranged 8-10 (averaged 1 infested leaf) per row foot in winter wheat variety trial west of Spearfish, Lawrence County. Infestation probably from adjoining volunteer wheat. (Jones, Rezek). NEW MEXICO - Averaged one per linear foot of wheat in Lovington and Hobbs area, Lea County. Up to 4 per linear foot of barley in Roswell area, Chaves County. (Mathews). ARKANSAS - Survey negative in northwest area. (Boyer).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - ARIZONA - Several fields of young alfalfa treated at Yuma, Yuma County. (Ariz. Coop. Sur.). FLORIDA - Nymphs and adults 2,400 in 100 sweeps of 12 to 14-inch high alfalfa at Gainesville, Alachua County, November 19. Noticeable increase compared to sample taken 21 days previously. (Mead).

### CORN, SORGHUM, SUGARCANE

**NORTHERN CORN ROOTWORM** (*Diabrotica virgifera*) - UTAH - Collected on corn at Ogden, Weber County, by L. Rogers July 25, 1970. Determined by R.E. White. This is a new State record. (Knowlton).

### SMALL GRAINS

**HESSIAN FLY** (*Mayetiola destructor*) - KANSAS - Up to 90 percent infested plants found in wheat planted just prior to fly-free date in Pawnee County. Such fields when located near old fields with volunteer wheat often show 60-70 percent infested plants. Fields planted after fly-free date or isolated from old fields with volunteer wheat found free from infestations. (Somsen).

**PALE WESTERN CUTWORM** (*Agrotis orthogonia*) - NEBRASKA - Analysis of light trap catches and precipitation data indicate high potential for outbreak in south-western and panhandle areas in 1971. (Keith, Nov. 20).

**SPOTTED CUCUMBER BEETLE** (*Diabrotica undecimpunctata howardi*) - MISSISSIPPI - Adults averaged 8 per 200 sweeps in Oktibbeha County oats. (Sartor).

**AN APHID** (*Rhopalosiphum padi*) - WASHINGTON - This species and probably other species caused moderate to heavy damage on 5,000-10,000 acres of early planted winter wheat in Benton County. Previously reported from Franklin County, and also noted as problem in Yakima County. Some treatments applied. Present colder temperatures should reduce feeding activity and make control more difficult. (Klostermeyer, Gerlitz).

**TARNISHED PLANT BUG** (*Lygus lineolaris*) - MISSISSIPPI - Adults averaged 4 per 200 sweeps in Oktibbeha County oats. (Sartor).

### TURF, PASTURES, RANGELAND

**AN ERIOCOCCID SCALE** (*Eriococcus carolinae*) - MARYLAND - Light infestation on beachgrass near Ocean City, Worcester County. Collected by L.R. Krusberg during October 1970. Determined by D.R. Miller. This is a new State record. (U. Md., Ent. Dept.).

**A MARCH FLY** (*Dilophus orbatus*) - CALIFORNIA - Larvae 1,000 per square yard in one-eighth acre of *Lippia* sp. and grass sod in nursery at Oakland, Alameda County. Larvae 15 per square foot in some lawns and up to thousands along walks and driveways at Sacramento, Sacramento County; 50 per square yard at Fresno, Fresno County. Adults heavy in some lawns at Madera, Madera County. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

FALL ARMYWORM (Spodoptera frugiperda) - ARIZONA - Larvae of this species and S. exigua (beet armyworm) 20 each per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Counts of 200 per 100 sweeps of alfalfa in Gila Valley, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Up to 4 per square foot in Chaves County alfalfa fields. (Mathews).

PLANT BUGS - FLORIDA - Lygus lineolaris (tarnished plant bug) adults 15 and Taylorilygus pallidulus adults 106 in 100 sweeps of alfalfa at Gainesville, Alachua County, November 19. (Mead).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - FLORIDA - Adults 17 in 100 sweeps of alfalfa at Gainesville, Alachua County, November 19. (Mead).

A LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Adults 27 in 100 sweeps of alfalfa at Gainesville, Alachua County, November 19. (Mead).

#### COLE CROPS

AN ACARID MITE (Caloglyphus mycophagus) - CALIFORNIA - Heavy in and on brussels sprouts roots at Castroville, Monterey County. (Cal. Coop. Rpt.).

#### DECIDUOUS FRUITS AND NUTS

APPLE RUST MITE (Aculus schlechtendali) - CALIFORNIA - Heavy in 14-acre apple orchard at Boonville, Mendocino County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - CALIFORNIA - Heavy on Prunus spp. at Gridley, Butte County. (Cal. Coop. Rpt.).

BLACK PECAN APHID (Myzocallis caryaefoliae) - ALABAMA - Damage by this species, Monellia spp., and other pests now showing in overall crop loss. Nut crop estimated at 15,000,000 pounds compared to 35,500,000 pounds in 1969. Quality of nuts harvested reduced. Expect 1971 crop to be affected. (McQueen, Nov. 20).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - OREGON - Damaged English walnut orchard in mid-November. Infestation spotty and not extensive, but heavily encrusted branches and twigs killed at Garden Valley, Douglas County. (Passon).

#### CITRUS

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Adults moderate on 60 percent of 2,000 mixed citrus plants in nursery at Turkey Creek, Hillsborough County, November 4. (Vaughan).

CITRUS RED MITE (Panonychus citri) - ARIZONA - One lemon grove required treatment on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Appearing on some citrus with new terminal growth at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### ORNAMENTALS

A TINGID (Gargaphia arizonica) - CALIFORNIA - Larvae and adults 4 per stem of scattered hollyhock plants at Winterhaven, Imperial County. Collected by R. Flock, on September 3, 1970. Determined by G. Buxton, verified by R.C. Froeschner. This is a new State record. (Cal. Coop. Rpt.).

HEMISPHERICAL SCALE (Saissetia coffeae) - CALIFORNIA - Counts of 100 per orchid leaf in orchid house at Baywood Park, San Luis Obispo County. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. November 22-28. Total of 199 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 134, Chihuahua 48, Coahuila 10, Nuevo Leon 1, Tamaulipas 6. Total of 54 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 18,198,000; Mexico 85,150,000. (Anim. Health Div.).

HARD-BACKED TICKS - OKLAHOMA - Dermacentor albipictus (winter tick) averaged about 1,000 per head (all stages present) on cattle at Lake Carl Blackwell area of Payne County. Heavy on horses and averaged 10 per head on 1 of 12 aged dairy cattle at slaughter house in Payne County. Ticks collected from deer in Comanche, Murray, and Payne Counties ranged 40-50 percent D. albipictus and 50-60 percent Ixodes scapularis (black-legged tick). Light numbers of I. scapularis also on cattle in Payne County. (Okla. Coop. Sur.). ALABAMA - Specimens of I. scapularis collected from cows in Tuscaloosa County November 6 by J.R. Pope and in Butler County November 7 by V.M. Thompson. Determined by V. Emrick. (McQueen).

HORSE SUCKING LOUSE (Haematopinus asini) - OKLAHOMA - Light (less than 1 per hair part) on horses in Payne County. (Okla. Coop. Sur.).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - OKLAHOMA - Light on cattle in Payne County. (Okla. Coop. Sur.).

## STORED PRODUCTS

A DERMESTID BEETLE (Trogoderma variabile) - CALIFORNIA - Medium on stored beans and walks in warehouse at Chino, San Bernardino County. (Cal. Coop. Rpt.).

## BENEFICIAL INSECTS

Lady Beetle Survey in Kansas, May 1970 - Survey conducted on 1,100,000 acres of alfalfa (5 percent of total cropland in State) by State and Federal personnel to determine species present, population densities, and natural parasitism of native coccinellids in all counties of the 9 crop-reporting districts in State. Purpose--to gather preliminary data on benefits of releasing Hippodamia convergens (convergent lady beetle) in sorghum infested with Schizaphis graminum (greenbug). Three stops made per county; average of 15 beetles determined per stop. Misidentification believed to be insignificant. Species distribution, by percent, in all districts: H. convergens 90, H. tredecimpunctata 1, H. parenthesis 2, Coleomegilla maculata 5, and Adalia bipunctata (two-spotted lady beetle) 2. Adult parasitism about 3 percent. Coccinellid adults averaged 6,421 per acre of alfalfa in 8 crop districts; northeast district not estimated. (Bell, Somsen, Knutson).

A FLOWER BUG (Orius insidiosus) - FLORIDA - Adults 30 in 100 sweeps of 12 to 14-inch alfalfa at Gainesville, Alachua County, November 19. (Wyles).

DAMSEL BUGS (Nabis spp.) - FLORIDA - Adults 6 in 100 sweeps of alfalfa at Gainesville, Alachua County, November 19. (Mead).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Expect release of one million sterile flies per week at Key West, Monroe County, beginning December 3. (PPD).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Heavy mound building by established broods throughout State since fall and early winter rains raised soil water table. Many mounds in pastures, woods, fields, and along roadsides 10 to 18 inches in height. (McQueen).

MEXICAN FRUIT FLY (Anastrepha ludens) - Last sterile release of season in north-west MEXICO and San Ysidro, CALIFORNIA, November 18. About 23 million sterile flies released this calendar year, including 11,000 in California. During 1970, 12 native flies trapped in Tijuana area in northwest Mexico and 13 in southern California. (PPD).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released November 20-25. CALIFORNIA - Bakersfield, Kern County. 1,678,714; total to date 99,457,240. No native moths trapped. Releases terminated this period. ARIZONA - Redington, Pima County, 45,000; total to date 1,934,800. Boll infestation 6.8 percent. Releases terminated this period. (PPD). TENNESSEE - Surveys of 350 bushels of gin trash negative in western areas. Lint cleaner inspections negative. (State, PPD).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Adults emerging and female moths laying eggs on November 17. About 15 percent of pupae checked not yet emerged. Egg clusters abundant in many untreated areas. (Nielsen).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - Damage appearing in 2 citrus groves at Apopka, Orange County; definite symptoms of decline showing on trees. Girdling of tap root noted on 2 trees pulled from 1 grove November 23; larvae recovered around 1 tree root. (PPD).

#### HAWAII INSECT REPORT

Pasture - Larvae of a GRASS WEBWORM (Herpetogramma licarsisalis) less than one per 5 square feet in 20 acres of Kikuyu grass at Puu-O-Hoku Ranch, Molokai; less than one per square foot in pastures at Waihee, Maui. Larval activity negligible in pastures on Oahu, Kauai, and Hawaii. (Ah Sam et al.).

General Vegetables - Larvae and adults of BEAN FLY (Melanagromyza phaseoli) heavy on yardlongbeans in community garden at Lanai City, Lanai. Larvae on 80 percent of older leaves; adults and oviposition scars heavy on young seedlings. Heavy in snap bean fields on Molokai. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) medium to heavy in string bean and bittermelon (Momordica charantia) fields on north shore area of Oahu and on terminal foliage of watermelon, dasheen (Colocasia esculenta), and guava in commercial plantings at Waimanalo. BEAN BUTTERFLY (Lampides boeticus) larvae light in small planting of lima beans at Lanai City, Lanai. (Miyahira).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) trace to heavy on many coconut trees in Waikiki District of Honolulu, Oahu. Heaviest infestations on several hundred trees along Ala Wai Boulevard. Many of these trees uninfested in 1969. (Nakao).

Beneficial Insects - SOURBUSH SEED FLY (Acinia picturata) larvae heavy, infested 96 percent of flower heads of sourbush (Pluchea odorata) at Puako, Molokai. (Miyahira). Nymphs (averaging 5 per leaf) and adults (1 per 2 leaves) of Azya luteipes (a lady beetle) preying on crawlers of Coccus viridis (green scale) on 10 plumeria trees at Kaneohe, Oahu. (Kawamura).

#### DETECTION

New State Records - AN ERIOCOCCID SCALE (Eriococcus carolinae) MARYLAND - Worcester County (p. 797). NORTHERN CORN ROOTWORM (Diabrotica virgifera) UTAH - Weber County (p. 797). A TINGID (Gargaphia arizonica) CALIFORNIA - Imperial County (p. 798).

#### CORRECTIONS

CEIR 20(18):303 - GROUNDNUT BRUCHID (Caryedon serratus) - Erroneously reported in New Zealand. Should have read New Caledonia. Error reported by K.G. Somerfield, New Zealand Department of Agriculture. (Kingsolver).

COOPERATIVE ECONOMIC INSECT REPORT  
ESTIMATED LOSSES AND PRODUCTION COST ATTRIBUTED TO  
INSECTS AND RELATED ARTHROPODS - 1969

Introduction

Prior to 1966, insect loss estimates were published in the Cooperative Economic Insect Report as individual reports. An attempt has been made for the fifth year to condense loss estimates from various States into a single report. This gives a more meaningful and better overall picture of the crop losses. The data have been compiled from the crop loss estimates submitted from 19 States. The entomologists submitting the 1969 estimates are listed below.

|               |              |
|---------------|--------------|
| H.F. McQueen  | Alabama      |
| J.E. May      | Arizona      |
| W.P. Boyer    | Arkansas     |
| F.W. Mead     | Florida      |
| K.F. Kawamura | Hawaii       |
| T.A. Cooley   | Illinois     |
| H. Gunderson  | Iowa         |
| J.L. Hellman  | Maryland     |
| R. Sauer      | Michigan     |
| R.G. Flaskerd | Minnesota    |
| C.F. Sartor   | Mississippi  |
| D.L. Keith    | Nebraska     |
| D.C. Arnold   | Oklahoma     |
| R.L. Penrose  | Oregon       |
| P.A. Jones    | South Dakota |
| C.D. Gordon   | Tennessee    |
| L.R. Green    | Texas        |
| W.A. Allen    | Virginia     |
| A.E. Parshall | Wyoming      |

Legend for pest abbreviations appears at end of loss tables.

Separates of this report are available from the Economic Insect Survey and Detection Staff.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
20(49):802-820, 1970

| Crop         | State | Pest Complex   | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost             |                    |                      | Total Loss (\$1000) |                    |            |
|--------------|-------|--|-----------------------------|-----------------------|-------------------------|--------------------------|--------------------------|--------------------|----------------------|---------------------|--------------------|------------|
|              |       |  |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Sub-treated Acres (1000) | Sub-total (\$1000) | Treated Acres (1000) |                     | Sub-total (\$1000) |            |
| CORN (Grain) |       |  |                             |                       |                         |                          |                          |                    |                      |                     |                    |            |
| Alabama      |       | SwCB, CLA, CEw, FA, ECB, Ww, SCR, Sub, LCB, MB, StB, SB, CB      | 619.00                      | 2.80                  | 3.81                    | 584.00                   | 2,225.04                 | 1.50               | 35.00                | 52.50               | 2,277.54*          |            |
| Arizona      |       | A, BA, CEw, FB, LB, LCB, SwCB, StB, WCR                          | 16.00                       | 5.40                  | 7.94                    | 1.00                     | 7.94                     | 5.00               | 15.00                | 75.00               | 82.94**            |            |
| Iowa         |       | Aw   | 9,416.00                    | 98.00                 | 104.00                  | 10.00                    | 1,040.00                 | 3.13               | 293.55               | 91,734.00           | 92,774.00          |            |
|              |       | SCB  | "                           | "                     | 5.00                    | 2.65                     | 13.25                    | 0.25               | 984.80               | 246.20              | 259.45             |            |
|              |       | CR (larvae)  | "                           | 2.83                  | 3.00                    | 5,568.60                 | 16,705.80                | 3.00               | 3,847.40             | 11,542.20           | 28,248.00          |            |
|              |       | CR (adults)  | "                           | "                     | "                       | "                        | "                        | 3.13               | 20.40                | 61.20               | 61.20              |            |
|              |       | SB   | "                           | 20.83                 | 21.82                   | 156.93                   | 3,424.21                 | 2.75               | 138.30               | 380.33              | 3,424.21           |            |
|              |       | Cws  | "                           | 5.80                  | 6.15                    | 9,257.16                 | 56,931.53                | 4.00               | 158.84               | 476.52              | 57,408.05          |            |
|              |       | ECB  | "                           | 10.00                 | 10.60                   | 12.60                    | 20.16                    | "                  | "                    | "                   | 20.16              |            |
| Maryland     |       | Aw, CEw, Cws, ECB, FA, Sw, CR                                    | 479.00                      | 8.10                  | 10.13                   | 140.00                   | 952.22                   | 5.00               | 6.00                 | 30.00               | 982.22*            |            |
| Michigan     |       | CR, ECB, CLA   | 1,622.00                    | 13.60                 | 14.96                   | 99.70                    | 1,491.50                 | 3.00               | 188.00               | 564.00              | 2,055.50           |            |
| Minnesota    |       | CR, Cws, WG, ECB, Aw, Gh, CEw                                    | 4,939.00                    | 5.10                  | 5.61                    | 394.00                   | 2,210.34                 | 2.45               | 1,306.00             | 3,199.70            | 5,420.04*          |            |
| Nebraska     |       | CR, ECB, CEw, SCR, Cws, Gh, Ww, M, CLA, SCM, SB, Aw, FA, WBC, WG | "                           | "                     | "                       | "                        | "                        | 1.85               | 158.00               | 292.30              | 8,304.29           |            |
| South Dakota |       | CR, ECB, Aw, Gh, Ww  | 3,262.00                    | 8.60                  | 8.60                    | 636.09                   | 5,470.37                 | 3.00               | 3,225.00             | 9,675.00            | 9,675.00*          |            |
| Virginia     |       | Aw, Cws, S, ECB, CEw, Ww, SCR, SW                                | 432.00                      | 7.70                  | 9.78                    | 60.00                    | 586.80                   | 2.65               | 40.00                | 106.00              | 992.80**           |            |
| Wyoming      |       | WCR, BGM, Ww   | 18.00                       | 3.64                  | 4.55                    | 2.75                     | 12.51                    | 3.00               | 1.55                 | 4.65                | 17.16*             |            |
|              |       |  |                             |                       |                         |                          | Subtotal                 | 91,121.67          |                      |                     | 127,688.65         | 227,394.61 |

\* Quality loss not included in total.

\*\* Quality loss included in total.

| Crop                   | State | Pest Complex  | Total Acres Produced (1000) | Yield Loss            |                         | Control Cost             |                   |                         | Total Loss (\$1000) |                      |                   |
|------------------------|-------|---|-----------------------------|-----------------------|-------------------------|--------------------------|-------------------|-------------------------|---------------------|----------------------|-------------------|
|                        |       |   |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal (\$1000) | Cost Per Acre (dollars) |                     | Treated Acres (1000) | Subtotal (\$1000) |
| <b>CORN (Silage)</b>   |       |   |                             |                       |                         |                          |                   |                         |                     |                      |                   |
| North Dakota           |       | ECB, Ww, Aw, CLA Cw   | 353.00                      | 0.25                  | 1.75                    | 10.00                    | 17.50             | 3.00                    | 15.00               | 45.00                | 72.50**           |
| Wyoming                |       | WCR, BGM, Ww  | 42.00                       | 0.49                  | 3.99                    | 3.35                     | 13.37             | 3.00                    | 3.05                | 9.15                 | 22.52*            |
|                        |       |   |                             |                       |                         | Subtotal                 | <u>30.87</u>      |                         |                     | <u>54.15</u>         | <u>95.02</u>      |
| <b>SWEET CORN</b>      |       |   |                             |                       |                         |                          |                   |                         |                     |                      |                   |
| Alabama                |       | CEw, StB, FA  | 3.00                        | -                     | -                       | -                        | -                 | 30.00                   | 3.00                | 90.00                | 90.00*            |
| Minnesota              |       | ECB, Aw, CEw, CR  | 113.30                      | -                     | -                       | -                        | -                 | 7.35                    | 113.30              | 832.76               | 832.76*           |
|                        |       |   |                             |                       |                         | Subtotal                 |                   |                         |                     | <u>922.76</u>        | <u>922.76</u>     |
| <b>POPCORN</b>         |       |   |                             |                       |                         |                          |                   |                         |                     |                      |                   |
| Nebraska               |       | CR, ECB, CEw, SCB, Cw, M, Gh, Ww, CLA, SCM, Aw, FA, WBC, WG, SB | 24.00                       | 384.00                | 8.83                    | 4.65                     | 41.06             | 2.85                    | 16.50               | 47.03                | 88.09*            |
|                        |       |   |                             |                       |                         | Subtotal                 | <u>41.06</u>      |                         |                     | <u>47.03</u>         | <u>88.09</u>      |
| <b>SORGHUM (Grain)</b> |       |   |                             |                       |                         |                          |                   |                         |                     |                      |                   |
| Arizona                |       | A, BA, CEw, FB, LCB, LB, SM, StB, SwCB                          | 199.00                      | 7.80                  | 10.37                   | 30.00                    | 311.00            | 2.50                    | 50.00               | 125.00               | 736.10**          |
| Nebraska               |       | CLA, Cw, Gh, Ww, PB, RA, CB, SCM, SCB, Gb                       | 1,508.00                    | 11.40                 | 11.06                   | 55.00                    | 608.30            | 2.75                    | 160.00              | 440.00               | 1,048.30*         |
| Oklahoma               |       | SM, SWw, CEw, FA, Gb, CLA                                       | 542.00                      | 14.10                 | 15.51                   | 142.28                   | 2,206.69          | 3.19                    | 47.43               | 151.29               | 2,357.97*         |
| South Dakota           |       | Gb, Cw  | 392.00                      | 11.00                 | 10.12                   | 90.00                    | 910.80            | 2.50                    | 55.00               | 137.50               | 1,048.30*         |
| Texas                  |       | Gb, CEw, SCBo, SM, SWw, CB, SwCB, SCR                           | 6,196.00                    | 12.50                 | 13.75                   | 1,306.56                 | 17,965.17         | 3.16                    | 2,695.25            | 8,521.15             | 26,486.33*        |
|                        |       |   |                             |                       |                         | Subtotal                 | <u>22,001.95</u>  |                         |                     | <u>9,374.94</u>      | <u>31,677.00</u>  |

\* Quality loss not included in total.

\*\* Quality loss included in total.

| Crop             | State | Pest Complex                     | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost                |                         |                      | Total Loss (\$1000) |                    |
|------------------|-------|----------------------------------|-----------------------------|-----------------------|-------------------------|--------------------------|-----------------------------|-------------------------|----------------------|---------------------|--------------------|
|                  |       |                                  |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Sub-treated Acres (dollars) | Cost Per Acre (dollars) | Treated Acres (1000) |                     | Sub-total (\$1000) |
| <b>SUGARCANE</b> |       |                                  |                             |                       |                         |                          |                             |                         |                      |                     |                    |
| Hawaii           |       | NGSW                             | 113.20                      | 0.36                  | 56.00                   | 11.00                    | 616.00                      | -                       | -                    | -                   | 616.00*            |
|                  |       |                                  |                             |                       |                         | Subtotal                 | <u>616.00</u>               |                         |                      |                     | <u>616.00</u>      |
| <b>BARLEY</b>    |       |                                  |                             |                       |                         |                          |                             |                         |                      |                     |                    |
| Arizona          |       | A, Aw, Cw, SpM, StB              | 144.00                      | 3.55                  | 4.33                    | 20.00                    | 86.60                       | 2.00                    | 100.00               | 200.00              | 326.00**           |
| North Dakota     |       | T, Aw, Cw, Ww                    | 2,180.00                    | 2.90                  | 2.18                    | 10.00                    | 21.80                       | 2.00                    | 10.00                | 20.00               | 41.80*             |
| South Dakota     |       | Aw                               | 324.00                      | 17.50                 | 13.65                   | 40.00                    | 546.00                      | 2.50                    | 40.00                | 100.00              | 646.00*            |
| Wyoming          |       | A, PWC, Aw                       | 116.00                      | 1.38                  | 1.35                    | 1.40                     | 1.89                        | 2.50                    | 0.60                 | 1.50                | 3.39*              |
|                  |       |                                  |                             |                       |                         | Subtotal                 | <u>656.23</u>               |                         |                      | <u>321.50</u>       | <u>1,017.19</u>    |
| <b>OATS</b>      |       |                                  |                             |                       |                         |                          |                             |                         |                      |                     |                    |
| Iowa             |       | Aw                               | 1,840.00                    | 1.00                  | 0.60                    | 400.00                   | 240.00                      | -                       | -                    | -                   | 240.00             |
| Michigan         |       | CLB                              | 458.00                      | 17.10                 | 9.92                    | 99.00                    | 982.10                      | 1.50                    | 130.00               | 195.00              | 1,177.10           |
| Nebraska         |       | Ww, EGA, WG, CB, L, Aws, Cws, Gh | 548.00                      | 2.17                  | 1.37                    | 28.50                    | 39.05                       | 2.70                    | 7.50                 | 39.05               | 59.30*             |
| North Dakota     |       | Ww, Aws, Cws, Gh                 | 2,490.00                    | 4.50                  | 2.12                    | 10.00                    | 21.20                       | 2.00                    | 10.00                | 20.00               | 41.20*             |
| South Dakota     |       | Aws, Gh                          | 2,357.00                    | 30.20                 | 16.91                   | 200.00                   | 3,382.00                    | 2.50                    | 325.00               | 812.50              | 4,194.50*          |
| Wyoming          |       | A, Aw, Cws, Gh                   | 94.00                       | 1.11                  | 0.75                    | 0.88                     | 656.00                      | 2.50                    | 0.53                 | 1.31                | 1.97*              |
|                  |       |                                  |                             |                       |                         | Subtotal                 | <u>5,320.35</u>             |                         |                      | <u>1,067.76</u>     | <u>5,714.07</u>    |

\*@ Quality loss not included in total. Loss estimate based on crop harvested during year; does not reflect total sugarcane crop.



| Crop State          | Pest Complex                                      | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost      |                         |                      | Total Loss (\$1000) |                   |
|---------------------|---|-----------------------------|-----------------------|-------------------------|--------------------------|-------------------|-------------------------|----------------------|---------------------|-------------------|
|                     |   |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal (\$1000) | Cost Per Acre (dollars) | Treated Acres (1000) |                     | Subtotal (\$1000) |
| WHEAT               |   |                             |                       |                         |                          |                   |                         |                      |                     |                   |
| Arizona             | A, Cws, DB, M, SMC                                | 81.00                       | 3.65                  | 5.44                    | 30.00                    | 163.20            | 2.75                    | 10.00                | 27.50               | 310.70**          |
| Michigan            | CLB   | 628.00                      | 4.80                  | 5.71                    | 108.00                   | 616.70            | 1.50                    | 19.00                | 28.50               | 645.20            |
| Nebraska            | BWM, WG, WSM, Cws, HF, Gb, Gh, Ww, EGA, CB, M, Aw | 2,717.00                    | 4.72                  | 5.33                    | 90.00                    | 479.70            | 2.75                    | 260.00               | 715.00              | 1,194.70*         |
| North Dakota        | WSM, BWM, Gh, WSSF, Ww, AWS, Cws                  | 6,782.00                    | 1.50                  | 2.06                    | 500.00                   | 1,030.00          | 2.00                    | 300.00               | 600.00              | 1,630.00*         |
| Oklahoma            | Gb, FA, BWM                                       | 4,150.00                    | 6.27                  | 7.52                    | 821.70                   | 6,179.18          | 2.78                    | 423.30               | 1,176.77            | 7,355.96*         |
| South Dakota        | Cws, Gh, WSM, BWM, HF                             | 1,963.00                    | 5.50                  | 7.81                    | 35.00                    | 273.35            | 2.50                    | 30.00                | 75.00               | 348.35*           |
| Texas               | Gb, WGM, FA                                       | 2,869.00                    | 3.60                  | 4.46                    | 183.19                   | 817.05            | 2.49                    | 1,166.91             | 2,904.72            | 3,721.76*         |
| Wyoming             | P/C, A, Gh, G                                     | 242.00                      | 1.28                  | 1.38                    | 7.36                     | 10.16             | 2.50                    | 6.25                 | 15.63               | 25.78*            |
|                     |   |                             |                       |                         | Subtotal                 | 9,569.34          |                         |                      | 5,543.12            | 4,095.89          |
| WHEAT, OATS, BARLEY |   |                             |                       |                         |                          |                   |                         |                      |                     |                   |
| Minnesota           | Aw, A, Gh   | 5,002.00                    | -                     | -                       | -                        | -                 | 1.50                    | 53.65                | 80.47               | 80.47*            |
|                     |   |                             |                       |                         | Subtotal                 |                   |                         |                      | 80.47               | 80.47             |
| RICE                |   |                             |                       |                         |                          |                   |                         |                      |                     |                   |
| Arkansas            | RWW, RSB  | 515.00                      | -                     | -                       | -                        | -                 | 1.00                    | 515.00               | 515.00              | 515.00*           |
|                     |   |                             |                       |                         | Subtotal                 |                   |                         |                      | 515.00              | 515.00            |

\* Quality loss not included in total.

\*\* Quality loss included in total.

| Crop                  | State                                   | Pest Complex | Total Acres Produced (1000) | Yield Loss            |                          |                    | Control Cost            |                      |                    | Total Loss (\$1000) |
|-----------------------|---|--------------|-----------------------------|-----------------------|--------------------------|--------------------|-------------------------|----------------------|--------------------|---------------------|
|                       |   |              |                             | Loss Per Acre (Units) | Non-treated Acres (1000) | Sub-total (\$1000) | Cost Per Acre (dollars) | Treated Acres (1000) | Sub-total (\$1000) |                     |
| <b>RANGE GRASS</b>    |   |              |                             |                       |                          |                    |                         |                      |                    |                     |
| South Dakota          | Gh                                      |              | 26,000.00                   | Tons<br>0.08          | 1.52                     | 3.00               | 4.56                    | -                    | -                  | 4.56*               |
|                       |   |              |                             |                       |                          | Subtotal           | <u>4.56</u>             |                      |                    | <u>4.56</u>         |
| <b>ALFALFA (Hay)</b>  |   |              |                             |                       |                          |                    |                         |                      |                    |                     |
| Arkansas              | AlW, VC                                 |              | 55.00                       | -                     | -                        | -                  | -                       | 2.00                 | 25.00              | 50.00*              |
| Arizona               | AC, BA, CL, EAW, LB, M, A, TCAH         |              | 188.00                      | 0.54                  | 14.69                    | 80.00              | 1,175.20                | 4.00                 | 20.00              | 80.00               |
| Maryland              | PA, AlW, LB, MS, PB, PL, Aw             |              | 67.00                       | 0.66                  | 26.40                    | 8.00               | 211.20                  | 6.00                 | 20.00              | 120.00              |
| Michigan              | AlW, PL, PA                             |              | 1,485.00                    | 0.54                  | 12.15                    | 519.00             | 6,305.90                | 3.00                 | 223.00             | 699.00              |
| North Dakota          | Gh, Cws, AlW                            |              | 1,256.00                    | 0.10                  | 1.80                     | 30.00              | 54.00                   | 2.00                 | 20.00              | 40.00               |
| Oklahoma              | SAA, PA, FA, Gh                         |              | 581.00                      | 0.70                  | 22.13                    | 112.25             | 2,484.07                | 3.65                 | 50.43              | 184.07              |
| South Dakota          | Gh, AlW, PA, FB, Cr                     |              | 2,174.00                    | 0.50                  | 11.50                    | 501.12             | 5,762.88                | 2.50                 | 325.00             | 812.50              |
| Tennessee             | AlW                                     |              | 54.00                       | 0.24                  | 8.46                     | 16.20              | 137.05                  | 6.00                 | 37.80              | 226.80              |
| Virginia              | AlW, MS, PA, PL                         |              | 90.00                       | 0.75                  | 30.00                    | 2.00               | 60.00                   | 7.00                 | 16.00              | 112.00              |
| Wyoming               | AlW, PA, LB                             |              | 451.00                      | 0.31                  | 6.92                     | 140.45             | 971.91                  | 3.25                 | 106.30             | 345.48              |
|                       |   |              |                             |                       |                          | Subtotal           | <u>17,162.21</u>        |                      |                    | <u>2,669.85</u>     |
| <b>ALFALFA (Seed)</b> |   |              |                             |                       |                          |                    |                         |                      |                    |                     |
| Arizona               | AC, A, BA, CL, C, Cws, EAW, LB, T, TCAH |              | 10.00                       | 0.05                  | 1.92                     | 1.00               | 1.92                    | 6.00                 | 9.00               | 54.00               |
| Nebraska              | W, Ww, BB, Wbw, C, PB, L, Gh, A, Cws    |              | 30.00                       | 6.30                  | 1.89                     | 6.00               | 11.34                   | 2.75                 | 9.00               | 24.75               |
| Wyoming               | AlW, PA, LB                             |              | 6.00                        | 6.60                  | 1.98                     | 1.22               | 2.41                    | 8.00                 | 0.60               | 4.80                |
|                       |   |              |                             |                       |                          | Subtotal           | <u>15.67</u>            |                      |                    | <u>83.55</u>        |
|                       |   |              |                             |                       |                          |                    |                         |                      |                    | <u>21,381.06</u>    |

\* Quality loss not included in total.

\*\* Quality loss included in total.

| Crop                  | State | Pest Complex                                   | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost |                   |                         | Total Loss (\$1000) |                      |
|-----------------------|-------|--|-----------------------------|-----------------------|-------------------------|--------------------------|--------------|-------------------|-------------------------|---------------------|----------------------|
|                       |       |  |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal     | Subtotal (\$1000) | Cost Per Acre (dollars) |                     | Treated Acres (1000) |
| <b>CLOVER-TIMOTHY</b> |       |  |                             |                       |                         |                          |              |                   |                         |                     |                      |
| Maryland              |       | CoA, W, FB, LB, Gh, MS, PB                     | 217.00                      | Tons<br>0.18          | 5.25                    | 20.00                    | 105.00       | 3.50              | 60.00                   | 210.00              | 315.00*              |
|                       |       |  |                             |                       |                         | Subtotal                 | 105.00       |                   |                         | 210.00              | 315.00               |
| <b>HAY</b>            |       |  |                             |                       |                         |                          |              |                   |                         |                     |                      |
| Alabama               |       | FA, ALW, Gh, Cr, W, A, CLW, WC, WFB, CEW, T, L | 492.00                      | 0.23                  | 6.56                    | 190.00                   | 124.64       | 6.00              | 10.00                   | 60.00               | 184.64*              |
| Minnesota             |       | Gh, Aw, Cws                                    | 3,185.00                    | 0.25                  | 0.49                    | 144.00                   | 70.50        | 2.09              | 4.00                    | 8.36                | 78.92*               |
| Nebraska              |       | Gh, Wbw, Cws, SAA, PB, PA, CoA, CR, Aws, WG    | 4,354.00                    | 0.11                  | 2.31                    | 370.00                   | 854.70       | 2.75              | 60.00                   | 165.00              | 1,019.70*            |
|                       |       |  |                             |                       |                         | Subtotal                 | 1,049.84     |                   |                         | 233.36              | 1,283.26             |
| <b>SOYBEANS</b>       |       |  |                             |                       |                         |                          |              |                   |                         |                     |                      |
| Alabama               |       | Vbc, CL, StB, BLB, CEW, SB, MBB, SL, GCW       | 641.00                      | 2.30                  | 5.29                    | 121.00                   | 640.09       | 2.10              | 200.00                  | 420.00              | 634.80*              |
| Arkansas              |       | CEW, StB, BA, Vbc                              | 4,228.00                    | 3.07                  | 7.52                    | 250.00                   | 1,880.00     | 2.50              | 1,691.00                | 4,227.50            | 6,107.50*            |
| Iowa                  |       | WG   | 5,283.00                    | 4.35                  | 10.00                   | 7.53                     | 75.25        | -                 | -                       | -                   | 75.25                |
| Maryland              |       | BLB, CEW, MBB, T, Gh, GCW                      | 205.00                      | 1.65                  | 3.80                    | 10.00                    | 37.50        | 3.00              | 10.00                   | 30.00               | 67.50*               |
| Minnesota             |       | Aw, BLB, GCW, Gh                               | 3,167.00                    | -                     | -                       | -                        | -            | 1.33              | 16.00                   | 21.28               | 21.28*               |
| Mississippi           |       | Vbc, GCW, BA, Blw                              | 2,523.00                    | -                     | -                       | -                        | -            | 3.50              | 300.00                  | 1,050.00            | 1,050.00*            |
| Nebraska              |       | BLB, WC, MBB, Wbw, GCW, CR, Cws, Ww            | 813.00                      | 0.99                  | 2.18                    | 32.50                    | 70.85        | 3.00              | 9.50                    | 28.50               | 99.35*               |

\* Quality loss not included in total. In Alabama, includes 6 percent loss to treated soybean acres for inadequate controls on acres treated.

| Crop                    | State         | Pest Complex   | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost       |                         |                      | Total Loss (\$1000) |                    |
|-------------------------|---------------|--|-----------------------------|-----------------------|-------------------------|--------------------------|--------------------|-------------------------|----------------------|---------------------|--------------------|
|                         |               |  |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Sub-total (\$1000) | Cost Per Acre (dollars) | Treated Acres (1000) |                     | Sub-total (\$1000) |
| <b>SOYBEANS (Cont.)</b> |               |  |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| North Dakota            | Gh            |  | 185.00                      | Bu.                   | 2.20                    | 0.50                     | 1.10               | 2.00                    | 2.50                 | 5.00                | 6.10*              |
| South Dakota            | Cws           |  | 258.00                      |                       | 33.37                   | 3.00                     | 100.11             | 2.50                    | 1.00                 | 25.00               | 125.11*            |
| Tennessee               | CEW           |  | 1,268.00                    | 0.24                  | 0.55                    | 400.00                   | 220.00             | 2.00                    | 500.00               | 1,000.00            | 1,200.00*          |
| Virginia                | CEW, StB, GCW |  | 361.00                      | 7.25                  | 17.04                   | 175.00                   | 2,982.00           | 3.00                    | 175.00               | 525.00              | 4,207.00**         |
|                         |               |  |                             |                       |                         | Subtotal                 | 6,006.90           |                         |                      | 7,332.28            | 13,593.89          |
| <b>PEANUTS</b>          |               |  |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Alabama                 |               | LCB, T, SCR, Cws, WFB, SpM, L, FA, Aw, BA, SI          | 187.00                      | 457.50                | 53.98                   | 22.00                    | 1,187.56           | 3.25                    | 165.00               | 536.25              | 3,209.21*          |
| Virginia                |               | SCR, CEW, T, M   | 102.00                      | 230.00                | 29.67                   | 1.00                     | 29.67              | 5.00                    | 79.00                | 395.00              | 444.67**           |
|                         |               |  |                             |                       |                         | Subtotal                 | 1,217.23           |                         |                      | 931.25              | 3,653.88           |
| <b>COTTON</b>           |               |  |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Alabama                 |               | BW, Blw, TB, T, PB, F, SpM                             | 545.00                      | 121.50                | 25.52                   | 5.00                     | 127.60             | 22.50                   | 540.00               | 12,150.00           | 16,888.80**        |
| Arizona                 |               | F, Blw, CL, CA, CLP, CWS, DB, LB, PBW, SpM, StB, T, WI | 309.00                      | 501.00                | 116.23                  | 5.00                     | 581.15             | 20.00                   | 295.00               | 5,900.00            | 6,583.15**         |
| Arkansas                |               | Blw, BW, PB, M   | 1,055.00                    | 41.40                 | 8.90                    | 100.00                   | 890.00             | 12.00                   | 740.00               | 8,880.00            | 9,770.00*          |
| Mississippi             |               | Blw, PB, T   | 1,190.00                    | 267.00                | 58.74                   | 95.00                    | 5,580.30           | 15.91                   | 1,805.00             | 28,717.55           | 34,944.80**        |
| Oklahoma                |               | BW, Blw, F, T, CA                                      | 465.00                      | 77.70                 | 14.37                   | 170.19                   | 2,445.63           | 11.99                   | 113.46               | 1,360.39            | 3,806.02*          |
| Tennessee               |               | BW   | 405.00                      | 50.40                 | 11.00                   | 43.40                    | 481.25             | 15.00                   | 101.26               | 1,518.83            | 2,001.28**         |
|                         |               | Blw  | -                           | -                     | -                       | 105.00                   | 1,115.00           | 15.00                   | 300.00               | 4,500.00            | 5,615.00*          |
| Texas                   |               | A, SpM, T, F, TB, Blw, BW, Cws, BA, CLP, Gh            | 4,675.00                    | 73.50                 | 13.60                   | 1,459.13                 | 19,844.15          | 6.61                    | 1,813.37             | 1,198.38            | 33,289.67**        |
|                         |               |  |                             |                       |                         | Subtotal                 | 31,065.08          |                         |                      | 63,215.15           | 112,898.72         |

\* Quality loss not included in total. In Alabama, includes 5 percent loss to treated peanut acres for inadequate controls on acres treated.

\*\* Quality loss included in total. In Alabama, includes 10 percent loss to treated cotton for inadequate controls on acres treated.

| Crop         | State | Pest Complex                  | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost         |                         |                      | Total Loss (\$1000) |                          |
|--------------|-------|-------------------------------|-----------------------------|-----------------------|-------------------------|--------------------------|----------------------|-------------------------|----------------------|---------------------|--------------------------|
|              |       |                               |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal             | Cost Per Acre (dollars) | Treated Acres (1000) |                     | Subtotal                 |
| TOBACCO      |       |                               |                             |                       |                         |                          |                      |                         |                      |                     |                          |
| Florida      |       | TB, CL, Cws, TFB, TH, GPA, Ww | 12.20<br>3.90               | 220.00<br>115.00      | 152.00<br>311.00        | -<br>-                   | 1,854.40<br>1,212.90 | 16.00<br>79.00          | 12.20<br>3.90        | 195.20<br>308.10    | 2,244.80**<br>1,521.00** |
| Maryland     |       | GPA, TH, TFB, TB              | 30.00                       | 120.00                | 90.00                   | 5.00                     | 450.00               | 15.00                   | 25.00                | 375.00              | 825.00*                  |
|              |       |                               |                             | Subtotal              |                         |                          | 3,517.30             |                         |                      | 878.30              | 4,590.80                 |
| SUGAR BEETS  |       |                               |                             |                       |                         |                          |                      |                         |                      |                     |                          |
| Arizona      |       | BA, BL, CL, GPA, LB, STB      | 33.60                       | 0.91                  | 11.83                   | 25.00                    | 295.75               | 4.00                    | 8.60                 | 34.40               | 330.15*                  |
| Michigan     |       | A, Cws, FB, SLM               | 92.60                       | 2.03                  | 21.72                   | 10.00                    | 217.20               | 2.20                    | 20.00                | 44.00               | 261.20                   |
| Minnesota    |       | BWw, BLM, Cws, Ww             | 164.30                      | -                     | -                       | -                        | -                    | 400.00                  | 0.25                 | 1.00                | 1.00*                    |
| Nebraska     |       | Wbw, L, Gh, Ww, FB            | 88.00                       | 1.75                  | 26.95                   | 5.00                     | 134.75               | 3.50                    | 5.00                 | 17.50               | 152.25*                  |
| North Dakota |       | SBRM, Cws, BWw, Ww            | 93.30                       | 0.30                  | 5.40                    | 24.00                    | 129.60               | 4.25                    | 26.00                | 110.50              | 240.10*                  |
| Wyoming      |       | SBRM, Ww, BL, BWw             | 67.70                       | 1.58                  | 22.99                   | 7.00                     | 160.93               | 4.25                    | 5.60                 | 23.80               | 184.73*                  |
|              |       |                               |                             | Subtotal              |                         |                          | 938.23               |                         |                      | 231.20              | 1,169.43                 |
| SAFFLOWER    |       |                               |                             |                       |                         |                          |                      |                         |                      |                     |                          |
| Arizona      |       | A, BA, CL, LB, M, STB, VC, T  | 25.00                       | 0.12                  | 9.36                    | 5.00                     | 46.80                | 3.50                    | 20.00                | 70.00               | 131.80**                 |
|              |       |                               |                             | Subtotal              |                         |                          | 46.80                |                         |                      | 70.00               | 131.80                   |
| FLAX         |       |                               |                             |                       |                         |                          |                      |                         |                      |                     |                          |
| North Dakota |       | Gh, Cws, Ww                   | 1,513.00                    | 0.80                  | 2.08                    | 5.00                     | 10.40                | 1.60                    | 15.00                | 24.00               | 34.40*                   |
| South Dakota |       | Aw, Cws, Gh                   | 652.00                      | 2.20                  | 5.83                    | 24.00                    | 139.92               | 2.50                    | 31.00                | 77.50               | 217.42*                  |
|              |       |                               |                             | Subtotal              |                         |                          | 240.32               |                         |                      | 101.50              | 251.82                   |

\* Quality loss not included in total.

\*\* Quality loss included in total.

| Crop              | State | Pest Complex                       | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost            |                      |                    | Total Loss (\$1000) |                 |
|-------------------|-------|------------------------------------|-----------------------------|-----------------------|-------------------------|--------------------------|-------------------------|----------------------|--------------------|---------------------|-----------------|
|                   |       |                                    |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Cost Per Acre (dollars) | Treated Acres (1000) | Sub-total (\$1000) |                     |                 |
| <b>SUNFLOWERS</b> |       |                                    |                             |                       |                         |                          |                         |                      |                    |                     |                 |
| North Dakota      |       | Cws, Ww, Sfm, Sfb, Sum             | 108.00                      | 72.00                 | 31.97                   | 1.00                     | 31.97                   | 3.00                 | 4.00               | 12.00               | 43.97*          |
|                   |       |                                    |                             |                       |                         | Subtotal                 | <u>31.97</u>            |                      |                    | <u>12.00</u>        | <u>43.97</u>    |
| <b>POTATOES</b>   |       |                                    |                             |                       |                         |                          |                         |                      |                    |                     |                 |
| Alabama           |       | Cws, Ww, A, PFB, PL, CFB           | 19.00                       | -                     | -                       | -                        | -                       | 6.00                 | 19.00              | 114.00              | 676.80*         |
| Arizona           |       | A, BA, CL, DB, FB, L, PP           | 12.80                       | 11.50                 | 33.35                   | 4.00                     | 133.40                  | 6.00                 | 6.00               | 36.00               | 169.40*         |
| Minnesota         |       | L, FB                              | 97.90                       | 15.80                 | 27.65                   | 2.90                     | 80.19                   | 10.00                | 95.00              | 950.00              | 1,030.19*       |
| Nebraska          |       | CPB, L, PB, BB, PP, FB, Ww, WG, Gh | 9.10                        | 23.60                 | 32.57                   | 1.00                     | 32.57                   | 6.20                 | 5.00               | 31.00               | 63.57*          |
| North Dakota      |       | Ww, FB, CPB                        | 110.00                      | 5.60                  | 7.28                    | 5.00                     | 36.40                   | 6.20                 | 70.00              | 434.00              | 470.40*         |
| Wyoming           |       | PP, Ww, FB                         | 3.40                        | 7.22                  | 14.44                   | 0.10                     | 1.44                    | 6.50                 | 3.30               | 21.45               | 22.89*          |
|                   |       |                                    |                             |                       |                         | Subtotal                 | <u>284.00</u>           |                      |                    | <u>1,586.45</u>     | <u>2,433.25</u> |
| <b>TOMATOES</b>   |       |                                    |                             |                       |                         |                          |                         |                      |                    |                     |                 |
| Alabama           |       | TFw, FB, A, CL, LMF, SPM, TPW      | 8.50                        | -                     | -                       | -                        | -                       | 46.00                | 8.50               | 391.00              | 928.17*         |
| Maryland          |       | A, CPE, L, TF, ECB, TH             | 4.60                        | 2.08                  | 77.17                   | -                        | -                       | 10.00                | 4.60               | 46.00               | 46.00*          |
| Hawaii            |       | GHWf, LMF, CSPM, MA, M, TD         | 0.20                        | 1225.00               | 220.00                  | -                        | 44.00                   | 206.00               | 0.20               | 41.20               | 85.20*          |
|                   |       |                                    |                             |                       |                         | Subtotal                 | <u>44.00</u>            |                      |                    | <u>476.20</u>       | <u>1,059.37</u> |

\* Quality loss not included in total. In Alabama, includes 9 percent loss to treated potato acres and 12 percent loss to treated tomato acres for inadequate controls on acres treated.

| Crop          | State | Pest Complex                    | Total Acres Produced (1000) | Yield Loss            |                          | Control Cost            |                      | Sub-total Loss (\$1000) |
|---------------|-------|---------------------------------|-----------------------------|-----------------------|--------------------------|-------------------------|----------------------|-------------------------|
|               |       |                                 |                             | Loss Per Acre (Units) | Non-treated Acres (1000) | Cost Per Acre (dollars) | Treated Acres (1000) |                         |
| BEANS (Field) |       |                                 |                             |                       |                          |                         |                      |                         |
| Nebraska      |       | WBC, MBB, Gh, BLB, L, A         | 92.00                       | 2.22                  | 15.10                    | 20.00                   | 302.00               | 112.00                  |
| Wyoming       |       | MBB, FB                         | 28.00                       | 0.33                  | 2.38                     | 1.74                    | 4.14                 | 5.81                    |
|               |       |                                 |                             |                       | Subtotal                 |                         | <u>306.14</u>        | <u>117.81</u>           |
| BEANS (Snap)  |       |                                 |                             |                       |                          |                         |                      |                         |
| Alabama       |       | MBB, BLB, CEw, SPM, LCB, T, SCR | 1.40                        | -                     | -                        | -                       | -                    | 18.20                   |
| Hawaii        |       | GHw, LMF, CSPM, BF, M, CRB      | 0.11                        | 294.00                | 94.00                    | -                       | 10.34                | 17.82                   |
|               |       |                                 |                             |                       | Subtotal                 |                         | <u>10.34</u>         | <u>36.02</u>            |
| PEAS          |       |                                 |                             |                       |                          |                         |                      |                         |
| Minnesota     |       | PA, GCw, Aw                     | 63.20                       | -                     | -                        | -                       | -                    | 50.34                   |
|               |       |                                 |                             |                       | Subtotal                 |                         |                      | <u>50.34</u>            |
| CABBAGE       |       |                                 |                             |                       |                          |                         |                      |                         |
| Arizona       |       | A, CL, GW (winter)              | 1.50                        | 11.00                 | 45.10                    | -                       | -                    | 22.50                   |
| Hawaii        |       | CL, DM, A, IC, BC, S, CWw, Sn   | 0.42                        | 1885.00               | 113.00                   | -                       | 47.46                | 18.90                   |
|               |       |                                 |                             |                       | Subtotal                 |                         | <u>47.46</u>         | <u>41.40</u>            |
| CAULIFLOWER   |       |                                 |                             |                       |                          |                         |                      |                         |
| Arizona       |       | A, CL (winter)                  | 0.90                        | 8.25                  | 116.33                   | -                       | -                    | 22.00                   |
|               |       |                                 |                             |                       | Subtotal                 |                         |                      | <u>22.00</u>            |
|               |       |                                 |                             |                       |                          |                         |                      | <u>19.80</u>            |

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| Crop                     | State                                | Pest Complex | Yield Loss                  |                         |                          | Control Cost |                         |                      | Total Loss (\$1000) |                   |
|--------------------------|--------------------------------------|--------------|-----------------------------|-------------------------|--------------------------|--------------|-------------------------|----------------------|---------------------|-------------------|
|                          |                                      |              | Total Acres Produced (1000) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal     | Cost Per Acre (dollars) | Treated Acres (1000) |                     | Subtotal (\$1000) |
| <b>BROCCOLI</b>          |                                      |              |                             |                         |                          |              |                         |                      |                     |                   |
| Arizona                  | A, CL                                |              | 0.65                        | 84.50                   | -                        | -            | 25.00                   | 0.65                 | 16.25               | 16.25*            |
|                          |                                      |              |                             |                         | Subtotal                 |              |                         |                      | 16.25               | 16.25             |
| <b>CANTALOUPS</b>        |                                      |              |                             |                         |                          |              |                         |                      |                     |                   |
| Arizona                  | StCB, FB, L, M, T (spring)           |              | 12.80                       | 163.80                  | -                        | -            | 20.00                   | 12.80                | 256.00              | 256.00*           |
|                          | (summer)                             |              | 2.10                        | 63.80                   | -                        | -            | 25.00                   | 2.10                 | 52.50               | 52.50*            |
|                          | (fall)                               |              | 1.00                        | 36.00                   | -                        | -            | 15.00                   | 1.00                 | 15.00               | 15.00*            |
|                          |                                      |              |                             |                         | Subtotal                 |              |                         |                      | 773.50              | 773.50            |
| <b>MELONS (Honeydew)</b> |                                      |              |                             |                         |                          |              |                         |                      |                     |                   |
| Arizona                  | StCB, FB, L, M, T (summer)           |              | 1.20                        | 29.25                   | -                        | -            | 20.00                   | 1.20                 | 24.00               | 24.00*            |
|                          |                                      |              |                             |                         | Subtotal                 |              |                         |                      | 24.00               | 24.00             |
| <b>WATERMELONS</b>       |                                      |              |                             |                         |                          |              |                         |                      |                     |                   |
| Arizona                  | StCB, FB, L, M, T (summer)           |              | 5.10                        | 13.50                   | 0.60                     | 8.10         | 6.00                    | 4.50                 | 27.00               | 38.10**           |
|                          |                                      |              |                             |                         | Subtotal                 |              |                         |                      | 27.00               | 38.10             |
| <b>CARROTS</b>           |                                      |              |                             |                         |                          |              |                         |                      |                     |                   |
| Arizona                  | A, T (spring)                        |              | 2.80                        | 42.30                   | 0.50                     | 21.15        | 8.00                    | 2.30                 | 18.40               | 54.55**           |
|                          |                                      |              |                             |                         | Subtotal                 |              |                         |                      | 18.40               | 54.55             |
| <b>LETTUCE</b>           |                                      |              |                             |                         |                          |              |                         |                      |                     |                   |
| Arizona                  | A, BA, CL, CEw, Cr, LB, SMC (winter) |              | 16.10                       | 129.20                  | -                        | -            | 25.00                   | 16.10                | 402.50              | 402.50*           |
|                          | (fall)                               |              | 20.00                       | 183.60                  | -                        | -            | 35.00                   | 20.00                | 700.00              | 700.00*           |
|                          |                                      |              | 13.10                       | 166.60                  | -                        | -            | 30.00                   | 13.10                | 393.00              | 393.00*           |
|                          |                                      |              |                             |                         | Subtotal                 |              |                         |                      | 1,495.50            | 1,495.50          |

\* Quality loss not included in total.

\*\* Quality loss included in total.



| Crop                  | State                                 | Pest Complex | Yield Loss                  |                       | Control Cost            |                          |                   | Total Loss (\$1000) |                         |                      |                   |
|-----------------------|---------------------------------------|--------------|-----------------------------|-----------------------|-------------------------|--------------------------|-------------------|---------------------|-------------------------|----------------------|-------------------|
|                       |                                       |              | Total Acres Produced (1000) | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal (\$1000) |                     | Cost Per Acre (dollars) | Treated Acres (1000) | Subtotal (\$1000) |
| <b>ONIONS (Dry)</b>   |                                       |              |                             |                       |                         |                          |                   |                     |                         |                      |                   |
| Arizona               | BA, CL, T                             |              | 2.00                        | 18.75                 | 59.06                   | -                        | -                 | 8.00                | 2.00                    | 16.00*               | 16.00*            |
|                       |                                       |              |                             |                       |                         | Subtotal                 |                   |                     |                         |                      | 16.00             |
| <b>SWEETPOTATOES</b>  |                                       |              |                             |                       |                         |                          |                   |                     |                         |                      |                   |
| Alabama               | Ww, FB, SPW, WG, WFB                  |              | 5.30                        | 7.65                  | 41.30                   | 2.00                     | 82.60             | 8.00                | 3.30                    | 26.40                | 125.00**          |
|                       |                                       |              |                             |                       |                         | Subtotal                 | 82.60             |                     |                         | 26.40                | 125.00            |
| <b>APPLES</b>         |                                       |              |                             |                       |                         |                          |                   |                     |                         |                      |                   |
| Arkansas              | CdM, RAA, LR                          |              | 1.50                        | -                     | -                       | -                        | -                 | 55.00               | 1.50                    | 82.50                | 82.50**           |
| Maryland              | A, AM, CdM, LR, M, SpM                |              | 70.00                       | -                     | -                       | -                        | -                 | 0.01                | -                       | 595.00               | 595.00*           |
| Michigan              | Cws, M, PB, LR, PC, AM, CdM, A, L, Sc |              | 57.00                       | 1200.00               | 48.00                   | -                        | 2,736.00          | 70.00               | 57.00                   | 3,990.00             | 6,726.00          |
| Minnesota             | AM, CdM, C, M                         |              | 3.00                        | -                     | -                       | -                        | -                 | 150.00              | 3.00                    | 450.00               | 450.00*           |
| Virginia              | CdM, A, M, LR                         |              | 470.00                      | -                     | -                       | -                        | -                 | 0.01                | -                       | 2,209.00             | 2,209.00*         |
|                       |                                       |              |                             |                       |                         | Subtotal                 | 2,736.00          |                     |                         | 7,326.50             | 10,062.50         |
| <b>TART CHERRIES</b>  |                                       |              |                             |                       |                         |                          |                   |                     |                         |                      |                   |
| Michigan              | PC, LR, PTB, CFF, LPTB, A             |              | 40.10                       | 264.00                | 20.00                   | -                        | 802.00            | 20.00               | 40.10                   | 802.00               | 1,604.00          |
|                       |                                       |              |                             |                       |                         | Subtotal                 | 802.00            |                     |                         | 802.00               | 1,604.00          |
| <b>SWEET CHERRIES</b> |                                       |              |                             |                       |                         |                          |                   |                     |                         |                      |                   |
| Michigan              | PC, LR, PTB, CFF, LPTB, A             |              | 10.90                       | 200.00                | 22.00                   | -                        | 239.80            | 20.00               | 10.90                   | 218.00               | 447.80            |
|                       |                                       |              |                             |                       |                         | Subtotal                 | 239.80            |                     |                         | 218.00               | 447.80            |

\* Quality loss not included in total.

\*\* Quality loss included in total.

| Crop              | State | Pest Complex                            | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost       |                         |                      | Total Loss (\$1000) |                    |
|-------------------|-------|---|-----------------------------|-----------------------|-------------------------|--------------------------|--------------------|-------------------------|----------------------|---------------------|--------------------|
|                   |       |   |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Sub-total (\$1000) | Cost Per Acre (dollars) | Treated Acres (1000) |                     | Sub-total (\$1000) |
| <b>PEACHES</b>    |       |   |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Alabama           |       | PC, PTB, LPTB, Sc, TSM, OFM             | Trees<br>650.00<br>Acres    | -                     | -                       | -                        | -                  | 0.30                    | 650.00<br>Acres      | 195.00              | 395.20*            |
| Michigan          |       | Cws, PB, M, OFM, PC, PTB, LPTB          | 13.50                       | 720.00                | 36.00                   | -                        | 486.00             | 40.00                   | 13.50                | 540.00              | 1,315.00           |
|                   |       |   |                             |                       | Subtotal                |                          | 486.00             |                         |                      | 735.00              | 1,710.20           |
| <b>PEARS</b>      |       |   |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Michigan          |       | Sc, M, PB, LR, PC, A, CdM               | 9.20                        | 250.00                | 10.00                   | -                        | 92.00              | 60.00                   | 9.20                 | 552.00              | 644.00             |
|                   |       |   |                             |                       | Subtotal                |                          | 92.00              |                         |                      | 552.00              | 644.00             |
| <b>PLUMS</b>      |       |   |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Michigan          |       | Sc, M, LR, PC, AM, L                    | 6.10                        | 240.00                | 9.50                    | -                        | 57.95              | 35.00                   | 6.10                 | 213.50              | 271.45             |
|                   |       |   |                             |                       | Subtotal                |                          | 57.95              |                         |                      | 213.50              | 271.45             |
| <b>PECANS</b>     |       |   |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Alabama           |       | HS, A, W, Pnc, StB, SpM, Sc, P          | Lbs.<br>36,000.00           | 7.98                  | 2.38                    | 600.00                   | 1,428.00           | 9.00                    | 150.00               | 1,350.00            | 3,978.00**         |
|                   |       |   |                             |                       | Subtotal                |                          | 1,428.00           |                         |                      | 1,350.00            | 3,978.00           |
| <b>LEMONS</b>     |       |   |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Arizona           |       | A, Cic, Gh, K, M, LFB, L, OD, LR, T, Sc | 13.36#                      | 63.00                 | 157.50                  | 3.36                     | 529.20             | 25.00                   | 10.00                | 250.00              | 846.40**           |
|                   |       |   |                             |                       | Subtotal                |                          | 529.20             |                         |                      | 250.00              | 846.40             |
| <b>GRAPEFRUIT</b> |       |   |                             |                       |                         |                          |                    |                         |                      |                     |                    |
| Arizona           |       | A, Cic, Gh, K, LFB, LR, M, OD, T, Sc    | 6.68                        | 25.00                 | 37.50                   | 2.68                     | 100.50             | 10.00                   | 4.00                 | 40.00               | 193.10**           |
|                   |       |   |                             |                       | Subtotal                |                          | 100.50             |                         |                      | 40.00               | 193.10             |

\* Quality loss not included in total. In Alabama, includes 8 percent loss to treated peach trees for inadequate controls on trees treated.

\*\* Quality loss included in total.

# Includes 60 acres of limes.

| Crop                             | State | Pest Complex                         | Total Acres Produced (1000) | Yield Loss            |                         |                          | Control Cost |                         |                      | Total Loss (\$1000) |          |
|----------------------------------|-------|--------------------------------------|-----------------------------|-----------------------|-------------------------|--------------------------|--------------|-------------------------|----------------------|---------------------|----------|
|                                  |       |                                      |                             | Loss Per Acre (Units) | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal     | Cost Per Acre (dollars) | Treated Acres (1000) |                     | Subtotal |
| <b>ORANGES</b>                   |       |                                      |                             |                       |                         |                          |              |                         |                      |                     |          |
| Arizona                          |       | A, C, G, K, LFB, L, M, LR, OD, T, SC | 23.40                       | Boxes<br>65.25        | 114.19                  | 1.40                     | 159.87       | 30.00                   | 22.00                | 660.00              | 889.87** |
| Hawaii                           |       | OFF, CRM, CEM, MFF, M                | 0.04                        | Lbs.<br>1.61          | 128.00                  | 0.04                     | 5.38         | 50.00                   | 0.04                 | 2.10                | 7.48*    |
|                                  |       |                                      |                             |                       |                         | Subtotal                 | 165.25       |                         |                      | 662.10              | 897.35   |
| <b>TANGERINES</b>                |       |                                      |                             |                       |                         |                          |              |                         |                      |                     |          |
| Arizona                          |       | A, C, G, K, M, LFB, L, LR, OD, T     | 6.36                        | Boxes<br>40.00        | 90.00                   | 0.36                     | 32.40        | 15.00                   | 6.00                 | 90.00               | 135.00** |
|                                  |       |                                      |                             |                       |                         | Subtotal                 | 32.40        |                         |                      | 90.00               | 135.00   |
| <b>MACADAMIA NUTS (in shell)</b> |       |                                      |                             |                       |                         |                          |              |                         |                      |                     |          |
| Hawaii                           |       | StB, M, T                            | 4.03                        | Lbs.<br>78.00         | 17.00                   | 0.01                     | 0.17         | -                       | -                    | -                   | 0.17*    |
|                                  |       |                                      |                             |                       |                         | Subtotal                 | 0.17         |                         |                      | -                   | 0.17     |
| <b>PASSION FRUIT (processed)</b> |       |                                      |                             |                       |                         |                          |              |                         |                      |                     |          |
| Hawaii                           |       | BSc, CSPM, M, Mb MF, OFF             | 0.27                        | 1074.00               | 43.00                   | -                        | 11.61        | 43.00                   | 0.27                 | 11.61               | 23.22*   |
|                                  |       |                                      |                             |                       |                         | Subtotal                 | 11.61        |                         |                      | 11.61               | 23.22    |
| <b>PAPAYAS</b>                   |       |                                      |                             |                       |                         |                          |              |                         |                      |                     |          |
| Hawaii                           |       | GPA, CSPM, TCM, BFM, RPM             | 0.83                        | 461.00                | 60.00                   | -                        | 49.80        | 34.00                   | 0.83                 | 28.22               | 70.02*   |
|                                  |       |                                      |                             |                       |                         | Subtotal                 | 49.80        |                         |                      | 28.22               | 70.02    |
| <b>CRANBERRIES</b>               |       |                                      |                             |                       |                         |                          |              |                         |                      |                     |          |
| Oregon                           |       | BHF, CG, CF, RW                      | 0.70                        | -                     | -                       | -                        | -            | -                       | -                    | -                   | 80.00*   |
|                                  |       |                                      |                             |                       |                         | Subtotal                 | -            |                         |                      | -                   | 80.00    |

\* Quality loss not included in total.  
 \*\* Quality loss included in total.

| Crop                | State           | Pest Complex | Yield Loss                   |                       |                         | Control Cost             |                   |                         | Total Loss (\$1000) |                      |                   |
|---------------------|-----------------|--------------|------------------------------|-----------------------|-------------------------|--------------------------|-------------------|-------------------------|---------------------|----------------------|-------------------|
|                     |                 |              | Total Acres Protected (1000) | Loss Per Acre (Units) | Loss Per Acre (dollars) | Not treated Acres (1000) | Subtotal (\$1000) | Cost Per Acre (dollars) |                     | Treated Acres (1000) | Subtotal (\$1000) |
| <b>STRAWBERRIES</b> |                 |              |                              |                       |                         |                          |                   |                         |                     |                      |                   |
| Michigan            | MS, LR, PB, SI  |              | 6.30                         | 530.00                | 106.00                  | -                        | 667.80            | 50.00                   | 6.30                | 315.00               | 982.80            |
|                     |                 |              |                              |                       |                         | Subtotal                 | 667.80            |                         |                     | 315.00               | 982.80            |
| <b>GRAPES</b>       |                 |              |                              |                       |                         |                          |                   |                         |                     |                      |                   |
| Michigan            | Cws, GBM, L, RC |              | 16.70                        | 456.00                | 36.00                   | -                        | 601.20            | 20.00                   | 16.70               | 334.00               | 935.20            |
|                     |                 |              |                              |                       |                         | Subtotal                 | 601.20            |                         |                     | 334.00               | 935.20            |
| <b>HOGS</b>         |                 |              |                              |                       |                         |                          |                   |                         |                     |                      |                   |
| Alabama             | Hf, HL, M       | Hogs         | 1,628.00                     | 18.00                 | 3.74                    | 200.00                   | 748.00            | 1.25                    | 1,428.00            | 1,785.00             | 2,533.00*         |
|                     |                 |              |                              |                       |                         | Subtotal                 | 748.00            |                         |                     | 1,785.00             | 2,533.00          |
| <b>BROILERS</b>     |                 |              |                              |                       |                         |                          |                   |                         |                     |                      |                   |
| Alabama             | Hf, DB, M, Li   | Birds        | 352,700.00                   | -                     | -                       | -                        | -                 | 0.03                    | 352,700.00          | 10,581.00            | 10,581.00*        |
|                     |                 |              |                              |                       |                         | Subtotal                 | -                 |                         |                     | 10,581.00            | 10,581.00         |
|                     |                 |              |                              |                       |                         | Total                    | 200,300.12        |                         |                     | 252,607.02           | 485,446.11        |

For loss data from Illinois see addendum on page  
 \* Quality loss not included in total.

Addendum

| Crop                      | State | Pest Complex | Total Acres Produced (1000) | Yield Loss              |                          |                   | Control Cost            |                      |                   | Total Loss (\$1000) |           |
|---------------------------|-------|--------------|-----------------------------|-------------------------|--------------------------|-------------------|-------------------------|----------------------|-------------------|---------------------|-----------|
|                           |       |              |                             | Loss Per Acre (dollars) | Non-treated Acres (1000) | Subtotal (\$1000) | Cost Per Acre (dollars) | Treated Acres (1000) | Subtotal (\$1000) |                     |           |
| <b>CORN</b>               |       |              |                             |                         |                          |                   |                         |                      |                   |                     |           |
| Illinois                  |       | SI           | 9,763.00                    | Bu. 7.84                | 8.94                     | 49.20             | 275.05                  | 3.00                 | 492.04            | 1,476.11            | 21,151.22 |
|                           |       | Aw           | "                           | 4.90                    | 5.59                     | 49.20             | 7.57                    | 2.50                 | 9.68              | 24.20               | 1,751.16  |
|                           |       | CFB          | "                           | 6.86                    | 7.82                     | 0.97              | 20.34                   | 3.00                 | 52.03             | 156.08              | 31.77     |
|                           |       | CR (adults)  | "                           | 7.84                    | 8.94                     | 1.00              | 8.92                    | 2.75                 | 19.96             | 54.88               | 176.42    |
|                           |       | CLA          | "                           | 7.84                    | 8.94                     | 1.03              | 9.24                    | 2.50                 | 12.93             | 32.32               | 63.81     |
|                           |       | CWS          | "                           | 5.88                    | 6.70                     | 90.49             | 6,060.05                | 3.00                 | 195.52            | 586.55              | 41.56     |
|                           |       | ECB          | "                           | 3.92                    | 4.47                     | 9.96              | 4.45                    | 2.50                 | 66.39             | 165.97              | 6,646.60  |
|                           |       | Gh           | "                           | 4.90                    | 5.59                     | 40.42             | 225.96                  | 3.00                 | 202.11            | 606.33              | 170.42    |
|                           |       | FA           | "                           |                         |                          |                   |                         |                      |                   |                     | 832.29    |
|                           |       |              |                             |                         |                          | Subtotal          | 6,611.58                |                      |                   | 3,102.44            | 30,865.25 |
| <b>SWEET CORN</b>         |       |              |                             |                         |                          |                   |                         |                      |                   |                     |           |
| Illinois                  |       | CE, ECB      | 55.60                       | Tons 0.22               | 6.40                     | 0.10              | 0.64                    | 12.00                | 55.00             | 660.00              | 660.64    |
|                           |       |              |                             |                         |                          | Subtotal          | 0.64                    |                      |                   | 660.00              | 660.64    |
| <b>WHEAT</b>              |       |              |                             |                         |                          |                   |                         |                      |                   |                     |           |
| Illinois                  |       | Aws          | 1,301.00                    | Bu. 2.59                | 3.06                     | 1.67              | 5.10                    | 2.75                 | 33.35             | 91.72               | 96.83     |
|                           |       |              |                             |                         |                          | Subtotal          | 5.10                    |                      |                   | 91.72               | 96.83     |
| <b>SOYBEANS</b>           |       |              |                             |                         |                          |                   |                         |                      |                   |                     |           |
| Illinois                  |       | Gh           | 6,596.00                    | 2.35                    | 5.52                     | 3.05              | 16.85                   | 3.00                 | 61.07             | 183.20              | 200.05    |
|                           |       |              |                             |                         |                          | Subtotal          | 16.85                   |                      |                   | 183.20              | 200.05    |
| <b>CLOVER-TIMOTHY HAY</b> |       |              |                             |                         |                          |                   |                         |                      |                   |                     |           |
| Illinois                  |       | CLW          | 440.00                      | Tons 0.08               | 1.79                     | 0.06              | 0.11                    | 3.25                 | 1.19              | 3.88                | 3.94      |
|                           |       |              |                             |                         |                          | Subtotal          | 0.11                    |                      |                   | 3.88                | 3.94      |

| Crop        | State | Pest Complex            | Total Acres Produced (1000) | Yield Loss              |                          |                    | Control Cost            |                      |                    | Total Loss (\$1000) |
|-------------|-------|-------------------------|-----------------------------|-------------------------|--------------------------|--------------------|-------------------------|----------------------|--------------------|---------------------|
|             |       |                         |                             | Loss Per Acre (dollars) | Non-treated Acres (1000) | Sub-total (\$1000) | Cost Per Acre (dollars) | Treated Acres (1000) | Sub-total (\$1000) |                     |
| ALFALFA HAY |       |                         |                             |                         |                          |                    |                         |                      |                    |                     |
| Illinois    |       | Wbw                     | 766.00                      | 6.77                    | 0.09                     | 0.59               | 3.25                    | 1.73                 | 5.63               | 6.22                |
|             |       | Alw                     | "                           | 5.26                    | 6.92                     | 36.39              | 3.25                    | 46.13                | 149.92             | 186.31              |
|             |       | Gh                      | "                           | 3.01                    | 7.16                     | 21.56              | 3.25                    | 71.61                | 232.74             | 284.29              |
|             |       | MS                      | "                           | 0.13                    | 0.30                     | 0.30               | 3.25                    | 1.95                 | 6.35               | 6.65                |
|             |       | PA                      | "                           | 3.76                    | 0.17                     | 0.63               | 3.25                    | 3.33                 | 10.83              | 11.45               |
|             |       | PL                      | "                           | 0.16                    | 3.76                     | 0.93               | 3.25                    | 9.33                 | 30.51              | 33.82               |
|             |       | VC                      | "                           | 3.76                    | 0.18                     | 0.67               | 3.25                    | 3.54                 | 11.51              | 12.17               |
|             |       |                         |                             |                         | Subtotal                 | <u>63.65</u>       |                         |                      | <u>447.29</u>      | <u>510.91</u>       |
| TOMATOES    |       |                         |                             |                         |                          |                    |                         |                      |                    |                     |
| Illinois    |       | Tomato pest complex     | 6.40                        | 29.90                   | 0.56                     | 16.74              | 15.00                   | 5.84                 | 87.60              | 104.34              |
|             |       |                         |                             |                         | Subtotal                 | <u>16.74</u>       |                         |                      | <u>87.60</u>       | <u>104.34</u>       |
| CABBAGE     |       |                         |                             |                         |                          |                    |                         |                      |                    |                     |
| Illinois    |       | CL, CM                  | 2.00                        | 213.00                  | 0.40                     | 85.20              | 8.00                    | 1.60                 | 12.80              | 98.00               |
|             |       |                         |                             |                         | Subtotal                 | <u>85.20</u>       |                         |                      | <u>12.80</u>       | <u>98.00</u>        |
| CUCUMBERS   |       |                         |                             |                         |                          |                    |                         |                      |                    |                     |
| Illinois    |       | StCB                    | 0.85                        | 17.50                   | 0.43                     | 7.44               | 6.00                    | 0.43                 | 2.55               | 9.99                |
|             |       |                         |                             |                         | Subtotal                 | <u>7.44</u>        |                         |                      | <u>2.55</u>        | <u>9.99</u>         |
| WATERMELONS |       |                         |                             |                         |                          |                    |                         |                      |                    |                     |
| Illinois    |       | Watermelon pest complex | 1.70                        | 17.30                   | 0.50                     | 8.65               | 6.00                    | 1.20                 | 7.20               | 15.85               |
|             |       |                         |                             |                         | Subtotal                 | <u>8.65</u>        |                         |                      | <u>7.20</u>        | <u>15.85</u>        |
| ONIONS      |       |                         |                             |                         |                          |                    |                         |                      |                    |                     |
| Illinois    |       | OM, T                   | 0.70                        | 11.43                   | 0.08                     | 0.91               | 12.00                   | 0.62                 | 7.44               | 8.35                |
|             |       |                         |                             |                         | Subtotal                 | <u>0.91</u>        |                         |                      | <u>7.44</u>        | <u>8.35</u>         |
|             |       |                         |                             |                         | State Total              | <u>6,816.87</u>    |                         |                      | <u>4,606.12</u>    | <u>32,574.15</u>    |

Amended Total 207,116.99

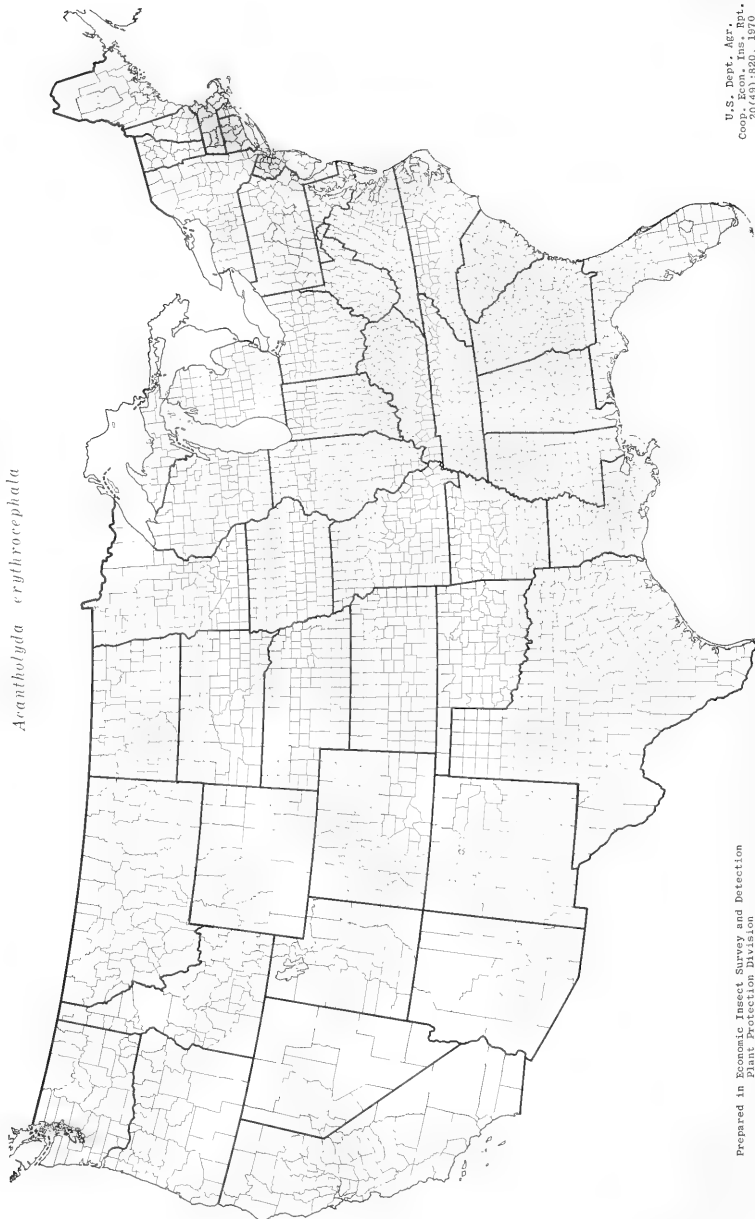
257,213.14 518,020.26

LEGEND

|      |                           |      |                           |      |                                 |
|------|---------------------------|------|---------------------------|------|---------------------------------|
| A    | - Aphids                  | FA   | - Fall Armyworm           | RW   | - Rice Water Weevil             |
| AC   | - Alfalfa Caterpillar     | FB   | - Flea Beetles            | S    | - Slugs                         |
| ACw  | - Army Cutworm            | G    | - Grassbugs               | SAA  | - Spotted Alfalfa Aphid         |
| AL   | - Aster Leafhopper        | Gb   | - Greenbug                | SB   | - Stalk Borer                   |
| ALw  | - Alfalfa Weevil          | GCw  | - Green Cloverworm        | SBRM | - Sugar-beet Root Maggot        |
| AM   | - Apple Maggot            | Gh   | - Grasshoppers            | SC   | - Scales                        |
| Aw   | - Armyworms               | GM   | - Greenhouse Whitefly     | SCB  | - Seed-corn Beetle              |
| BA   | - Beet Armyworm           | GPA  | - Ginger Maggots          | SeCo | - Sugarcane Borer               |
| BB   | - Blister Beetles         | GW   | - Green Peach Aphid       | SCM  | - Seed-corn Maggot              |
| BF   | - Bean Fly                | HF   | - Garden Webworm          | SCR  | - Southern Corn Rootworm        |
| BC   | - Banks Grass Mite        | HL   | - Hessian Fly             | SfB  | - Sunflower Beetle              |
| BCH  | - Black Cutworm           | HS   | - Hog Louse               | SfM  | - Sunflower Maggots             |
| BHF  | - Black-headed Fireworm   | HL   | - Hickory Shuckworm       | SHw  | - Sweetpotato Hornworm          |
| BL   | - Beet Leafhopper         | IC   | - Imported Cabbageworm    | SI   | - Soil Insects                  |
| BLB  | - Bean Leaf Beetle        | K    | - Katydid                 | SLM  | - Spinach Leaf Miner            |
| BLM  | - Beet Leaf Miner         | L    | - Leafhoppers             | SM   | - Sorghum Midge                 |
| Blw  | - Bollworm                | LB   | - Lygus Bugs              | SMC  | - Sait-marsh Caterpillar        |
| BSC  | - Barnacle Scale          | LCB  | - Lesser Cornstalk Borer  | SN   | - Snail                         |
| BW   | - Boll Weevil             | LFB  | - Leaf-footed Bug         | SPM  | - Spider Mites                  |
| BWM  | - Brown Wheat Mite        | LMF  | - Leaf Miner Flies        | SPw  | - Sweetpotato Weevil            |
| BWw  | - Beet Webworm            | LPTB | - Lesser Peach Tree Borer | StB  | - Stink Bugs                    |
| C    | - Chalcids                | LR   | - Leaf Rollers            | StCB | - Striped Cucumber Beetle       |
| CB   | - Chinch Bugs             | Li   | - Lice                    | Sub  | - Sugarcane Beetle              |
| CEW  | - Citrus Bud Mite         | M    | - Mites                   | SvB  | - Squash Vine Borer             |
| CdM  | - Codling Moth            | MA   | - Melon Aphid             | SW   | - Sod Webworms                  |
| CEW  | - Corn Earworm            | Mb   | - Mealbug                 | SwC  | - Southwestern Corn Borer       |
| CF   | - Cranberry Fruitworm     | MB   | - Maize Billbug           | SWw  | - Sorghum Webworm               |
| CFB  | - Corn Flea Beetle        | MBB  | - Mexican Bean Beetle     | T    | - Thrips                        |
| CFP  | - Caribbean Fruit Fly     | MF   | - Melon Fly               | Tb   | - Tomato Bug                    |
| CG   | - Cranberry Girdler       | MS   | - Meadow Spittlebug       | Tc   | - Tobacco Budworm               |
| CRM  | - Citrus Rust Mite        | OD   | - Orange-deg              | TC   | - Thistle Caterpillar           |
| Cic  | - Cicadas                 | OFF  | - Oriental Fruit Moth     | TCM  | - Three-cornered Alfalfa Hopper |
| CL   | - Cabbage Looper          | OM   | - Onion Maggot            | TFB  | - Tobacco Flea Beetle           |
| CLA  | - Corn Leaf Aphid         | OT   | - Onion Thrips            | TFw  | - Tomato Fruitworm              |
| CLP  | - Cotton Leaf Perforator  | P    | - Phylloxera              | TFW  | - Tomato Hornworm               |
| CLW  | - Clover Leaf Weevil      | PA   | - Pea Aphid               | TFW  | - Tomato Pinworm                |
| CoA  | - Clover Aphid            | PB   | - Plant Bugs              | TS   | - Two-spotted Spider Mite       |
| CP   | - Corn Planthopper        | PL   | - Potato Flea Beetle      | VBC  | - Velvetbean Caterpillar        |
| CPB  | - Colorado Potato Beetle  | PL   | - Potato Leafhopper       | Vc   | - Variegated Outworm            |
| Cr   | - Crickets                | PL   | - Potato Laylaid          | W    | - Weevils                       |
| CR   | - Corn Rootworms          | PNC  | - Pecan Nut Casebearer    | WCR  | - Western Corn Rootworm         |
| CRB  | - Chinese Rose Beetle     | PLB  | - Potato tuberworm        | WCB  | - Western Bean Outworm          |
| CSPM | - Carmine Spider Mite     | PLB  | - Peach Tree Borer        | Wb   | - Webworms                      |
| Cws  | - Cutworms                | PLB  | - Pepper Weevil           | Wf   | - Whitefly                      |
| Cw   | - Cabbage Webworm         | PNC  | - Pale Western Cutworm    | WFB  | - White-fringed Beetles         |
| DB   | - Darkling Beetles        | RA   | - Root Aphids             | WG   | - White Grubs                   |
| DM   | - Diamondback Moth        | RAA  | - Root Aphid              | WSM  | - Wheat Stem Sawfly             |
| EAW  | - Egyptian Alfalfa Weevil | RB   | - Red Flat Mite           | WSSf | - Wheat Stem sawfly             |
| ECB  | - European Corn Borer     | RSB  | - Rice Stink Bug          | Ww   | - Wireworms                     |
| EGA  | - English Grain Aphid     | RW   | - Root Weevils            |      |                                 |
| F    | - Fleahoppers             |      |                           |      |                                 |

# Distribution of Pine False Webworm

*Acantholyda erythrocephala*



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Comp. Econ. Ines. Res.  
20 (49):820, 1970

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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

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Plant Protection Division, ARS, USDA  
Federal Center Building  
Hyattsville, Maryland 20782

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

SPOTTED ALFALFA APHID required controls on alfalfa in some areas of Arizona. (p. 823).

WINTER GRAIN MITE heavy on wheat in Oklahoma. (p. 823).

CITRUS RED MITE increased in lemon groves in Arizona. (p. 824).

Prediction

PALE WESTERN CUTWORM poses potential threat to winter wheat during spring 1970 in west-central and southwestern South Dakota. (p. 823).

Detection

A GEOMETRID MOTH recovered for the first time in Hawaii for a new State record. (p. 826).

For new county records see page 827.

Special Reports

Cereal Leaf Beetle Quarantine. Map. Centerfold.

Distribution of Western Corn Rootworm. Map. (p. 828).

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Reports in this issue are for week ending December 4 unless otherwise indicated.

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Cereal Leaf Beetle Quarantine. Map. Centerfold.

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

DECEMBER 1970

The National Weather Service's 30-day outlook for December is for temperatures to average below seasonal normals over the Pacific coast, the northern and central intermountain region, and the northern Plains. Above normal averages are indicated for the eastern third of the Nation as well as for the southern Plains. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Midwest, the northern Plains, northern and central portions of the intermountain region, and along the Pacific coast. Subnormal totals are indicated for the southern Plains while near normal precipitation is expected in unspecified areas.

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

WEATHER OF THE WEEK ENDING DECEMBER 7

HIGHLIGHTS: Unusually mild except very cold from northern Montana to northern Minnesota. Wet and windy along the Pacific coast.

PRECIPITATION: Early in the week a cold front, accompanied by strong gusty winds and blowing dust and sand, moved across mid-America. Rain and fog occurred in the North and showers in the East. A Pacific storm produced rain in the lower valley and hills and snow in the Cascades and northern Sierras. The mid-America storm pushed eastward and by Thursday night had dumped 6 to 12 inches of snow from northeastern Minnesota to Upper Michigan. The Pacific coast storm continued to pound the Washington, Oregon, and California coasts over the weekend, with heavy rain and winds at Cape Blanco, Oregon, gusting to 59 m.p.h. on Saturday. Snow fell in the Cascades and the Sierras, and eastward to the Rockies. The low pressure system centered north of Lake Superior on Saturday, and produced winds gusting up to 60 m.p.h. and heavy snow squalls on the lee shores of the Great Lakes. Snow depths up to a foot or more combined with the strong winds made highway travel difficult. Stormy conditions in the Northeast slackened by late Sunday as the storm moved toward Nova Scotia. The Pacific storm was still lashing the Far Northwest with strong winds and rain. Weather of the week continued on page 827.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN LEAF APHID (*Rhopalosiphum maidis*) - KANSAS - Counts per row foot of wheat (3 fields) by county: Hamilton, up to 2.3; Wichita, 1.7-3.7; Scott, 1-2; Gove, up to 4; Ness, up to 0.3; Sheridan, 1.3-5.7; Graham, 0.7-5.0; Ellis, up to 0.3; Rush, up to 0.7. (Redding).

GREENBUG (*Schizaphis graminum*) - OKLAHOMA - Range per linear foot of wheat by county: Up to 25 in Woodward, 12-14 in Payne, and up to 10 in Mayes, Garvin, and Wagoner. None found in 6 wheatfields in Cotton, Kiowa, and Tillman Counties. Averaged 5 per linear foot of barley in Woodward County, less than 1 per linear foot in Texas County. (Okla. Coop. Sur.). KANSAS - Counts per row foot of wheat (3 fields) by county: Hamilton, up to 2.3; Wichita, up to 1; Scott, up to 1.7; Gove, up to 1.7; Ness, up to 0.7; Sheridan, up to 4.3; Graham, up to 2.0; Ellis, up to 0.3; Rush, up to 1.7. (Redding). ARKANSAS - Survey negative in northwest area small grain. (Boyer).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Range per 100 sweeps of alfalfa in Yuma County: 120-3,000 in Yuma area, controls applied; and 1,750-2,650 in some Parker Valley seedling fields. (Ariz. Coop. Sur.). OKLAHOMA - Up to 8 per square foot in alfalfa checked in Payne County. (Okla. Coop. Sur.). ARKANSAS - Survey negative in northwest area alfalfa. (Boyer).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - TENNESSEE - Specimens collected from blacklight traps in Haywood County, summer 1970. This is a new county record. (Gordon).

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - OKLAHOMA - Found in 50 percent of dry cornstalks in McIntosh County field and 10 percent in Wagoner County field. (Okla. Coop. Sur.).

### SMALL GRAINS

DINGY CUTWORM (*Feltia subgothica*) - SOUTH DAKOTA - Collections in light traps during September and October indicate overlapping infestation with Agrotis orthogonia (pale western cutworm) in west-central and southwestern areas. (Calkin, Jones).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - SOUTH DAKOTA - Light trap collections during September and October indicate potential problem in winter wheat during spring 1970 in west-central and southwestern areas. (Calkins, Jones).

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Heavy in wheat in Grady County. Controls recommended. Ranged 0-25 per linear foot in Cotton and Tillman Counties and 2-5 per linear foot in Payne County. Light in Mayes County. (Okla. Coop. Sur.).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - KANSAS - Counts per row foot of wheat (3 fields) by county: Wichita, up to 1; Scott, up to 0.7; Gove, up to 6; Ness, none; Hamilton, none; Sheridan, none; Graham, 0.3-1.7; Ellis, up to 0.3; Rush, up to 1. (Redding).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - MISSISSIPPI - Adults averaged 5 per 200 sweeps in 5 Oktibbeha County small grain fields and 2 per 200 sweeps in 3 Montgomery County fields. (Sartor).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MISSISSIPPI - Averaged 3 adults per 200 sweeps in 5 Oktibbeha County small grain fields and 3 per 200 sweeps in 3 Montgomery County fields. (Sartor).

CHINCH BUG (*Blissus leucopterus*) - OKLAHOMA - Adults remain light on barley in Woodward County. (Okla. Coop. Sur.).

#### FORAGE LEGUMES

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Averaged 25 per 100 sweeps of alfalfa in Gila Valley, Yuma County. (Ariz. Coop. Sur.).

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 45 per 100 sweeps of alfalfa at Yuma and Gila Valleys, Yuma County. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

LYGUS BUGS (Lygus spp.) - ARIZONA - Caused scarring and browning on leaves of some lettuce plants in Yuma County. Some growers treating. (Ariz. Coop. Sur.).  
MISSISSIPPI - L. lineolaris (tarnished plant bug) averaged 12 adults and nymphs per 10 row feet in mustard greens at State College, Oktibbeha County. (Sartor).

#### DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - MISSISSIPPI - Moderate on harvested pecans in Hinds County and heavy in Lowndes County. In one Lowndes County orchard total of 200 pounds out of 1,100 pounds infested. (Sartor).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larvae numerous in shucks under all of 25 pecan trees examined in Lee County. (McQueen).

#### CITRUS

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Eggs, nymphs, and adults infesting orange trees locally in San Diego, San Diego County. (Cal. Coop. Rpt.).  
ARIZONA - Built up, averaged 13 per leaf, in few lemon groves where control inadequate or unsatisfactory in Yuma County. (Ariz. Coop. Sur.).

TEXAS CITRUS MITE (Eutetranychus banksi) - ARIZONA - Light in lemon groves adjacent to original infestation reported November 20 in Yuma County. (Ariz. Coop. Sur.). See CEIR 20(48):791.

SPIDER MITES - CALIFORNIA - Brevipalpus lewisi (citrus flat mite) and Eotetranychus yumensis (Yuma spider mite) infested lemon, orange, and grapefruit trees in Bard Valley, Imperial County. Varied on leaves and fruit. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - CALIFORNIA - Increasing on lemon trees at Bard, Imperial County. (Cal. Coop. Rpt.).

#### ORNAMENTALS

A CONIFER APHID (Cinara tujafilina) - OKLAHOMA - Counts and colony size increased on arborvitae in Payne County past 21 days. Up to 25 aphids per colony. (Okla. Coop. Sur.).

YUCCA PLANT BUG (Halticotoma valida) - MISSISSIPPI - Moderate to heavy on yucca plants in Montgomery, Choctaw, and Oktibbeha Counties. (Sartor).

#### FOREST AND SHADE TREES

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Overwintering adults found under firewood at roadside park north of Syracuse, Hamilton County, and same location in park at Tribune, Greeley County, on December 1, 1970. Collected and determined by K.O. Bell, verified by H. Knutson. These are new county records. Now occurs statewide. (Bell).

|                           |  |                      |
|---------------------------|--|----------------------|
| Sod                       |  | Year-round           |
| Used Harvesting Machinery |  | Year-round           |
| Fodder and Plant Litter   |  | Year-round           |
| Soybeans (1), (3)         |  | September 1-March 15 |

- (1) Small grains (except oats and barley), grass and forage seed, and soybeans cleaned to meet State or Canadian seed sales requirements are exempt from certification.
- (2) Pelletized hay is exempt from certification and treatment requirements.
- (3) Soybeans if transported in covered vehicles and moved to designated plants are exempt from certification.

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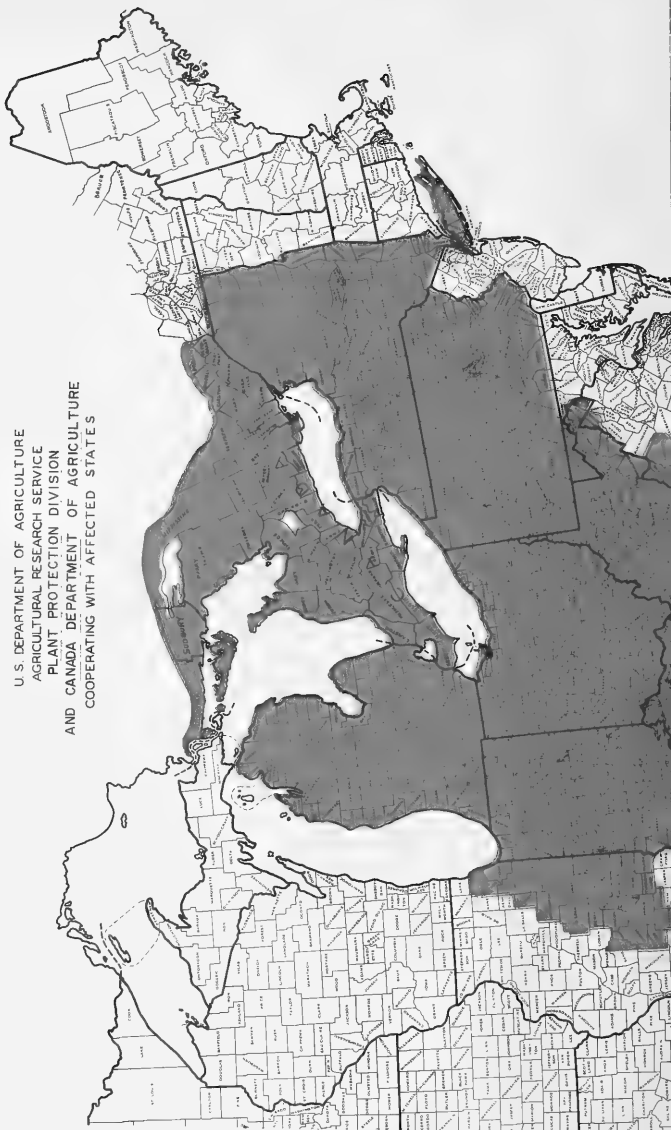
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**CEREAL LEAF BEETLE QUARANTINES**

U. S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
PLANT PROTECTION DIVISION  
AND CANADA DEPARTMENT OF AGRICULTURE  
COOPERATING WITH AFFECTED STATES





IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT AND, IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;  
 COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED.

STATE, FEDERAL, AND CANADIAN REGULATIONS.

RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED ARTICLES FROM RED INTO OR THROUGH WHITE.

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

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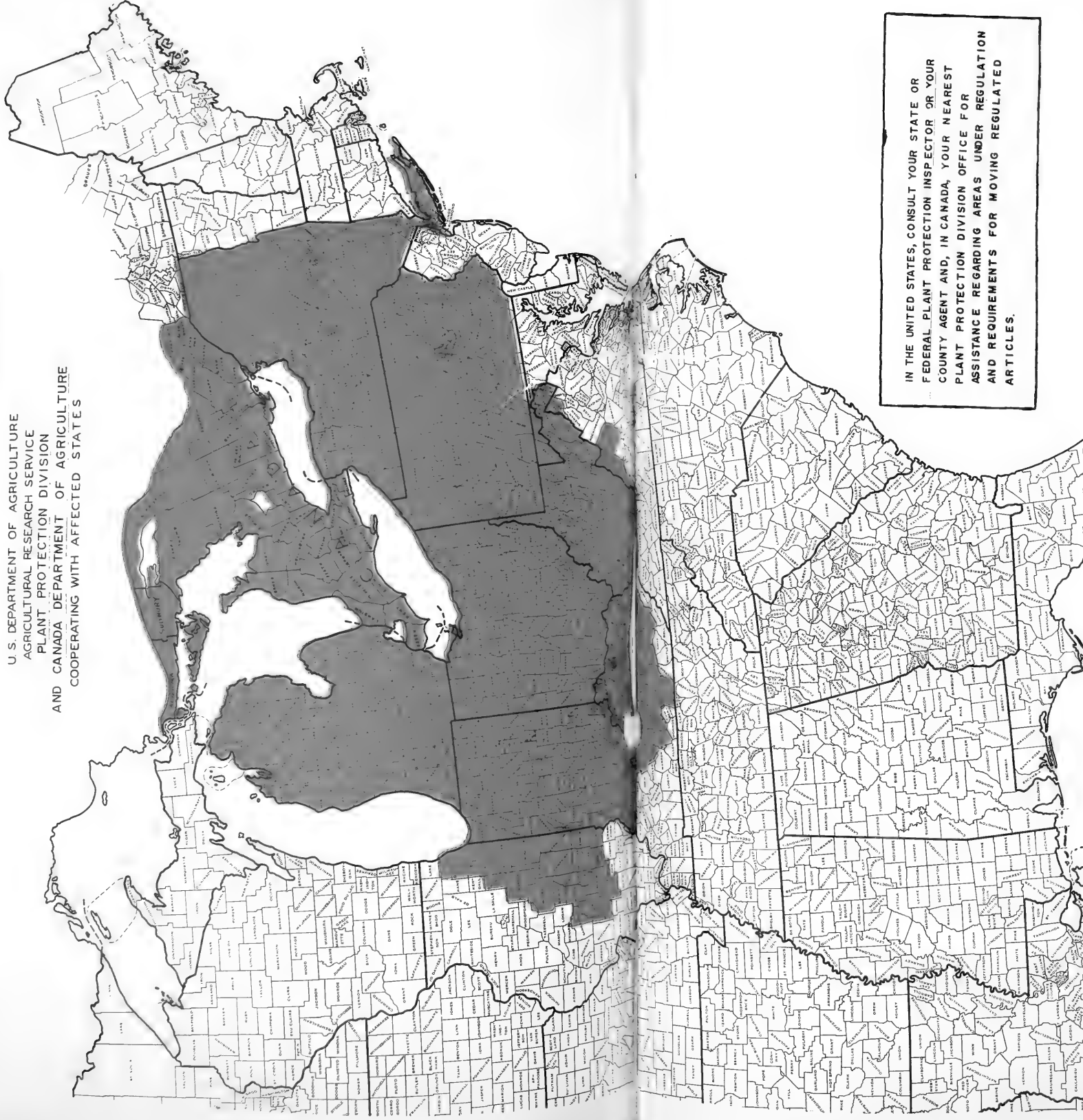
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# CEREAL LEAF BEETLE QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE  
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ARTICLES.

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CPD 12-24-67

REVISED NOVEMBER 20, 1970

REGULATED ARTICLES AND THEIR CERTIFICATION PERIODS ARE AS FOLLOWS:

Crop or Article Certification Period

|   |                    |
|---|--------------------|
| Small Grains such as<br>Barley, Oats, and Wheat (1) | June 1-November 30 |
| Corn (Shelled corn is NOT regulated)                |                    |
| Fresh Market (sweet corn)                           | Year-round         |
| Ear Corn, other than sweet corn                     | August 1-March 31  |
| Grass and Forage Seed (1)                           | Year-round         |
| Hay (except marsh hay) (2)                          | May 1-January 15   |



OBSCURE SCALE (Melanaspis obscura) - ALABAMA - Dominant scale species on 80 percent of oak trees growing on lawns and streets at Auburn, Lee County. Many heavily infested with lower limbs dead or dying. Scales on many limbs touch and overlap. (McQueen).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. November 29 to December 5. Total of 135 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 1, Sonora 82, Chihuahua 32, Nuevo Leon 6, Tamaulipas 14. Total of 10 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 16,118,000; Mexico 93,306,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Light in backs of cattle in Mayes and Choctaw Counties. (Okla. Coop. Sur.).

CATTLE TICK (Boophilus annulatus) - TEXAS - During November recovered 9 females in Maverick County and one from Webb County. Area within quarantine zone. (Anim. Health Div.).

TICK SURVEILLANCE - Survey throughout the U.S. is to show seasonal distribution of potential vectors and hosts of livestock diseases, and to detect exotic species. These were some of the more interesting determinations for November: Amblyomma maculatum (Gulf Coast tick) TEXAS - bovine and canine. Dermacentor variabilis (American dog tick) TEXAS - bovine, equine, and canine. D. andersoni (Rocky Mountain wood tick) OREGON - equine and canine. Otobius megnini (ear tick) ARKANSAS - bovine; TEXAS - bovine; KANSAS - bovine; OREGON - bovine. Ixodes pacificus CALIFORNIA - bovine. (Anim. Health Div.).

SHEEP SCAB MITE (Psoroptes ovis) - TEXAS - Specimens recovered on bovine 2 times in Deaf Smith County. IOWA - Taken on bovine 2 times in Webster County. (Anim. Health Div.).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Cattle lice, mainly this species, moderate on cattle in Mayes County. (Okla. Coop. Sur.).

#### STORED PRODUCTS

CODLING MOTH (Laspeyresia pomonella) - MARYLAND - Larvae heavy in large super-market warehouse shipment of English walnuts. (U. Md., Ent. Dept.).

DERMESTID BEETLES (Trogoderma spp.) - CALIFORNIA - T. sternale medium in mixed feeds in milling company at Ontario, San Bernardino County. T. variabile and T. inclusum medium to heavy at a packing company at Madera, Madera County. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - ARIZONA - Inspected 159 apiaries with 2,081 colonies during October; 1,070 colonies found dead. Burned 45 colonies infected with American foulbrood disease. (Ariz. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Recovered 6 egg clusters 0.75 mile from positive trap sites in Somerset County, November 26 to December 3. Additional surveys to be conducted. (PPD).

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - CALIFORNIA - Trap collections negative. Current traps in operation total 2,564 in Orange County and 1,053 in Los Angeles County. Weather has been favorable for fly reproduction. (Cal. Coop. Rpt.).

PINK BOLLWORM (*Pectinophora gossypiella*) - Sterile moths released: CALIFORNIA - Coachella Valley, 83,849,700 from March 16 to August 10; Kern County, 99,723,888 from April 15 to November 25. ARIZONA - Redington, Pima County, 1,934,800 from May 1 to November 20. Gin trash inspection November 26 to December 3 of first picked cotton from release field showed 74 larvae from 9 bales; recovered 11 larvae from 10 bales in 1969. (PPD). OKLAHOMA - Lint cleaner inspections made by State and Federal personnel in 22 counties during November. Light in 12 counties. Limited gin trash inspections show light infestations in Jackson, Comanche, and Jefferson Counties. (Okla. Coop. Sur.).

WOOLLY WHITEFLY (*Aleurothrixus floccosus*) - CALIFORNIA - Some live specimens found in primary zone in San Diego, San Diego County. This area received treatment past season. Survey in outlying untreated areas now show some spotted infestations. (Cal. Coop. Rpt.).

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#### HAWAII INSECT REPORT

New State Record - Twenty-one specimens of a GEOMETRID MOTH (*Semiothisa santaremaria* (Walker)), a neotropical species, taken from light trap at Halawa, Oahu, during October and November. On November 4, 1970, two adults collected live on walls of building at this site by W. Au. Three more specimens collected by D. Sugawa in dense growth of haole koa (*Leucaena leucocephala*) at Poipu, Kauai, on November 13, 1970. Taxonomically, *Semiothisa* is a large genus, and *santaremaria* a notoriously difficult species to determine. The species of the continental United States have not as yet been adequately studied, and much less is known about the neotropical species. Determined by D.C. Ferguson. (Kawamura).

Turf - Adults of a SKIPPER (*Hylephila phylaeus*) moderate on inflorescence of *Lantana* sp. in landscaping at Salt Lake, Oahu, where first specimens collected on Bermuda grass in September. Surveys negative at Moanalua and Honolulu International Airport where specimens collected in October. (Kawamura).

General Vegetables - Larvae of BEET ARMYWORM (*Spodoptera exigua*) light, averaged 1 per 3 plants, in 0.1 acre of green onions at Waimanalo, Oahu; heavy in adjacent 0.1 acre of same crop. All stages of GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) heavy in 0.5 acre of snap beans at Waimanalo; generally light in most other fields of same crop and in 0.25 acre of daikon (*Raphanus sativus longipinatus*) in same area. (Kawamura).

Nuts - COCONUT LEAF ROLLER (*Hedylepta blackburni*) damage heavy to 80 percent of coconut trees at Wailua, Waipouli, and Kapaa, Kauai; severely skeletonized fronds of many trees. (Sugawa).

Forest and Shade Trees - Adults of a PLATASPID BUG (*Coptosoma xanthogramma*) heavy on terminals of *Erythrina* sp. at Kaneohe, Oahu; 80 percent of eggs parasitized by *Trissolcus* sp. (a scellionid wasp). Trace on 100+ *Erythrina* sp. at Keehi Lagoon Beach Park and 33 similar trees at Makiki. (Au, Kawamura).

General Pests - CHINESE ROSE BEETLE (*Adoretus sinicus*) damage light to moderate on foliage of 100+ *Erythrina* sp. at Keehi Lagoon Beach Park, Oahu. Damage light to older leaves in 0.5 acre each of snap beans and edible ginger at Waimanalo. (Kawamura).

Beneficial Insects - A PUNCTURE-VINE STEM WEEVIL (*Microlarinus lypriformis*) infested about 100 percent of nodes of roadside *Tribulus cistoides* (a puncture-vine) at Waikapu, Maui. (Ah Sam).

#### DETECTION

New State Record - A GEOMETRID MOTH (Semiothisa santaremaria) HAWAII - Oahu Island (p. 826).

New County and Island Records - ELM LEAF BEETLE (Pyrrhalta luteola) KANSAS - Hamilton and Greeley (p. 824). EUROPEAN CORN BORER (Ostrinia nubilalis) TENNESSEE-Haywood (p. 823). A GEOMETRID MOTH (S. santaremaria) HAWAII - Kauai (p. 826).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 11/24-12/3, BL - Armyworm (Pseudaletia unipuncta) 5, beet armyworm (Spodoptera exigua) 1, black cutworm (Agrotis ipsilon) 6, cabbage looper (Trichoplusia ni) 1, granulate cutworm (Feltia subterranea) 5. MISSISSIPPI - Stoneville, 11/27-12/3, 2BL, 54°-78°F., trace precip. - Armyworm 61, beet armyworm 25, black cutworm 116, fall armyworm (Spodoptera frugiperda) 10, granulate cutworm 41, tobacco budworm (Heliothis virescens) 1, yellow-striped armyworm (Prodenia ornithogalli) 2.

#### CORRECTIONS

CEIR 20(48):790 - CELERY LEAF TIER (Udea rubigalis) CALIFORNIA should read FALSE CELERY LEAF TIER (Udea profundalis), (Cal. Coop. Rpt.).

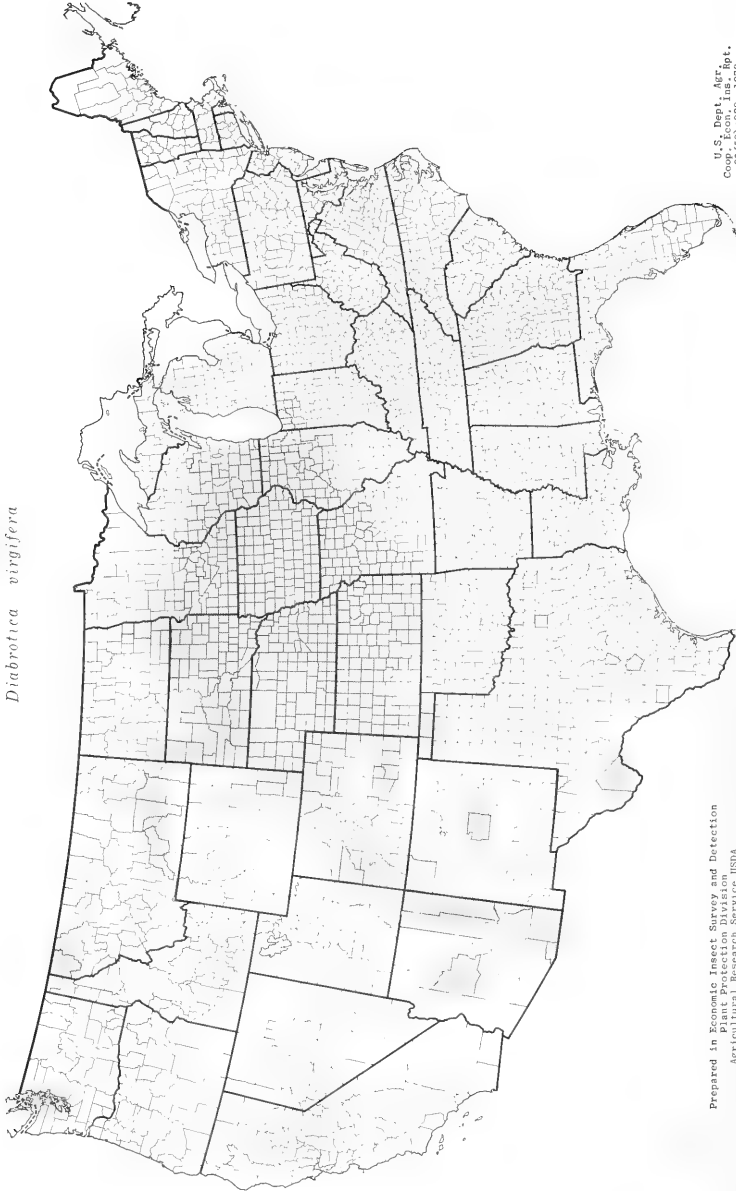
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Weather of the week continued from page 822.

TEMPERATURE: A southwesterly flow of the upper levels of atmosphere brought unseasonably mild weather to much of the Nation. On Monday afternoon, temperatures climbed to the 70's from the southern Great Plains to the Atlantic Ocean, and to the 80's in southern Texas and parts of the Florida Peninsula. Monday afternoon, a cold front accompanied by winds gusting to 60 m.p.h. and a wall of dust that reduced visibility to near zero moved into the Great Plains. At midweek, mild weather continued over the East as subzero weather moved into the northern Great Plains. At 2 pm Wednesday, the temperature at Cut Bank, Montana was 8° below zero while persistent southerly winds brought record breaking high temperatures to 21 States from Kansas and Oklahoma to Maine and Florida. Weekly mean temperatures averaged 12° to 18° below normal in northeastern Montana, 9° to 10° above from Colorado to West Virginia, and 10° to 15° above normal in Arkansas and eastern Texas. (Summary supplied by Environmental Data Service, ESSA.)

# Distribution of Western Corn Rootworm

*Diabrotica virgifera*



Prepared in Economic Insect Survey and Detection  
Program, Agricultural Research Service, USDA  
December 11, 1970

U. S. Dept. Agr.  
Coop. Econ. Inas. Rpt.  
20 (G0) 7856, 1970



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20782

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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.

To facilitate mailroom handling, all reports, inquiries, and other matters pertaining to this release, including the mailing list, should be sent to:

The Editors, CEIR  
Economic Insect Survey and Detection  
Plant Protection Division, ARS, USDA  
Federal Center Building  
Hyattsville, Maryland 20782



## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

SPOTTED ALFALFA APHID number one insect problem on alfalfa in Arizona. (p. 831).

BROWN SOFT SCALE heavy on lemon in limited area of Arizona. (p. 832).

#### Detection

For new county records see page 833.

#### Special Reports

Techniques to Determine Losses. Selected References 1967-1970. Part VII.  
(pp. 835-836).

White-Fringed Beetle Quarantine Map. Centerfold.

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White-Fringed Beetle Quarantine. Map. Centerfold.

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WEATHER OF THE WEEK ENDING DECEMBER 14

**HIGHLIGHTS:** Winter cold prevailed along our northern border. It was especially cold from Pennsylvania to New England. Mild temperatures predominated from Texas to Virginia. Heavy snow fell from Great Lakes to New England.

**PRECIPITATION:** Fair weather continued over most of the Nation early in the week. The exception included light precipitation from the northern and central Pacific coast to the northern Rocky Mountains, and from the Great Lakes to the Northeast. For the most part, precipitation was sparse in the first half of the week although a blanket of fog covered central Oklahoma and much of Louisiana Wednesday morning. A change of weather pattern began to take shape about midweek. Moist Pacific air invaded the northern Rocky Mountains. As the storm system moved to the Great Lakes, another system brought mixtures of snow, sleet, and freezing rain, creating hazardous driving conditions across Upstate New York and northern New England. A foot of fresh snow fell at Massena, New York, increasing the depth at that location to 20 inches by early Wednesday evening, and by early Thursday 23 inches lay on the ground. By late Thursday, a major storm was sweeping across the Great Plains. Several inches of snow fell from northeastern Nebraska to southern Minnesota, and by Friday, the snow had spread eastward to the Great Lakes. A band of rain and freezing rain lay south of the snow belt. Showers and thunderstorms occurred in the middle Mississippi River Valley. The weekend brought inclement weather from the Great Lakes to the Atlantic coast. Heavy snow fell in the northern portion of that area. Madison, Wisconsin, received 16 inches, the greatest 24-hour amount and the greatest storm total of record for that station. Freezing rain coated wires, trees, and streets south of the snow area. Rain fell further south, but parts of the Deep South received no rain. Some areas in Georgia received rain on Saturday after three weeks of dry weather. Forest fire danger increased in the rainless areas. By late Sunday, snow fall intensity was decreasing in the Northeast, but a Pacific storm was approaching the western coast.

**TEMPERATURES:** Fair weather prevailed over most of the Nation early in the week. Monday afternoon temperatures in the 60's were common in mid-America as far north as Nebraska. Montana and North Dakota registered maximums in the 40's. The Northeast was cool with afternoon readings near freezing. In the Southwest, the mercury approached the 80° mark with 82° at Thermal, California, and at Tucson, Arizona. Subzero temperatures occurred in northern Maine Tuesday morning. The warming trend continued in mid-America with Grand Island, Nebraska, recording 73° Tuesday afternoon. Cooler air moved into the northern Great Plains Wednesday when much of Montana and the Dakotas remained below freezing. The East warmed at midweek. Washington, D.C., was about 20° warmer on Saturday afternoon than 24 hours earlier. Weather of the week continued on page 834.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG** (*Schizaphis graminum*) - NEW MEXICO - Generally light, up to 4 per linear foot, on irrigated wheat checked in Curry County. (N.M. Coop. Rpt.). Ranged 4-15 per linear foot of barley in Chaves County. (Mathews). OKLAHOMA - Averaged 110 per linear foot of wheat in Custer and Washita Counties December 1, and 20 per linear foot in Kiowa and Jackson Counties December 4. Currently ranged 5-25 per linear foot of wheat in Muskogee County and 10-50 per linear foot of barley in Walters area of Cotton County. (Okla. Coop. Sur.). ARKANSAS - Survey remains negative in northwest areas. (Boyer).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County: 1,350 in seedling fields in Parker Valley; in established fields - 3,080 in Bouse area, 425 in Parker Valley, and 1,220 in Yuma Valley. Remains number one insect problem. (Ariz. Coop. Sur.).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - OKLAHOMA - Averaged 20 per linear foot of wheat in Custer and Washita Counties December 1. (Okla. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

**WESTERN BEAN CUTWORM** (*Loxagrotis albicosta*) - SOUTH DAKOTA - Moths collected from blacklight traps at Spearfish, Lawrence County; Lakota Peak Lookout, Pennington County; Milesville, Haakon County; Cottonwood, Jackson County; and at LaCreek (Martin), Bennett County, in 1970. These are new county records. Moth numbers increased over 1969 collections. Earliest 1970 collection July 7 at Lakota Peak Lookout, latest August 8 in Fall River County. Majority collected between July 24 and August 2. (Calkins, Jones).

## SMALL GRAINS

**YELLOW-STRIPED ARMYWORM** (*Prodenia ornithogalli*) - CALIFORNIA - Averaged one larva per leaf on barley at Chino, San Bernardino County. (Cal. Coop. Rpt.).

**WINTER GRAIN MITE** (*Penthaleus major*) - OKLAHOMA - Ranged up to 250 per linear foot of wheat in Kiowa and Jackson Counties. Wheat in poor condition in this area due to lack of moisture. Many fields turning brown. (Okla. Coop. Sur.).

## FORAGE LEGUMES

**ALFALFA CATERPILLAR** (*Colias eurytheme*) - ARIZONA - Larvae 40 per 100 sweeps in field of alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

**THREE-CORNERED ALFALFA HOPPER** (*Spissistilus festinus*) - ARIZONA - Counts per 100 sweeps in alfalfa averaged 125 at Parker Valley and Bouse, 300 at Yuma, Yuma County. (Ariz. Coop. Sur.).

**PEA APHID** (*Acyrtosiphon pisum*) - NEW MEXICO - Light, ranged 2-20 per square foot, in alfalfa in most Chaves County fields. (Mathews). ARIZONA - Average per 100 sweeps of alfalfa as follows: 175 at Yuma, Yuma County, and 750 at Cochise, Cochise County. (Ariz. Coop. Sur.).

## CITRUS

**Insect Situation in Florida - End of November - CITRUS RUST MITE** (*Phyllocoptruta oleivora*) infested leaves in 88 (norm 68) percent of groves; 72 (norm 47) percent economic. Infested fruit in 86 (norm 68) percent of groves; 69 (norm 48) percent economic. Population decreased for first time in 2 months. Highest in 19 years for late November. Will remain in high range on leaves and fruit despite further substantial decrease. All districts high. **CITRUS RED MITE** (*Panonychus citri*) in 37 (norm 32) percent of groves; 12 (norm 9) percent economic. Slightly above normal but in low range. Little change expected. Highest districts south and central. **TEXAS CITRUS MITE** (*Eutetranychus banksi*) in 35 (norm 33) percent of

groves; 11 (norm 14) percent economic. Near normal and low. Slight decrease expected. Highest districts central and north. GLOVER SCALE (Lepidosaphes gloverii) in 86 (norm 66) percent of groves; 7 (norm 12) percent economic. PURPLE SCALE (L. beckii) in 77 (norm 64) percent of groves; 3 (norm 6) percent economic. Glover scale and purple scale above normal and at moderate population levels. Little change expected. Highest districts for Glover scale are south, north, and west. Highest district for purple scale is central. BLACK SCALE (Saissetia oleae) in 51 (norm 34) percent of groves; 24 (norm 11) percent economic. Above normal and at moderate level. Decrease expected. High in central, east, and west districts and very low in north and south districts. YELLOW SCALE (Aonidiella citrina) in 44 (norm 57) percent of groves; 1 (norm 8) percent economic. CHAFF SCALE (Parlatoria pergandii) in 43 (norm 46) percent of groves; 1 (norm 4) percent economic. Yellow scale and chaff scale below normal and will remain at low level in all districts. An ARMORED SCALE (Unaspis citri) in 25 percent of groves; moderate or heavy in 15 percent. Will continue near present level which is near record high set in September 1970. Further spread and intensification expected. WHITEFLIES in 74 percent of groves; 2 percent economic. Decreased and now at moderate level although still slightly above normal for November. Further decrease expected. Highest district east. (W.A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

BROWN SOFT SCALE (Coccus hesperidum) - ARIZONA - Heavy in dense 10-acre block of lemons, sooty mold evident, on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Heavy on 30 percent of 500 nursery grapefruit trees at Groveland, Lake County, November 25. Moderate on 172 lemon trees and moderate on about 10 percent of 3,000 mixed citrus trees in nursery at Groveland December 3. (DeWolf).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Averaged 20.76 per leaf in one lemon grove on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

TEXAS CITRUS MITE (Eutetranychus banksi) - ARIZONA - Another infested lemon grove found 5.4 miles south of original find. Counts of 23.76 per lemon leaf in one grove at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### FOREST AND SHADE TREES

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MISSISSIPPI - Light on young pine in Perry County. (Sartor).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Adults 8 per leaf on cedar trees at Yuba City, Sutter County. (Cal. Coop. Rpt.).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Locally infesting mimosa and pepper-trees at Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. December 6-12. Total of 106 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 71, Chihuahua 26, Coahuila 2, Nuevo Leon 1, Tamaulipas 6. Total of 4 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 11,368,000; Mexico 96,972,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Moderate on cattle in Craig County and light in Choctaw County. (Okla. Coop. Sur.).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Cattle lice, mainly this species, light on Craig County cattle. (Okla. Coop. Sur.).

15. Used mechanized soil-moving equipment.
16. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of white-fringed beetles and the person in possession thereof has been so notified.

THE FOLLOWING ARTICLES FROM SUPPRESSIVE AREAS MUST BE MOVED UNDER CERTIFICATE  
OR PERMIT YEAR-ROUND:

1. Bulk soil.
2. Used mechanized soil-moving equipment.
3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of white-fringed beetles and the person in possession thereof has been so notified.

\* Information as to designated laboratories and gins may be obtained from an inspector.

\*\* Exempt if not exposed to infestation after cleaning or other prescribed handling.

# WHITE - FRINGED

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COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;  
COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

-  GENERALLY INFESTED AREA--STATE AND FEDERAL REGULATIONS.  
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED.)
-  SUPPRESSIVE AREA--STATE AND FEDERAL REGULATIONS.  
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)
-  STATE REGULATIONS ONLY.  
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)
-  ERADICATED--REGULATIONS REMOVED.

RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED  
ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN<sup>o</sup>.
5. BLUE INTO ANY OTHER AREA<sup>oo</sup>.

<sup>o</sup> WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD  
OF SPREAD EXISTS.

<sup>oo</sup> ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS  
OR BY AN AUTHORIZED INSPECTOR.



CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION  
INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE  
REGARDING EXACT AREAS UNDER REGULATION AND  
REQUIREMENTS FOR MOVING REGULATED ARTICLES.

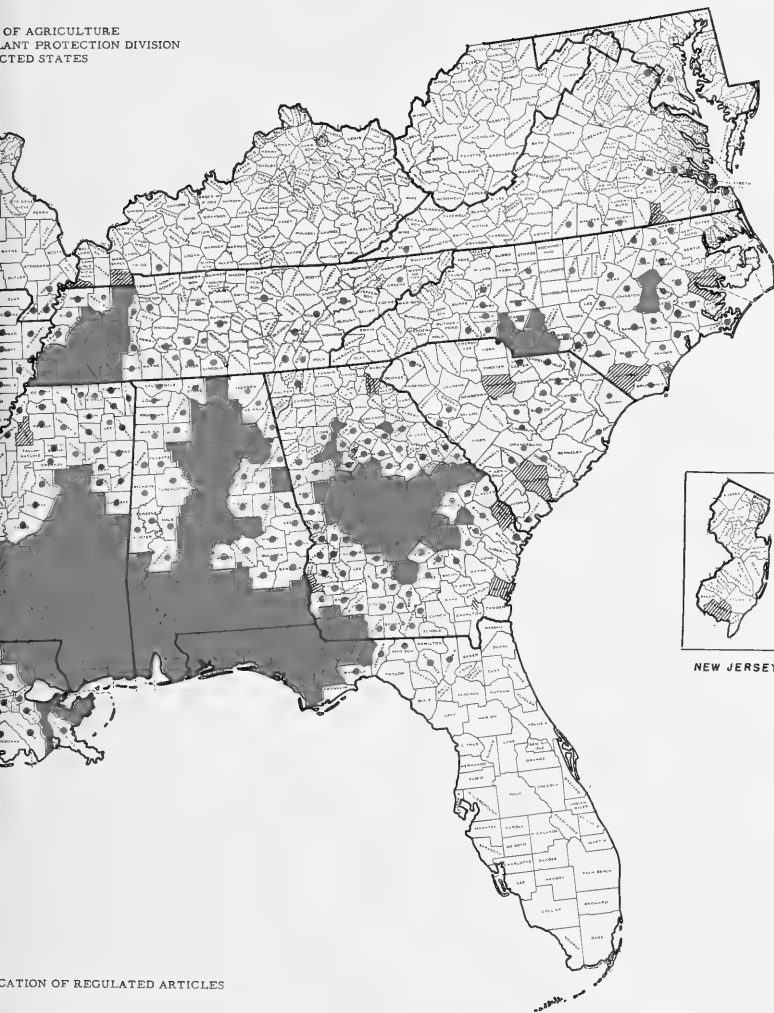
SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING

COMMON CATTLE GRUB (*Hypoderma lineatum*) - OKLAHOMA - Moderate on cattle in Craig County and light in Choctaw County. (Okla. Coop. Sur.).

SHORT-NOSED CATTLE LOUSE (*Haematopinus eurysternus*) - OKLAHOMA - Cattle lice, mainly this species, light on Craig County cattle. (Okla. Coop. Sur.).

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Revised September 25, 1970.

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 COOPERATION WITH STATE DEPARTMENTS OF AGRICULTURE  
 UNITED STATES DEPARTMENT OF AGRICULTURE  
 PLANT PROTECTION DIVISION  
 UNITED STATES

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;  
 COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

-  GENERALLY INFESTED AREA--STATE AND FEDERAL REGULATIONS.  
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED.)
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(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)
-  ERADICATED--REGULATIONS REMOVED.

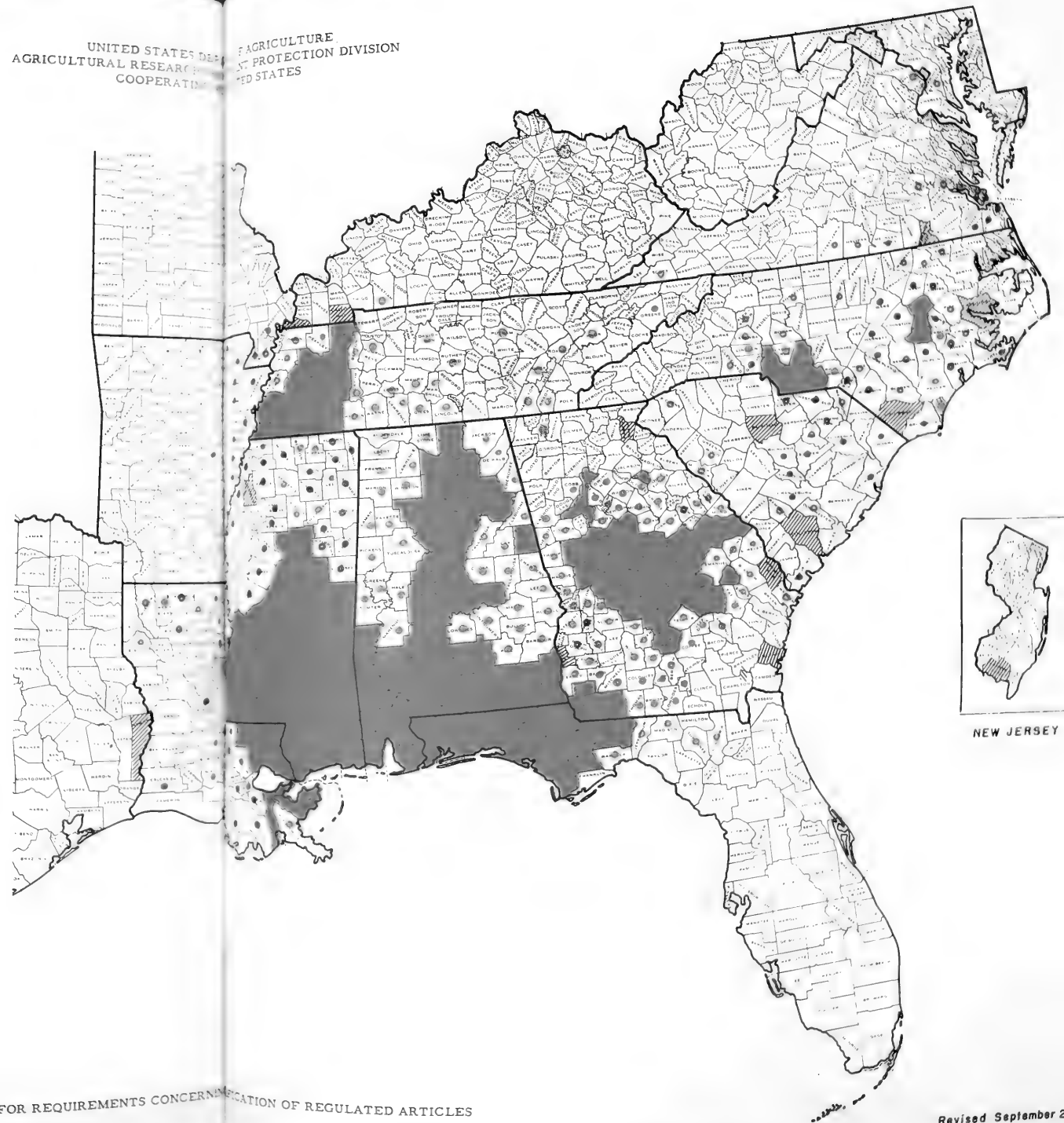
RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN<sup>o</sup>.
5. BLUE INTO ANY OTHER AREA<sup>oo</sup>.

<sup>o</sup> WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

<sup>oo</sup> ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.



SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING REGULATION OF REGULATED ARTICLES

Revised September 25, 1970.

THE FOLLOWING CROPS OR ARTICLES FROM GENERALLY INFESTED AREAS MUST BE MOVED UNDER CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.

Soil samples shipped to approved laboratories do not require attachment of certificate or permit.\*

Compost, decomposed manure, humus, and peat are exempt\*\* if dehydrated, ground, pulverized, or compressed.

2. Plants with roots.

3. Grass sod.

4. Plant crowns and roots for propagation.

5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.

6. Potatoes (Irish) when freshly harvested.

7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.

8. Uncleaned grass, grain, and legume seed.

9. Hay and straw.

10. Seed cotton.

Seed cotton is exempt if moving to a designated gin.\*\*

11. Scrap metal and junk.

12. Brick, stone, concrete slabs, drainage pipes, and building blocks. Brick, stone, concrete slabs, drainage pipes, and building blocks are exempt\*\* if not exposed to infestation in storage or if the storage site has been treated with an approved pesticide.

13. Forest products, such as pulpwood, stumpwood, logs, lumber, and crossties.

Forest products, such as pulpwood, stumpwood, logs, lumber, and crossties are exempt\*\* if not exposed to infestation in storage or if the storage site has been

HOG LOUSE (Haematopinus suis) - MISSISSIPPI - Averaged less than one behind each ear on 25 hogs checked at State College, Oktibbeha County. (Sartor).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Light on Choctaw County cattle. (Okla. Coop. Sur.).

#### HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - ALABAMA - Reoccurring infestation damaged 2 windows, walls, and door of church in Lee County. Repairs and retreatment planned. (Feaster).

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARIZONA - Larvae and adults averaged 40 per 100 sweeps of alfalfa at Cochise, Cochise County. (Ariz. Coop. Sur.).

VEDALIA (Rodolia cardinalis) - ARIZONA - Controlling Icerya purchasi (cottony-cushion scale) in one lemon grove at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Adults trapped in late November and early December at Melbourne and Merritt Island in Brevard County, Clermont in Lake County, and Daytona Beach in Volusia County. Larvae in calamondins at Clermont December 1. (Fla. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Second picking of cotton December 1 in release field at Redington, Pima County. Gin trash inspection recovered 137 larvae from 9 bales compared with 7 larvae recovered in 1969. (PPD). FLORIDA - Three larvae and one pupa collected from 25 bolls of wild cotton in woods near Tavernier, Key Largo, Monroe County, December 1. Determined by V.H. Owens. (Creamer).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Egg masses light in treated areas at Maxwell and Springer area of Colfax County. (Mathews, Dec. 4).

#### DETECTION

New County Records - WESTERN BEAN CUTWORM (Loxagrotis albicosta) SOUTH DAKOTA - Lawrence, Pennington, Haakon, Jackson, and Bennett (p. 831).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 12/4-10, BL - Black cutworm (Agrotis ipsilon) 6, fall armyworm (Spodoptera frugiperda) 1, granulate cutworm (Feltia subterranea) 7.

#### CORRECTIONS

CEIR 20(45):757, 761. WESTERN CORN ROOTWORM (Diabrotica virgifera) - UTAH - "... This is a new county record." should read "... This is a new State record."

HAWAII INSECT REPORT

Turf and Pastures - GRASS WEBWORM (*Herpetogramma licarsisalis*) damage heavy, larvae 28 per square foot, to pastures of Kikuyu grass at Honomalino, Hawaii. Larvae light to moderate in Bermuda and pangola grasses at Pahoa. Larval activity remains light in pastures on Maui and Oahu; light trap collections at Kaneohe, Waipahu, and Manoa, Oahu, indicate increase in adult populations in these areas. (Au, Yoshioka).

General Vegetables - All stages of TARO LEAFHOPPER (*Tarophagus proserpina*) heavy in 0.5 acre of taro at Waianae, Oahu; nymphs and adults of *Tytthus mundulus* (cane leafhopper egg sucker) heavy amid leafhopper populations. Larvae of BEET ARMYWORM (*Spodoptera exigua*) light, average 1 per plant, in 0.5 acre of green onion at Waianae, Oahu. Specimens of BEAN FLY (*Melanagromyza phaseoli*) recovered from field collected yardlongbean and snap bean material at Puunene, Waikapu, and Makawao, Maui, during December yielded parasitism by *Opius* sp. of 25, 64, and 45 percent, respectively. Remains negligible in commercial snap bean and soybean plantings at Waimanalo, Oahu. (Miyahira, Kawamura).

Man and Animals - Large numbers of CLUSTER FLY (*Pollenia rudis*) noted at Kilohana Checking Station, Saddle Road, Hawaii; clusters observed at large and inside buildings; moderate under similar conditions at Hawaii Volcanoes National Park and Kahua Ranch, Hawaii. (Wall, Hernandez, Matayoshi). VEXANS MOSQUITO (*Aedes vexans nocturnus*) numbered 367 and SOUTHERN HOUSE MOSQUITO (*Culex pipiens quinquefasciatus*) 2,527 in 55 light traps operated on Oahu during November. *Aedes* up to 154 per trap at Punaluu. *Culex* up to 309 per trap at Kahana. (Mosq. Contr. Br., Dept. of Health).

Beneficial Insects - Adults of a SCIOMYZID FLY (*Sepedon sauteri*) light on stems and leaves in 0.5 acre of taro at Waianae, Oahu. Original release of this liver fluke predator made in area in March 1967. (Kashiwai). Nymphs and adults of a LADY BEETLE (*Azya luteipes*) preying on crawlers of *Coccus viridis* (green scale) infesting Indian pluchea (*Pluchea indica*) at Enchanted Lake, Oahu. (Kashiwai).

Miscellaneous Pests - Destroyed 500 GIANT AFRICAN SNAIL (*Achatina fulica*) specimens during November at Poipu and 2 at Wahiawa, Kauai. Poison bait application increased to cope with increased snail activity. (Sugawa). Nymphs and adults of a MESOVELIID BUG (*Mesovelia mulsanti*), a predaceous water treader, observed at Enchanted Lake, Oahu; first reported at Waipio in 1933. (Kashiwai, Dec. 4).

Weather of the week continued from page 830.

Subzero temperatures occurred in northern Minnesota Thursday morning with minus 15° at International Falls. While bitter cold weather moved into the North, southerly breezes brought near record warmth to the Southland. Macon, Georgia, registered 78° Thursday afternoon. The weekend brought cooler weather to the East. Greenville, South Carolina, cooled to 30° Sunday morning, 25° cooler than on Saturday. Minimums in the central Rocky Mountains dropped to below zero with minus 15° at Big Piney, Wyoming, and minus 1 at Alamosa, Colorado. (Summary supplied by Environmental Data Service, ESSA.)

## TECHNIQUES TO DETERMINE LOSSES

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### Part VII

Additional copies of Parts I through VII of this bibliography are available from Economic Insect Survey and Detection.

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Heliothis zea

1/ Citations for 1929, 1930, 1939, 1942, 1944, 1949, and 1951 are included at the end of this list.

\* \* \* \* \*

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Ostrinia nubilalis



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PROTECTION DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

### ECONOMIC INSECT SURVEY AND DETECTION

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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The Editors, CEIR  
Economic Insect Survey and Detection  
Plant Protection Division, ARS, USDA  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

SPOTTED ALFALFA APHID populations decreased on alfalfa in Arizona. (p. 839).

HESSIAN FLY infestations at potentially economic levels in limited area of Indiana. (p. 839).

YELLOW SCALE heavy on orange trees in California. (p. 840).

#### Detection

New State records include a PHYLLOXERA from Pennsylvania (p. 840) and ORIENTAL WOOD BORER from North Carolina (p. 841).

For new county records see page 841.

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**NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK**  
**MID-DECEMBER 1970 TO MID-JANUARY 1971**

The National Weather Service's 30-day outlook for mid-December to mid-January is for temperatures to average below seasonal normals except for near to above normal in the South. Precipitation is expected to exceed normal from the Rockies to the Appalachians as well as in New England, the south Pacific coast, and central and southern portions of the intermountain region. Subnormal totals are indicated for the Pacific Northwest and Florida. 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 National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price \$5.00 a year

For Weather of the Week see page 843.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Recent rains stimulated migration from valley floor to west side breeding grounds of San Joaquin Valley. Current counts 5 per 100 sweeps. Few or none entering beetfields. (Cal. Coop. Rpt.). ARIZONA - Adults averaged 50 per 100 sweeps on 140 acres of young sugar beets at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light in most barley in Muskogee, Jackson, and Woodward Counties. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Generally light to medium, up to 18 per linear foot, on wheat in Curry, Chaves, Roosevelt, and Quay Counties. (Mathews). TEXAS - Ranged up to 60 per row foot of wheat in surveys of 23 Panhandle counties December 1-9. (Daniels). OKLAHOMA - Averaged 20 per linear foot of barley in Muskogee and Jackson Counties, 5 in Texas County. Ranged 25-30 per linear foot in Woodward County. (Okla. Coop. Sur.). INDIANA - Trace in 1 of 5 wheatfields checked in Sullivan County. (Matthew, Dec. 11).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Population decrease noted at Yuma, Yuma County. Ranged 100-800 per 100 sweeps of alfalfa. No treatments reported. (Ariz. Coop. Sur.).

### CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - NEW MEXICO - Damage of 50-100 percent showing in cornstalks in field near Roswell, Chaves County. About 50 percent of larvae dead. (Mathews).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - UTAH - Specimens collected in Cache County at Logan, September 2, 1938, by G.F. Knowlton and Stains, and at Providence August 8, 1934, by C.F. Smith. This is a new county record. (Hanson, Knowlton). WYOMING - Single specimens collected in light traps in 1970 at following locations: Hunter Ranger Station, Johnson County, July 17; Gillette, Campbell County, July 22; and Laramie, Albany County, August 6. These are new county records. (Parshall, Burkhardt).

### SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - SOUTH DAKOTA - May be potential problem in winter wheat, particularly in Fall River and Tripp Counties, to same extent as in spring 1970. Exact location and intensity cannot be predicted; wheat should be examined early in spring 1971 for possible damage. Depending on severity, controls may be required. (Jones). This replaces note in CEIR 20(50):823.

HESSIAN FLY (Mayetiola destructor) - INDIANA - Puparia in over 5-inch wheat in 5 fields checked in Sullivan and Parke Counties. Infestations at economic or potentially economic levels in 2 instances. (Matthew, Foster, Dec. 11).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light in most barley checked in Muskogee, Jackson, and Woodward Counties. (Okla. Coop. Sur.).

### TURF, PASTURES, RANGELAND

ARGENTINE ANT (Iridomyrmex humilis) - CALIFORNIA - Adults heavy in building at Eureka, Humboldt County, September 15, 1970. Collected by J. Spallino. Determined by M. Wasbauer. This is a new county record. (Cal. Coop. Rpt.).

A SNAIL (Zonitoides arboreus) - CALIFORNIA - Counts of 50 per square yard on dichondra lawn at St. Helena, Napa County. (Cal. Coop. Rpt.).

#### FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Ranged 200-1,500 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on alfalfa in Curry, Chaves, and Hidalgo Counties. (Mathews, Riddle).

A LYGUS BUG (Lygus sp.) - ARIZONA - Averaged 85 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### SUGAR BEETS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Averaged 5.5 per plant on 60 acres of sugar beets at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Averaged 8 adults per 10 row feet in mustard greens at State College, Oktibbeha County. (Sartor).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Colonies increased on lettuce at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### DECIDUOUS FRUITS AND NUTS

WALNUT SCALE (Quadraspidiotus juglansregiae) - CALIFORNIA - Counts of 1,000+ per limb on walnut trees at Butte City, Glenn County. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Infested black walnut tree nursery stock at Sonoma, Sonoma County. This scale frequently kills young walnut trees. (Cal. Coop. Rpt.).

PECAN WEEVIL (Curculio caryae) - ALABAMA - All nuts in several pecan orchards in Lapine and Highland Home area of Montgomery and Crenshaw Counties are or were infested at harvest. (Seibels).

#### CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Moderate on 50 percent of 300 sweet orange and 90 percent of 100 grapefruit nursery trees at Plymouth, Orange County. (Remington, Dec. 10).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy on orange trees at Live Oak, Sutter County. (Cal. Coop. Rpt.).

CITRUS FLAT MITE (Brevipalpus lewisi) - CALIFORNIA - Infested grapefruit, lemons, and oranges in Bard Valley, Imperial County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

A PHYLLOXERA (Phylloxera similans) - PENNSYLVANIA - Specimen collected on English oak in nursery at Fairview, Erie County, September 1970 by W. Wolff. Determined by L.M. Russell. This is a new State record. (Gesell).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. December 13-19. Total of 134 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 2, Sonora 85, Chihuahua 24, Coahuila 3, Tamaulipas 20. Total of 12 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 13,168,000; Mexico 91,472,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - FLORIDA - Second instars in backs of 18 of 53 dairy cattle near Gainesville, Alachua County. Maximum of 11 per animal. (Butler, Dec. 14).

HORN FLY (Haematobia irritans) - FLORIDA - Adults averaged 18 per beef animal near Gainesville, Alachua County, December 4; 15 on dairy cows near Gainesville December 12. (Butler).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Moderate on cattle in Osage County; some herds treated. (Okla. Coop. Sur.).

A SCYTODID SPIDER (Loxosceles unicolor) - CALIFORNIA - Adult male collected November 2 from dog house in yard at Lake Isabella, Kern County. Collected by B. Fox. Determined by F. Ennik. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

GREEN LACEWINGS (Chrysopa spp.) - ARIZONA - Adults averaged 30 per 100 sweeps in 200 acres of young sugar beets at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - MISSISSIPPI - Specimens collected on farm at Shaw, Bolivar County, December 2, 1970, by Dotson and Henderson. Determined by D.R. Smith. This is a new county record. (PPD).

ORIENTAL WOOD BORER (Heterobostrychus aequalis) - NORTH CAROLINA - Adults collected October 22, 1970, by C. McInnis from mahogany pallets at Scotland Neck, Halifax County. State personnel destroyed pallets. Determined by T.J. Spilman. This is a new State record. (Hunt).

SOYBEAN CYST NEMATODE (Heterodera glycines) - TENNESSEE - Specimen recovered in soybean field at Decaturville, Decatur County, December 11, 1970, by Sills. Determined by A.M. Golden. This is a new county record. (PPD).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - NORTH CAROLINA - Ten adults and one larva found December 10, 1970, at Tabor City, Columbus County, in cannery potatoes. First collection this season in sweetpotatoes. (Hunt).

A WHITE-FRINGED BEETLE (Graphognathus peregrinus) - VIRGINIA - Adults collected at Independent City of Petersburg October 20, 1970, by Drewry and Jenkins. Determined by R.E. Warner. This is a new record. (PPD).

#### DETECTION

New State Records - A PHYLLOXERA (Phylloxera similans) PENNSYLVANIA - Erie County (p. 840). ORIENTAL WOOD BORER (Heterobostrychus aequalis) NORTH CAROLINA - Halifax County (p. 841).

New County and Independent City Records - ARGENTINE ANT (Iridomyrmex humilis) CALIFORNIA - Humboldt (p. 839). IMPORTED FIRE ANT (Solenopsis saevissima richteri) MISSISSIPPI - Bolivar (p. 841). SOYBEAN CYST NEMATODE (Heterodera glycines) TENNESSEE - Decatur (p. 841). WESTERN BEAN CUTWORM (Loxagrotis albicosta) UTAH - Cache; WYOMING - Albany, Campbell, Johnson (p. 839). A WHITE-FRINGED BEETLE (Graphognathus peregrinus) VIRGINIA - Petersburg (p. 841).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 12/11-17, BL - Black cutworm (Agrotis ipsilon) 13, granulate cutworm (Feltia subterranea) 8.

HAWAII INSECT REPORT

Fruits and Nuts - A FLATID BUG (Melormenis antillarum) moderate on roadside guava trees at Hilo, Hawaii; averaged 5 (ranged to 13) nymphs and/or adults per foot of terminal. (Matayoshi). BLACK CITRUS APHID (Toxoptera aurantii) light and spotty on racemes of commercial macadamia nut planting at Keaau, Hawaii. (Kawamura).

Forest and Shade Trees - AN ADELGID (Pineus pini) increasing in 3 acres of Pinus pinaster at Waikii, Hawaii. First reported in State on this host at this location in April 1970. (Pung). A BARK BEETLE (Xylosandrus compactus) sporadic in 300 acres of Acacia koa saplings at Waiakea, Hawaii; infested trees exhibited signs of dieback. (Matayoshi, Kobayashi, Oshiro).

Man and Animals - CLUSTER FLY (Pollenia rudis) adults moderate to heavy in various situations including inside buildings from 3,000+ feet elevation at Papa to sea level at Hookena and Honaunau, Hawaii. (State Dept. of Health).

Beneficial Insects - Many adults of a KLAMATH-WEED BEETLE (Chrysolina hyperici) feeding on Hypericum degeneri at Volcano, Hawaii. Determined by R.E. White. (Yoshioka). Field examination of fruits and terminals of Melastoma malabathricum at various areas on islands of Hawaii and Kauai during October revealed infestations of MELASTOMA BORER (Selca brunella) averaged 28 and 25 percent, respectively. This species was introduced from Kuala Lumpur and Singapore, Malaysia, in 1964. (Yoshioka, Sugawa).

Miscellaneous Pests - Juveniles (less than 2 inches long) of GIANT AFRICAN SNAIL (Achatina fulica) light at Kahaluu, Hawaii. (Yoshioka). Five additional adults of a GEOMETRID MOTH (Semiothisa santaremaria) collected in light traps at Hickam Air Force Base and one at Makakilo, Oahu, first week of December. No other stages of this species recovered in State since detection in October 1970. (Shiroma, Au). Collected 5 specimens of an ASSASSIN BUG (Oncocephalus pacificus) in light trap at Hickam Air Force Base, Oahu. Only 3 other specimens collected in State; first at Waikiki, Oahu, in September 1968. (Takabayashi).

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**CORRECTIONS**

CEIR 20(25):414 - New North American Record - A SARCOPHAGID FLY (Oxysarcodexia australis (Aldrich)) - ARIZONA ... should read ... A SARCOPHAGID FLY (Oxysarcodexia orchripyga (Wulp)) - ARIZONA - ... This is a new State record.

CEIR 20(45):757 - WESTERN CORN ROOTWORM (Diabrotica virgifera) - UTAH - Delete note.

CEIR 20(49):797 - NORTHERN CORN ROOTWORM (Diabrotica virgifera) - UTAH - Should read: WESTERN CORN ROOTWORM (Diabrotica virgifera).

CEIR 20(49):801 - Add W.J. Brandvik; North Dakota.

CEIR 20(50):821. Delete prediction of pale western cutworm in South Dakota. (Jones). See page 839 in this issue for revised prediction.

CEIR 20(51):833 - CORRECTIONS - Delete note.



WEATHER OF THE WEEK ENDING DECEMBER 21

HIGHLIGHTS: Coldest stormiest weather of the season occurred last week. Roseau, Minnesota, registered 36° below zero and snow in Washington accumulated to more than 100 inches above 5,000 feet.

TEMPERATURES: Clear cool invigorating weather prevailed over much of Nation early in the week. Subfreezing temperatures occurred as far south as the Gulf States on Monday December 14. Temperatures plunged to below zero at some northern locations in sharp contrast to 60° temperatures in parts of the South. At 7 a.m. Wednesday temperatures ranged from 25° below zero at Houlton, Maine, to 74° at Key West, Florida. A gradual warmup occurred over the East during the week. By Saturday, maximums were reaching the high 50's and low 60's as far north as the Ohio River. Sunday was slightly cooler. A cooling trend over the northern Rocky Mountains and the northern Great Plains dropped temperatures to below zero on 1 or 2 mornings. Big Piney, Wyoming, registered 26° below zero Sunday morning. One of the coldest temperatures of the week occurred at Roseau, Minnesota, on the 21st, when the mercury plunged to 36° below zero. Temperatures averaged below normal from the Pacific Ocean to the Great Lakes in the North and to the Continental Divide in the South. Eastern New York and New England also averaged cooler than normal. Above normal average temperatures prevailed from Oklahoma and Texas to the middle Atlantic coast. Most of Montana, Wyoming, and the Dakotas averaged 6° to 16° below normal.

PRECIPITATION: Precipitation was occurring in three areas early in the week. One low pressure system centered north of Lake Erie was causing snow flurries from Michigan to Maine, but accumulations were slight. A low centered over northeastern New Mexico was dumping snow on the southern Rocky Mountains. A third storm produced snow in coastal ranges and the Cascades in Washington and Oregon. Precipitation in the Northwest was accompanied by strong winds. Cape Blanco registered 86 m.p.h. gusts Tuesday. Several inland stations recorded wind gusts exceeding 45 m.p.h. By Tuesday morning, typical winter weather had replaced clear skies of the previous day over much of the Country. At midweek the Pacific storm continued to batter the Northwest, while another low centered over southwestern Arkansas dumped heavy snow in eastern Kansas and northern Missouri. Heavy thunderstorms occurred in the Deep South. By afternoon, precipitation was widespread from the Mississippi River to the Atlantic Ocean. As the storm moved northeastward Thursday, it dumped snow at the rate of 1-inch an hour at some locations in the Northeast. Portland, Maine, received 20 inches in 12 hours on Thursday. The weekend brought rain along the Pacific Coast, snow in the western mountains, northern border States, and the Northeast, and freezing rain in some areas south of the snow belt. Light rain or drizzle fell from Texas to the southern Appalachians. Weekly precipitation totals ranged up to 4 inches or more along the Washington coast to less than an inch inland in the Far West. Totals across mid-America were generally from traces to less than 0.25 inch. Totals in the Deep South increased to 2 to 4 inches along a narrow band from New Orleans, Louisiana, to Wilmington, North Carolina. In Washington, snow has accumulated to over 100 inches at elevations above 5,000 feet. (Summary supplied by Environmental Data Service, ESSA).





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**ECONOMIC INSECT  
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*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PROTECTION DIVISION

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\*Carried in error as *Aceria essigi* in Vol. 20

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\* Carried as Attageus piceus in Vol. 20

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\*\* Also carried as Ptidea uhleri in Vol. 20

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\* Also carried as Coleomegilla fuscilabris  
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\* Also carried as *Carpocapsa pomonella* in Vol. 20

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\* Also carried as *Aspidiotus juglansregiae* in Vol. 20  
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(*Limonius californicus*)  
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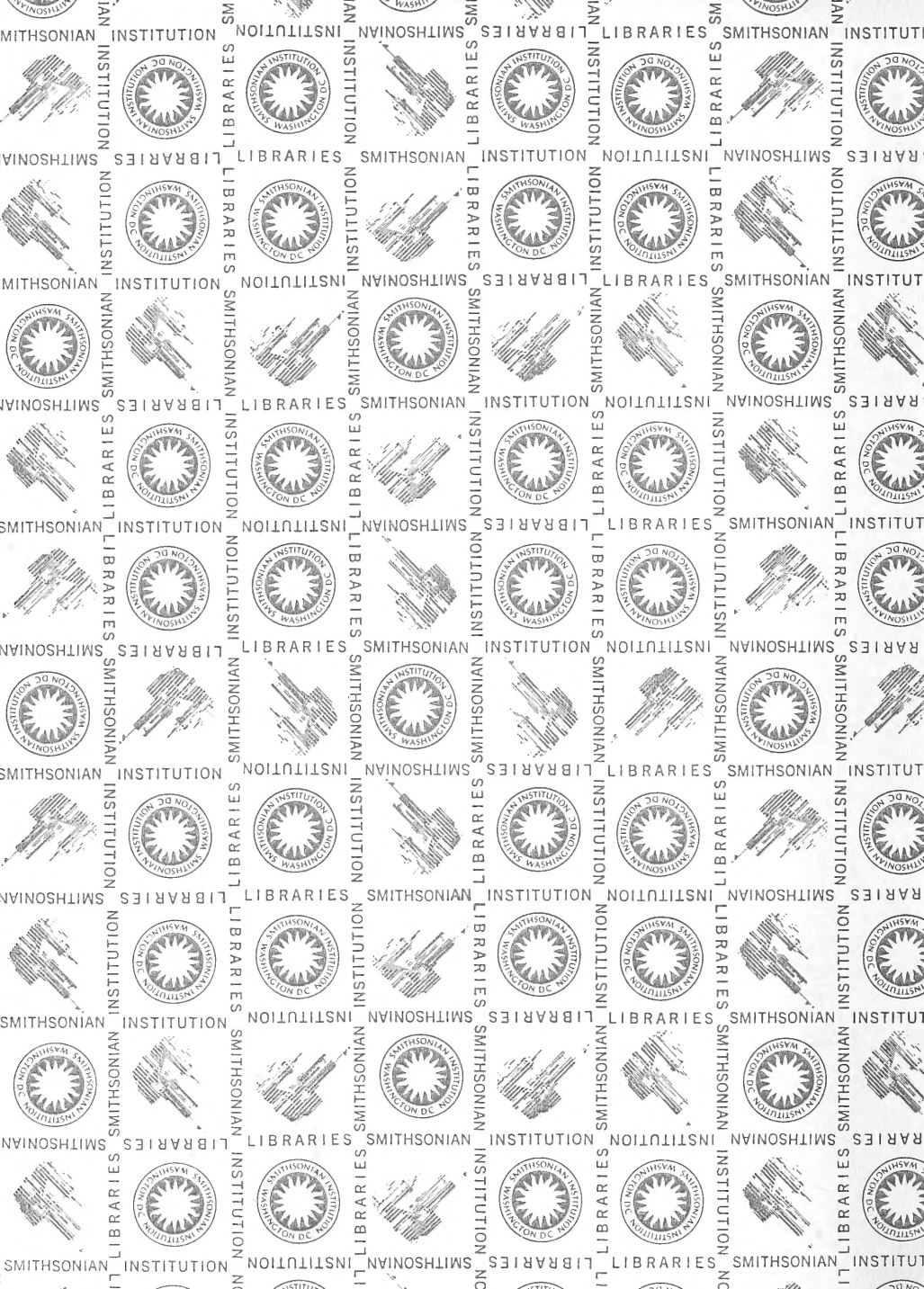
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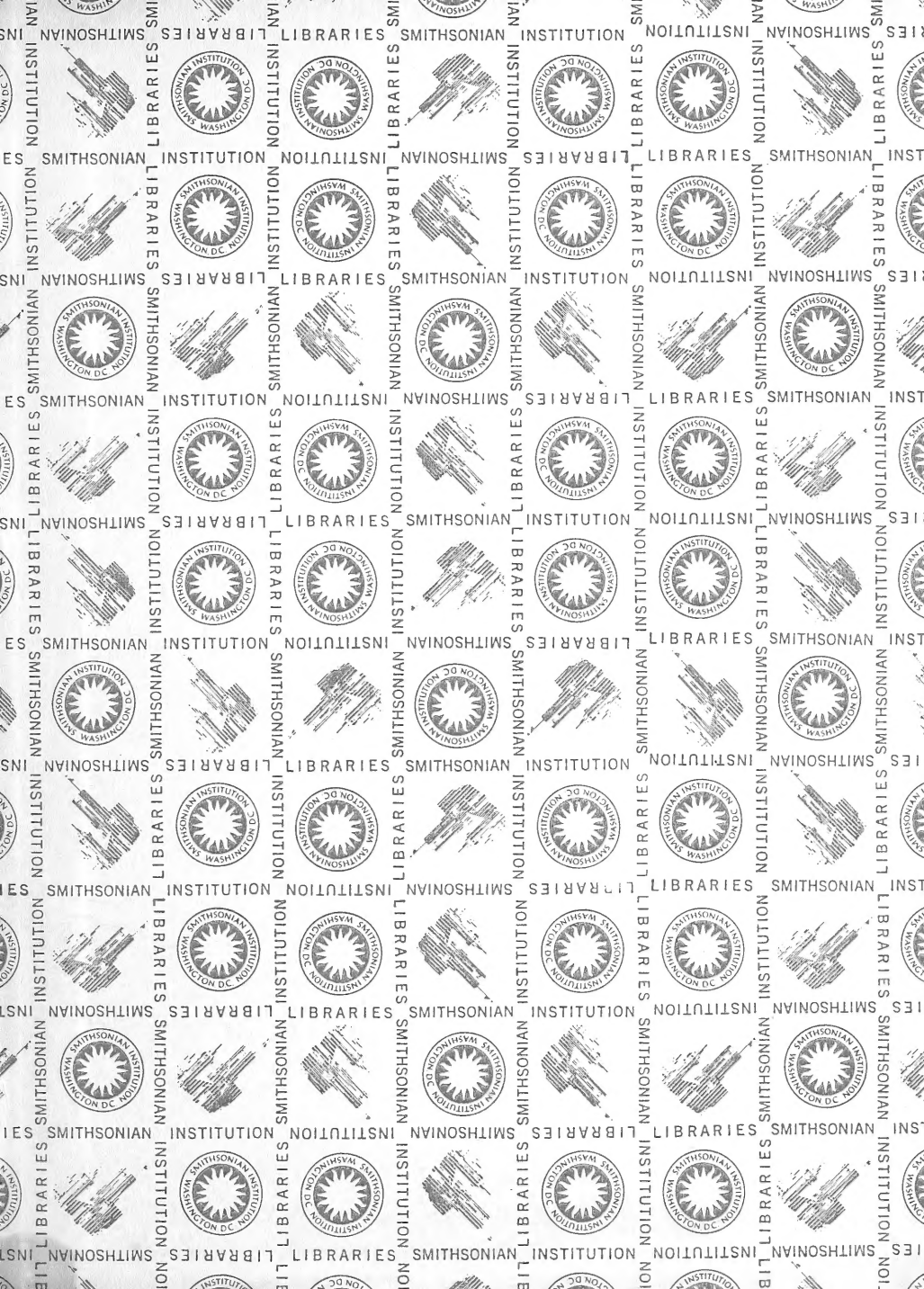
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