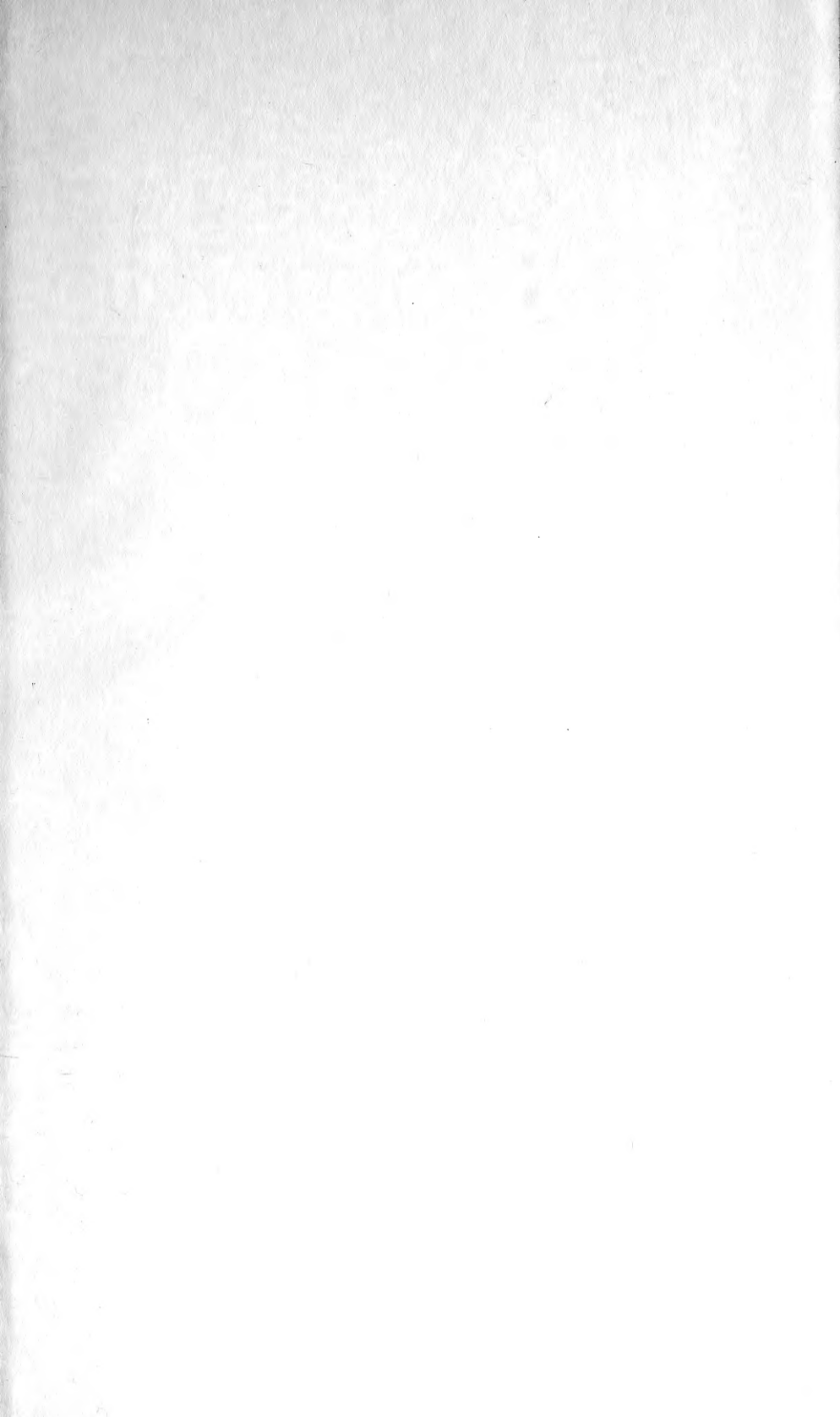
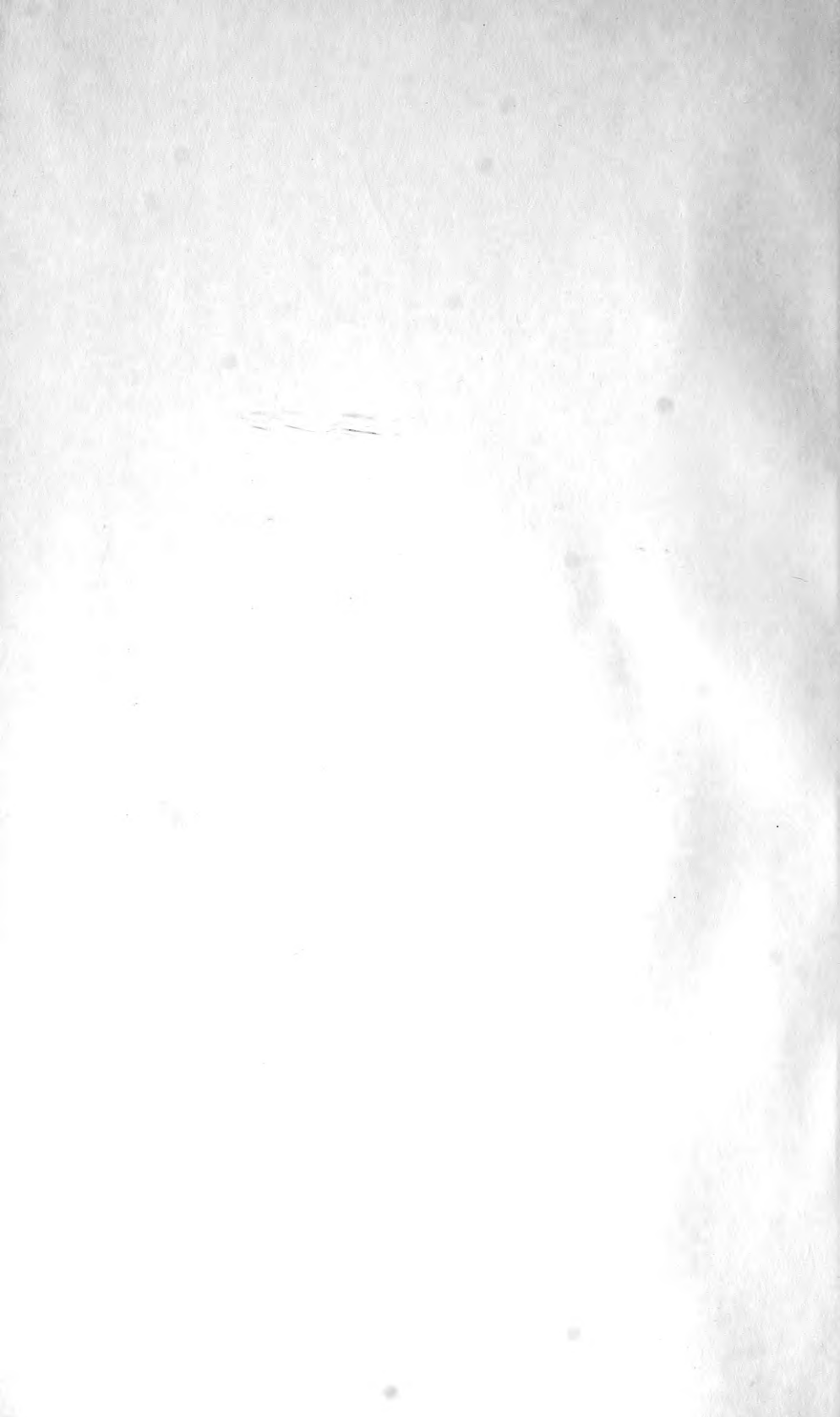


RIECS SMITHSONIAN INSTITUTION NORTHERN VIRGINIA STATE COLLEGE 31999911 LIBRARY'S SMITHSONIAN INSTITUTION WASHINGTON





SD
823
C77
Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



SMITHSONIAN
JUL 19 1972
LIBRARIES

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

The Editors, CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG economic on grain sorghum in southeast South Dakota; heavy in east-central and southeast Nebraska and northeast and east-central Kansas. Winged forms building up in Kansas. Heavy on small grains in north-central Texas with some stand loss in some fields. (pp. 421-422).

SORGHUM MIDGE heavy on grain sorghum in central Texas. (p. 423).

MEXICAN BEAN BEETLE damaged soybeans in Delaware and Maryland; heavy in isolated areas of Indiana. (p. 424). SUGARBEET ROOT MAGGOT heavy in sugar beets in northwest Wyoming. COLORADO POTATO BEETLE egg laying heavy on Eastern Shore of Virginia; pest could become damaging to potatoes and tomatoes. (p. 426).

Several NUT PESTS damaged pecans and walnuts in Oklahoma. JACK PINE SAWFLY outbreak continues in northern Michigan. (p. 427).

● Confirmed SCREWORM cases in Southwest heaviest for any single week since start of program in 1962. (p. 428).

Detection

A SUGARCANE WEEVIL reported in Florida is a new United States record. (p. 431).

MAPLE PETIOLE BORER is new State record for Alabama. (p. 427).

For new county and island records see page 431.

Predictions

SOUTHERN GREEN STINK BUG may be serious in southwest Alabama. (p. 423).

COLORADO POTATO BEETLE potentially damaging to potatoes and tomatoes on Eastern Shore of Virginia. (p. 426).

Reports in this issue are for week ending June 30 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	421
Insects Affecting	
Corn, Sorghum, Sugarcane...422	Miscellaneous Field Crops...426
Forage Legumes.....423	Potatoes, Tomatoes, Peppers.426
Soybeans.....424	Deciduous Fruits and Nuts...427
Cotton.....425	Forest and Shade Trees.....427
Tobacco.....425	Man and Animals.....428
Sugar Beets.....426	
Beneficial Insects.....	429
Federal and State Plant Protection Programs.....	429
Hawaii Insect Report.....	431
Detection.....	431
Light Trap Collections.....	432
Weather of the Week.....	434

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

JULY 1972

The National Weather Service's 30-day outlook for July is for temperatures to average below seasonal normals over the eastern third of the Nation as well as the central Pacific coast, and the Northwest. Above normal temperatures are indicated for the south Pacific coast, the central and southern Plateau region and the central Plains. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal over the Atlantic Coast States, the Great Basin, and the upper Mississippi Valley. Subnormal totals are indicated for the southern Plains. 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.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Ranged 100-300 per 100 sweeps of flax in southwest and west-central districts. Aster-yellows disease, trace to 1 percent, appearing in flax in these districts. Adults and nymphs on alfalfa, small grain, and grass; highest counts up to 1,400 per 100 sweeps in southwest district. (Minn. Pest Rpt.).

CORN EARWORM (Heliothis zea) - NEW JERSEY - Second instars infested 90 percent of near marketable ears of sweet corn in southern area field. Unusually early and result of warmer than average winter; overwintering mortality low. Treatment advised. Eggs seen on silks in Salem, Gloucester, Camden, Burlington, and Ocean Counties; treatment advised. (Ins.-Dis. Newsltr.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEBRASKA - Infested whorls in 80 percent of all sorghum observed. (Berogan, Roselle). KANSAS - Moderate to heavy in sorghum in east-central and north-east districts; not heavy enough to cause reddening of terminal leaves. (Bell). MISSOURI - Light to moderate on late-planted grain sorghum in southwest and west-central areas. Colonies found in whorls of 5-22 percent of plants. (Munson). OKLAHOMA - Ranged 100-600 per plant in field of grain sorghum in Tillman County and up to 100 per plant in field of forage sorghum in Jackson County. (Okla. Coop. Sur.). ARKANSAS - Increased slightly in most areas of State, but infestations far below economic level. Rain and cooler weather favored this pest, especially compared to hot, extremely dry weather of past few weeks. (Boyer).

GREENBUG (Schizaphis graminum) - SOUTH DAKOTA - Economic on seedling grain sorghum from Jerauld County, south to Yankton, Bon Homme, Charles Mix, Gregory, and Tripp Counties. Counts vary from trace to 300+ per plant. Populations expected to develop rapidly in whorls as well as on undersides of leaves. Some fields will probably be lost unless treatments applied. (Jones, Kantack). NEBRASKA - Colonies ranged 80-90 per 100 plants on 10-inch milo in Dodge, Colfax, and Saunders Counties; ranged 0-48 per 100 plants on smaller milo. Milo 10 inches tall 100 percent infested in southern Lancaster and northern Gage Counties; most aphids in whorls, colonies forming on leaves of taller plants with some damage evident. (Roselle). Averaged 13 per plant on 90 percent of plants at North Platte, Lincoln County. (Campbell).

KANSAS - S. graminum heavy in east-central district fields as far west as Lyon and Shawnee Counties and Riley County in northeast district. Winged forms building up under crowded conditions on lower leaves of heavily infested older sorghum and flying to other fields; seem particularly attracted to younger sorghum. Up to 20 reproducing winged females per plant common on young sorghum in east-central and northeast districts with very few or no wingless reproducers. Treatment underway in all eastern districts, and expect to be increased next 7 days. Heavy rains and parasitic wasps significantly lowered populations in sorghum in southern Labette County; pest increased in fields in northern part of county. Parasitic wasps generally light in infested sorghum in east-central and northeast districts. Lady beetles occasionally found in numbers high enough to check buildup, but probably will not be able to keep greenbugs below economic numbers in most cases. (Bell).

COLORADO - Schizaphis graminum light in sorghum in Otero, Bent, and Prowers Counties. Populations in Big Bend area of Bent County ranged 20-30 per plant with some leaf damage. (Schweissing). OKLAHOMA - Ranged 300-600 per plant (6-9 leaves infested) in field of irrigated grain sorghum in Tillman County. Two fields of dryland forage sorghum very lightly infested. (Okla. Coop. Sur.). TEXAS - Infestations very spotted in Collin County; some fields being treated. Light in Coynosa area of Pecos County; fields of forage sorghum in boot stage with 2-5 small colonies per leaf on lower 6 leaves; each colony ranged 10-40 greenbugs. Light to moderate on grain sorghum in Wichita, Wilbarger, and Knox Counties. Heavy infestations on small grains causing some stand loss in spotted areas in some fields. (Turney et al.). ARKANSAS - Found on sorghum in all counties surveyed this period. New county records include Arkansas, Lonoke, Conway, Pope, and Yell Counties. Counts lower in Hempstead and Lafayette Counties than last period. Lady beetles and other predators apparently have reduced S. graminum population. (Boyer).

POTATO LEAFHOPPER (Empoasca fabae) - MISSOURI - Moderate to heavy, ranged 8-30 per sweep, in southern area alfalfa. (Munson). INDIANA - Adults and nymphs range 0-25 per sweep in second-growth alfalfa in southern districts. Few adults and nymphs seen in soybeans in southern districts. (Meyer).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Counts ranged 0-3 per 100 sweeps in tomato fields of Otero County. (Schweissing).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Up to 100 per sweep on 1,400 acres of seed alfalfa taken at Dixie Valley, Pershing County. Honeydew heavy on 320 acres. (Stitt).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH DAKOTA - Eggs increasing on corn in Clay, Yankton, Bon Homme, and Charles Mix Counties. Counts of 2-25 egg masses per 40 plants in Clay County, 3-62 per plant in Yankton County, and 12-43 egg masses per 40 plants in Bon Homme County. Egg hatch just begun. (Jones, Kantack). NEBRASKA - Corn 24 inches tall 0-80 percent infested in Hall, Hamilton, Clay, and Adams Counties; smaller corn 5-10 percent infested. (Keith et al.). Infested 36-88 percent of 40-inch or taller plants in Dodge, Colfax, and Saunders Counties; 0-36 percent under 40 inches tall. (Berogan). Infested less than 20 percent of fields examined in Lancaster County; less than one egg mass per 200 plants. (Roselle). Damage very light in McCook area of Red Willow County and North Platte area of Lincoln County. (Campbell).

MINNESOTA - O. nubilalis oviposition may be extended. Night temperatures past 7 days ranged in fifties. Overwintering larvae still present in southwestern district. Development: Larvae 4 percent, pupae 42 percent, emerged 54 percent. Most emerged in southeast, central, and south-central districts. Egg masses per 100 plants light, averaged 4 or less, in southwest, south-central, west-central, and central districts. Percent infested plants generally low in all districts, except for sweet corn field in Scott County with 70-80 percent and few fields in Carver and Hennepin Counties with 60-80 percent. Heavy, driving rain, although localized, caused some severe mortality of first-instar borers. (Minn. Pest Rpt.).

ILLINOIS - Egg laying and larval survival light in field corn in northern area due to unfavorable weather. Egg masses averaged 2 per 100 plants with 3 percent of plants showing whorl feeding. (Ill. Ins. Rpt.). MICHIGAN - First-generation O. nubilalis adult activity still heavy for time of year. Eggs being deposited at higher rate than normal and over longer period. Pepper, snap bean, and sweet corn growers should be on lookout for egg masses. (Sauer), KENTUCKY - Larvae in leaf midribs in northern areas, in whorls or stalks in southern and western areas. (Barnett). MARYLAND - Larvae light to moderate in most corn in Talbot, Dorchester, Wicomico, Somerset, and Worcester Counties. Egg laying expected to continue. (U. Md., Ent. Dept.). DELAWARE - Larvae in untreated, early planted field corn in one area of Sussex County entering stalks. Adult flight in area at end. (Kelsey, Boys).

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Moderate to heavy on boot-stage sorghum in Labette County, no serious damage caused; light infestation (3 per plant) on 12-inch sorghum in Wabaunsee County. (Bell). OKLAHOMA - Heavy in grain sorghum in Tillman County, moderate in Jackson and Kiowa Counties. (Okla. Coop. Sur.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Overwintering adults of this species and Euschistus servus (brown stink bug) heavy in southwest area. Heavy populations developed in small grain and other hosts in several southwest counties; moved to corn and other hosts as corn matured and harvested. Controls applied to numerous scattered fields of pretassel corn in Baldwin County; noted in many Escambia County fields. Expected to be serious in corn ears, soybeans, peas, and okra. (John et al.).

CONCHUELA (Chlorochroa ligata) - TEXAS - Heavy on grain sorghum in Gillespie, Travis, and other counties in south-central area. Grain sorghum in milk or dough stage may be damaged by populations averaging 2 or more per head, controls applied. (Green).

GRASSHOPPERS - MISSOURI - Melanoplus spp. damaged marginal rows of corn and grain sorghum in southern areas. Counts in fence and marginal rows ranged 3-21 per square yard. (Munson).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Heavy on late grain sorghum in Brazos and Burleson Counties in central area. Ranged up to 20 midges per head in some fields. Increased in grain sorghum throughout north-central area; 40 midges seen in 10 heads examined in Collins County. (Green, Turney).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Increased activity evident in isolated fields of corn beginning to tassel in El Paso County. (Neeb). COLORADO - Populations on corn did not increase in Otero, Bent, and Prowers Counties due to cool, rainy weather. (Schweissing).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - IDAHO - One adult and 504 larvae per 25 sweeps taken at experiment station in Twin Falls County. Adults in nearby alfalfa field ranged 10-21 and larvae 492-698 per 25 sweeps. (Carpenter). WYOMING - Heavy damage in several fields in Sheridan and Park Counties June 22. Larvae ranged 230-304 per sweep in extreme cases. Up to 20-30 percent in cocoons in some alfalfa in Washakie, Hot Springs, and Park Counties June 21. (Burkhardt, Pike). Currently, damage continues in alfalfa in Park

and Washakie Counties. Much acreage treated. Regrowth in much acreage cut being retarded. Larval counts generally less than 1,000 per 5 sweeps. (Burkhardt). SOUTH DAKOTA - Single adult taken in 1,600 sweeps in alfalfa north at Wakonda in northwest Clay County June 23 by S. Gylling and R. Fransen. Determined by P.A. Jones and B.H. Kantack. This is a new county record and first record for eastern part of State. (Jones, Kantack). NEBRASKA - Hypera postica decreased on alfalfa in southeast area. Larvae 4 and adults 6 in 2,000 sweeps in 20 fields. Adults ranged 70-80 per 20 sweeps in soil bank land in Dawson County. (Manglitz, Stevens), KENTUCKY - Eggs averaged 26 per square foot on alfalfa regrowth after first cutting removed and alfalfa reached prebud stage in Fayette County. Larvae light in Pendleton, Harrison, and Campbell Counties, less than 50 per 100 sweeps. (Barnett, Parr).

PEA APHID (Acyrtosiphon pisum) - IDAHO - Counts of 916 per 25 sweeps of alfalfa taken at experiment station in Twin Falls County. In adjacent field, counts of 771 and 718 per 25 sweeps taken. (Carpenter). UTAH - Ranged 50-200 per 10 sweeps on alfalfa at Centerville, 200-600 per 10 sweeps in field at Kaysville, Davis County. (Knowlton). COLORADO - Heavy, 10,000-50,000 per 100 sweeps, in alfalfa in Crowley and Olney Springs area, Crowley County. Some plant stunting noted. (Schweissing). ILLINOIS - Ranged 10-50 per sweep in second-growth alfalfa in Whiteside and Carroll Counties. Predators at very low levels in these counties. (Ill. Ins. Rpt.). INDIANA - Ranged 0-20 per sweep in southern district alfalfa. (Meyer). OHIO - Averaged 25 per sweep in 6-inch alfalfa in Fairfield County. (Fox). KENTUCKY - Averaged 2,250 per 100 sweeps in alfalfa in Pendleton County, 3,000 per 100 sweeps in Owen County. (Barnett).

GRASSHOPPERS - ILLINOIS - Ranged 1-10 per sweep (averaged 5) in second-growth alfalfa in Whiteside and Carroll Counties. Averaged 3 per sweep in mowed roadside grass in this area. (Ill. Ins. Rpt.). KENTUCKY - Averaged 200 per 100 sweeps in alfalfa in Harrison County, 600 per 100 sweeps in Pendleton County. (Barnett).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Damage apparent in most alfalfa in State; averaged about 10 percent with few fields showing 25 percent damage. (MacCollom). NEW JERSEY - Moderate to heavy on second-cutting alfalfa near Juliustown, Burlington County. (Ins.-Dis. Newsltr.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Adults heavy and damaging soybeans in Sussex County. (Kelsey, Boys). MARYLAND - Adult activity still above normal. Adults averaged 1 per row foot in most fields in Wicomico, Dorchester, Worcester, and Somerset Counties; damage evident in young soybeans. Spraying with ground equipment impossible due to excessive rains past 2 weeks. (U. Md., Ent. Dept.). INDIANA - Heavy in isolated areas. Few eggs or adults seen in southern district areas. Soybeans ranged from two-trifoliate stage to 5 percent with blossoms. (Meyer).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Excessive girdling and damage by nymphs earlier in season caused heavy lodging of 18 to 24-inch soybeans in 50-acre field in Bullock County following recent rains and winds. (Stone, Henderson).

COTTON

BOLLWORMS (*Heliothis* spp.) - TEXAS - In McLennan and Falls Counties, eggs averaged 3.6 (maximum 22) and larvae 0.5 (maximum 4) per 100 terminals in 47 treated fields; in 8 untreated fields, eggs averaged 4.6 (maximum 9) and larvae 0.2 (maximum 16.2) percent in 45 treated fields and 1.2 (maximum 3) percent in 7 untreated fields. Injured bolls averaged 0.9 (maximum 4) percent in 16 treated fields and 0.2 (maximum 0.2) percent in 2 untreated fields. Moth-catch increase heavy in light trap. Of 87 larvae collected on cotton, 43 determined *H. virescens*. (Cowan et al.).

MISSISSIPPI - Few third instars present in cotton in delta and hill counties. Beneficial species keeping these under control. (Robinson).

ALABAMA - Egg counts ranged 1-36 per 100 terminals in 20 counties surveyed. Predators and parasites keeping larval counts low (0-5 per 100 terminals) in most fields. Isolated problems developed in Butler and Dallas Counties. (Boutwell et al.).

TENNESSEE - Eggs and larvae ranged 0-4 per 100 terminals in cotton surveyed in western area. (Locke).

BOLL WEEVIL (*Anthonomus grandis*) - ALABAMA - First "hatchout" occurred in early fruiting cotton over southern area. Moisture conditions favorable for larval and pupal survival over State. Controls general in southern counties, especially Conecuh, Escambia, and Dallas Counties. "Hatchout" will occur in earlier fruiting cotton in central area from June 30 through July 5. Percent of punctured squares expected to range 15-45. First-generation emergence expected to be heavy. Controls expected to begin in area next period. Damaged squares light, ranged 1-15 percent in northern area. (McQueen et al.).

MISSISSIPPI - Punctured squares averaged 7 percent throughout State; up to 22 percent in Noxubee County in cotton near brush bordering fields. On 3,000 acres checked, most counts ranged 10-15 percent in centers of such fields and those not bordered by brush averaged 3 percent. About 1 of 4 of these punctures from egg laying, remainder feeding signs. (Robinson).

TEXAS - In McLennan and Falls Counties, *A. grandis* punctured squares averaged 3.1 (maximum 26.8) percent in 45 treated fields, 4.2 (maximum 10.5) percent in 7 untreated fields. (Cowan et al.).

OKLAHOMA - Punctured squares averaged 3 percent in Bryan and Muskogee Counties; reported in Caddo, Washita, Greer, Harmon, and Jackson Counties. (Okla. Coop. Sur.).

COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*) - OKLAHOMA - Ranged up to 200 per 100 sweeps in Caddo and Washita Counties, averaged 45 per 100 sweeps in Bryan County. Light to heavy in Harmon, Greer, and Jackson Counties. Heavy in Tillman and Grady Counties, moderate in Custer County, light in Wagoner and Muskogee Counties. (Okla. Coop. Sur.).

ARKANSAS - Increased slightly in northwest area, reproduction underway. (Kimbrough). Increased slightly in southeast area. Few fields with 15 or more per 100 terminals and those not fruiting properly were treated. (Wall).

TOBACCO

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Populations light, 2-3 per plant, throughout St. Marys, Charles, Calvert, and Prince Georges Counties in fields with tobacco 8-13 inches high. (U. Md., Ent. Dept.).

KENTUCKY - Damage less than 2 percent to tobacco in Harrison, Scott, Owen, Pendleton, Christian, and Boone Counties. (Barnett).

TOBACCO HORNWORM (Manduca sexta) - KENTUCKY - Damage economic with controls applied in Christian County. (Barnett).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - WYOMING - Fly counts very heavy, over 500 per trap per day, around Heart Mountain, Park County, June 20. Fly populations seem to have peaked and probably on decline. (Burkhardt, Murray). Dead sugar-beet plants and larvae evident in numerous fields in Washakie, Big Horn, and Park Counties. (Burkhardt, Green). None found in fields in eastern counties. (Burkhardt). NORTH DAKOTA - Larvae in untreated fields ranged 2-150 per plant in Walsh and Pembina Counties. Larvae up to 60 per plant in treated fields. Counts lowest in some treated fields; few pupae and adults found. (Kaatz).

BEEF WEBWORM (Loxostege sticticalis) - COLORADO - Young larvae ranged 0-30 per 100 sweeps in numerous fields in Otero and Prowers Counties. (Schweissing).

MISCELLANEOUS FIELD CROPS

SUNFLOWER BEETLE (Zygogramma exclamationis) - NORTH DAKOTA - Adults ranged 3-5 per 10 plants in most sunflower fields in Walsh and Pembina Counties. Larvae ranged up to 12 (average 3) per plant. Controls applied. (Kaatz).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Beetles emerged from soil and feeding in Accomack and Northampton Counties. Egg laying usually at minimum this time of year due to high temperatures, but recent relatively low temperatures resulted in large number of eggs deposited. Beetles seem 7-10 days behind in development compared to normal years; as result, they can still cause much damage to potatoes. Much injury could occur to tomatoes as beetles move from nearby potato fields after harvest. (Hofmaster).

DECIDUOUS FRUITS AND NUTS

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Populations increased. Adults dominate. Slight leaf bronzing found in some orchards; many orchards will soon require treatment. (Sauer). VERMONT - Still problem on apples, with bronzing apparent on Red delicious. (MacCollom). MAINE - Populations in commercial orchards variable. In 6 blocks examined, motile forms ranged 1.6-3.3 per leaf and eggs 0.1-6.0 per leaf. (Wave).

PEAR PSYLLA (Psylla pyricola) - OREGON - Building up in pear orchards in Hood River, Hood River County. (Zwick).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First generation damaged 76 percent of clusters in untreated pecan orchard in Okfuskee County. (Okla. Coop. Sur.). TEXAS - Second-generation oviposition expected soon in north-central area. Light damage in Wichita, Clay, and Wilbarger Counties in Rolling Plains. (Turney, Boring).

WALNUT WEBWORM (Hyphantria cunea) - OKLAHOMA - Heavy on pecan and walnut trees in Haskell, Okmulgee, Okfuskee, Caddo, and Washita Counties. Moderate in Wagoner County. (Okla. Coop. Sur.)

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Heavy on pecan and walnut trees in scattered areas of Delaware, Okfuskee, Coal, and Pontotoc Counties. Light in Caddo and Washita Counties. (Okla. Coop. Sur.).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Feeding about completed on balsam fir and white spruce in northern area. This is fourth or fifth successive year of moderate to heavy defoliation in Koochiching, St. Louis, and Lake Counties; mortality increased. (Minn. Pest Rpt.).

JACK PINE SAWFLY (Neodiprion pratti banksianae) - MICHIGAN - Outbreak of past years in Luce County continuing again this year. Damage extensive throughout jack pine stands in area. (Johnson).

YELLOWHEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - Second through fifth instars caused severe problem in white spruce plantations. (Minn. Pest Rpt.).

FRUITTREE LEAFROLLER (Archips argyrospilus) - SOUTH DAKOTA - Continued causing heavy damage to mountain-mahogany (Cercocarpus sp.) in Black Hills in western Custer County. Larvae 2-3 per 6 inches of twig in areas surveyed. Pupation begun. (Jones, Kantack).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - ALABAMA - Larvae collected from 30-foot maple May 10, 1972, by F. M. Patterson at home in Athens, Limestone County. Determined by D. R. Smith. This is a new State record. (McQueen).

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - MISSOURI - Adults taken from oak at Marshall, Saline County, by S. E. Thewke June 18. This is a new county record. (Munson).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 3,946 confirmed cases reported in continental U.S. during period June 18-24. This is largest number of laboratory confirmed cases to occur during any single week since start of program in 1962. Number of cases by State as follows: Texas 3,879; New Mexico 8; Arizona 52; Oklahoma 7. Total of 731 cases confirmed in Mexico. Number of sterile flies released in U.S. totaled 190,570,000 as follows: Texas 167,860,000; New Mexico 3,260,000; Arizona 12,950,000; California 600,000; Oklahoma 400,000; Louisiana 4,550,000; Arkansas 950,000. Total of 5,480,000 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - NEBRASKA - Ranged 12-213 per pastured animal June 14 and 0-285 per head June 20 in Lincoln County. (Campbell). OKLAHOMA - Ranged 750-900 per head on cattle in Payne County. Moderate to heavy in Pawnee, Osage, Kay, Delaware, Cotton, Jefferson, and Pontotoc Counties. Light in Haskell County. (Okla. Coop. Sur.). TEXAS - Heavy in Knox, Wichita, Baylor, and Childress Counties. Controls applied. Moderate to heavy in Foard, Hardeman, and Young Counties in Rolling Plains; light infestations also occur throughout area. Heavy on cattle and sheep in Crockett County in Trans-Pecos area. Light, ranged 50-200, on cattle on isolated ranches in Winkler County. (Turney et al.). MISSISSIPPI - Up to 350 per animal in Montgomery and Noxubee Counties and up to 450 in Oktibbeha and Monroe Counties. (Robinson). OHIO - Noted on livestock throughout southeast area. Highest counts per head, 80+ on Hereford and Guernsey cattle in Perry County and 14-60+ per head on Hereford cattle in Washington County. (Fox). VERMONT - Averaged 100 per cow in most of State. (MacCollom).

FACE FLY (Musca autumnalis) - VIRGINIA - Averaged 13 adults per cow on small untreated herd in Montgomery County; averaged 15 per head on Angus cattle in Appomattox County herd. (Roberts). OHIO - Annoying cattle in southeast area. Counts per head by county: Perry 5-15, Athens 7-12, Washington 4-30, Ross 40+, Jackson 31-58. Tearing and streaking noted in Washington, Ross, and Jackson Counties. (Fox). MISSISSIPPI - Up to 30-35 per face on cattle in Monroe County. (Combs). UTAH - Ranged 10-25 per face on horses at Brigham City, Box Elder County; annoying horses and cattle at Syracuse, Davis County, and in Ogden and Slaterville area of Weber County. (Knowlton).

BLACK HORSE FLY (Tabanus atratus) - OKLAHOMA - Heavy on cattle in favorable areas in Kay County. (Okla. Coop. Sur.).

A BLACK FLY (Simulium venustum) - MAINE - Less abundant than 14 days ago. Still problem at Jackman and several locations in northern and eastern areas. (Gall).

MOSQUITOES - MAINE - Aedes spp. unusually abundant in many areas. Recent rains caused additional hatch of Aedes vexans and Aedes diantaeus in several locations. Situation unusual. (Ball).

ILLINOIS - Culex pipiens pipiens (northern house mosquito) larvae averaged 1,000 per 4-ounce dip in several swine waste lagoons. (Ill. Ins. Rpt.). MINNESOTA - Moderate increase in light traps in Metropolitan Mosquito Control District June 17-23. Aedes vexans

accounted for 61 percent and Coquillettia perturbans 30 percent. Spring Aedes heavily outnumbered A. vexans. (Minn. Pest Rpt.).
WYOMING - Serious problem around Worland, Washakie County, and Laramie, Albany County, June 22. Aerial spraying underway at Worland. (Burkhardt).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Mainly Hippodamia convergens, ranged 6-15 per 100 sweeps in cotton in Wagoner, Muskogee, Bryan, Caddo, Washita, Jackson, Greer, and Harmon Counties. Ranged 3-6 per plant in aphid-infested sorghum in Tillman County. (Okla. Coop. Sur.). ILLINOIS - Unspecified species very light in field corn and alfalfa in northern area. Averaged less than 1 per 100 plants in corn and less than 1 per 5 sweeps of second-growth alfalfa. (Ill. Ins. Rpt.).

A BRACONID (Microctonus aethiops) - NEW YORK - This parasite of Hypera postica (alfalfa weevil) adults recovered in Livingston and Cattaraugus Counties. These are new county records. Indicates this braconid is dispersing. (N.Y. Wkly. Rpt., June 26).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - OKLAHOMA - Reared from puncturevine seed in Tillman and Harmon Counties. These are new county records. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - PENNSYLVANIA - Larvae heavy (20 per square yard), caused 35 percent damage to oats in Franklin Township of Butler County. Larvae heavy on oats in Butler, Beaver, Lawrence, and Mercer Counties. (Lilley). OHIO - Larvae heavy, caused severe damage to oats in several Washington County fields which appeared "frosted", and to oats in Fairfield County. In latter county, one or more leaves on most plants dead. Adults averaged 1 per 20 plants in corn in Pickaway County; ranged 1-9 per plant in Washington County. (Fox). KENTUCKY - Averaged 5 per 100 sweeps in timothy and other grasses in Campbell County. (Barnett).

GRASSHOPPERS - WASHINGTON - Economic, especially Melanoplus sanguinipes, on estimated 10,000 acres along Snake River Canyon drainage between Steptoe Canyon to Wawawai in Whitman County. Infestations in several eastern counties this season heaviest in recent years. (Nonini, Jackson). OREGON - Rangeland species, mainly M. sanguinipes, Camnula pellucida, and Oedaleonotus enigma, economic on 140,000 acres east and south of Pilot Rock, Umatilla County. Spraying begun June 30. (Penrose). NEVADA - Treatment applied to 6,000 acres of Federal rangeland and 640 acres of private cropland for control of M. sanguinipes and M. bivittatus in Kings River Valley, Humboldt County. (Martinelli et al.). IDAHO - Nymphs, mainly M. sanguinipes, moved on to Lewsiton Grade in Nez Perce County. Nymphs averaged 15 per square yard in fence row between cheatgrass range and barley field on top of Potlatch River breaks near Juliaetta, Latah County. (Futter, Portman). MONTANA - M. bivittatus and M. sanguinipes ranged 12-15 per square yard on 10,000 acres in Sanders County at Flathead Indian Reservation. (Pratt). M. bivittatus, M. sanguinipes, C. pellucida, and Aulocara elliotti averaged 5 per square yard on about 20,000 acres in Dryhead area in Big Horn County. (Knoop).

NORTH DAKOTA - Some scattered infestations (mainly Melanoplus bivittatus, M. sanguinipes, and M. differentialis) in Burleigh, Morton, and Grant Counties. Ranged up to 27 per square yard in field margins and up to 20 per square yard in alfalfa fields. First through third instars present. (Grasser).

MINNESOTA - Roadsides sprayed, some twice, in several Kittson County townships. Most grasshopper problems along roadsides in Red River Valley and not in fields. Infestations scattered and too light to justify treatment. Counts of 27 per square yard taken in one uncut alfalfa field in Waseca County. (Minn. Pest Rpt.). KANSAS - Nymphs and adults heavy, 9-21 per square yard, on rangeland in southern Meade and southeast Seward Counties.

Primary species include Agenotettix deorum, Aulocara elliotti, Phlibostroma quadrimaculatum, and Dissosteira longipennis. (Bell).

OKLAHOMA - Cooperative control program completed on 44,600 acres of rangeland in Kiowa County. Surveys during June showed about 300,000 acres of rangeland in Beaver, Ellis, Harper, Woodward, Woods, Dewey, and Roger Mills Counties economically infested. P. quadrimaculatum, A. deorum, Drepanopterna femoratum, Hesperotettix speciosus, Amphitornus coloradus, Aulocara elliotti, and Metator pardalinus dominant. Grasshoppers ranged 25-30 per square yard in alfalfa checked in Lindsay area of Garvin County. (Okla. Coop. Sur.). TEXAS - Grasshoppers ranged 8-15 per square yard in isolated alfalfa fields in Bastrop area of Ward County. (Neeb). Medium in wide bands in pastures in localized areas of Concho County. (Boyd).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Larvae on various hardwoods pupating at base of Blue Mountain near Shartlesville. Larvae very numerous; 100 percent defoliation. (Simons).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Adults feeding on weeds and wild grape along U.S. Highway 13 in Worcester and Somerset Counties. Populations light statewide. (U. Md., Ent. Dept.). VIRGINIA - First of season reported June 19, feeding on crepemyrtle in Independent City of Chesapeake. (Szarzynski). Adults feeding on grapevines and roses in Fluvanna County June 25. Beetles about one week late this year. (Allen). TENNESSEE - Adults seen in Sevier County June 24. (Hammett). OHIO - Larvae ranged 24-36 per square foot of sod in Ashtabula County June 23. Observed feeding on roots of garden plants in same vicinity (Custer). First adult emergence of season noted June 27 in Gallia County turf. Adults seen on hardwoods, evergreens, various flowers, and corn in Meigs, Athens, and Washington Counties June 27 and 23. (Fox).

SOYBEAN CYST NEMATODE (Heterodera glycines) - TENNESSEE - Severe damage symptoms appearing in Dyer and Lake Counties. (Stafford).

HAWAII INSECT REPORT

General Vegetables - Nymphs and adults of a PLANT BUG (Cyrtopeltis nodestus) light in 0.1 acre of mature cherry tomato plants at Waianae, Oahu. (Kawamura).

Fruits and Nuts - A SWALLOWTAIL BUTTERFLY (Papilio xuthus) adult taken from lime tree at Poipu, Kauai, for new island record. Trichogramma sp. (a minute egg parasite) parasitized 36 of 37 eggs collected from young citrus terminals at Barbers Point, Oahu. (Sugawa, Kawamura). BROAD MITE (Polyphagotarsonemus latus) light and spotty on young terminals causing slight leaf distortion in 160 acres of passionfruit at Kahului, Maui. No control applied in over 1 year. (Kawamura). COCONUT SCALE (Aspidiotus destructor) light on 170 coconut trees from Niu Valley through Koko Head, Oahu; Coelophora inaequalis and Cryptolaemus montrouzieri (lady beetles) light to moderate on some infested pinnae. Pupae of COCONUT LEAFROLLER (Hedylepta blackburni) and hymenopterous parasites light in same host situation. (Otsuka et al.).

Forest and Shade Trees - Larvae and damage of a NOCTUID MOTH (Melipotis indomita) light to heavy to 100+ roadside monkeypod trees at Lahaina, Maui. Larvae heavy under loose bark and debris at the base of 5 kiawe trees at Hickam Air Force Base, Oahu, (Miyahira et al.).

General Pests - Larval mines of LEAFMINER FLIES (Liriomyza spp.) light in older leaves in 3 acres of snap beans at Omaopio, Maui. (Miyahira).

Beneficial Insects - LANTANA HISPID (Uroplata girardi) larvae and adults moderate on 10+ acres of lantana at Kalaupapa, Molokai. Nymphs and adults of LANTANA LACE BUG (Teleonemia scrupulosa) heavy on young lantana foliage in 500+ acres of Ulupalakua, Maui. All stages of a TINGID BUG (Leptobyrsa decora) moderate on 20-30 percent of scattered roadside lantana leaves at Ulupalakua. (Miyahira).

DETECTION

New United States Record - A SUGARCANE WEEVIL (Nicentrus saccharinus) - FLORIDA - Adult collected on puncturevine at Miami International Airport, Dade County, by C. E. Stegmaier April 15. Determined by R.E. Warner. This is a new United States record. Second specimen taken at same location June 22 by R.E. Woodruff, B.K. Dozier, and G. Johnson. Determined by R.E. Woodruff. Larvae have been reported to kill young sugarcane shoots in Panama. Surveys are underway to determine extent of infestation in Miami area. (Woodruff).

New State Record - MAPLE PETIOLE BORER (Caulocampus acericaulis) - ALABAMA - Limestone County. (p. 427).

New County and Island Records - ALFALFA WEEVIL (Hypera postica) SOUTH DAKOTA - Clay (p. 424). ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) MISSOURI - Saline (p. 427). A BRACONID (Microctonus aethiops) NEW YORK - Livingston, Cattaraugus (p. 429). GREENBUG (Schizaphus graminum) ARKANSAS - Arkansas, Lonoke, Conway, Pope, Yell (p. 422). A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) OKLAHOMA - Tillman, Harmon (p. 429). A SWALLOWTAIL BUTTERFLY (Papilio xuthus) HAWAII - Kauai (p. 431).

LIGHT TRAP COLLECTIONS

State	Locality	Date	Temp., F.	Humidity, %	Wind, m.p.h.	Wind dir.	Wind force	Wind gust	Wind dir.	Wind force	Wind gust	Wind dir.	Wind force	Wind gust	Wind dir.	Wind force	Wind gust	Wind dir.	Wind force	Wind gust	Crops	
FLORIDA	Gainesville	6/23-29	BL																			
	KANSAS																					
	Great Bend	6/14-28	BL	18																		
	Hiawatha	6/27	BL	8																		
MICHIGAN	Manhattan	6/28, 29	BL	4																		
	ADRIAN																					
	Adrian	6/14-20	BL																			
	Fennville	6/11-20	BL																			
MINNESOTA	Maybee	6/14-20	BL																			
	CROOKSTON																					
	Crookston	6/21-27	BL																			
	Fergus Falls	6/21-27	BL																			
MISSISSIPPI	Worthington	6/21-27	BL																			
	STONEVILLE																					
	Stoneville	6/23-29	2BL	8	14																	
	NEBRASKA																					
LINCOLN																						
Lincoln	6/29	BL	27																			
Plymouth	6/22	BL	32																			
SCOTTSBLUFF																						
Scottsbluff	6/28	BL																				
NEW JERSEY	Mullica Hill	6/22-28	BL	7																		
	Seabrook	6/22-28	BL	14																		
	Vineland	6/22-28	BL	4																		
	NEW YORK																					
Geneva	5/27-6/2, 6/3-9, 6/10-15, 6/17-23	BL	2																			
NORTH DAKOTA	Bismarck	6/21, 23, 26, 28	BL																			
	Bottineau	6/20, 21, 27, 28	BL	1																		
	Fargo	6/24, 25, 26, 28, 29	BL	2																		

WEATHER OF THE WEEK ENDING JULY 3

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: A quasi stationary front stretched from Oklahoma to North Carolina early in the week. Waves formed along portions of the front. A low developed over southern Missouri and moved to northern Indiana about midweek. A cold front stretched from a low centered over southern Manitoba southward across Minnesota to Iowa. Thunderstorms rumbled across the South in hot, humid gulf air. Many of the thunderstorms produced heavy rain, large hail, and damaging winds. Hail as large as baseballs pounded Oklahoma City and Tulsa, Oklahoma, and a locality about 30 miles south of St. Louis, Missouri, Tuesday evening. Winds gusted to 83 m.p.h. at Tinker Air Force Base, Oklahoma, and 80 m.p.h. at Tulsa. Tornadoes occurred in North Dakota, Missouri, Arkansas, and South Carolina late Tuesday and in Oklahoma, Arkansas, and western Tennessee early Wednesday. Most of the tornadoes caused only minor damage. A quasi stationary front from western New York to the Texas Panhandle caused dismal rainy weather late in the week. As the front became active, tornadoes occurred in North Dakota, Nebraska, Iowa, Kansas, Arkansas, and Texas. Property damage was generally light and no deaths nor injuries due to tornadoes were reported. Much of area west of the Rocky Mountains received no rain last week.

TEMPERATURE: Hot, humid air flowed northward from the Gulf of Mexico early in the week. Dew points were high in sultry air, mostly in the 60's and 70's. Afternoon temperatures ranged from near or above 100 degrees in most of Texas to the high 80's and 90's in the Southwest. Except in thunderstorms, air was calm or only light breezes prevailed. Wichita Falls, Texas, registered 110 degrees Tuesday afternoon. The dew point was about 70 degrees. This condition is extremely uncomfortable for most persons and dangerous for some. Wednesday was the ninth consecutive day at Seminole, Texas with afternoon temperatures reaching 100 degrees or higher. Extremely hot weather, but less humid, occurred in Arizona and southern California. Thursday afternoon, the temperature at Furnace Creek in Death Valley, California, reached 124 degrees. This is 10 degrees cooler than the all time record for California, 134 degrees recorded at Greenland Ranch, California, July 10, 1913. So much for the South. The Northern States were far more comfortable. Maximums early in the week in the North ranged from the 60's in the Rocky Mountains to the 70's and 80's across the Great Plains and Great Lakes region to the 60's in New England. By midweek, the Great Plains warmed to the 90's--94 degrees at Jamestown, North Dakota; Pierre, South Dakota, and Chadron, Nebraska, on Thursday. A weak, nearly stationary high over the Northeast caused stagnation problems. Winds were light, air was stable. Pollutants became trapped in the lower layers of the atmosphere. This was true on Tuesday over a wide area from northern Illinois and Indiana to Pennsylvania, West Virginia, and Kentucky. Conditions improved by the midweek. Cold air moved into the north-central Great Plains late in the week ending summers grip over that area. Norfolk, Nebraska, registered 95 degrees Saturday but only 66 degrees Sunday afternoon. Summer heat continued in the South.

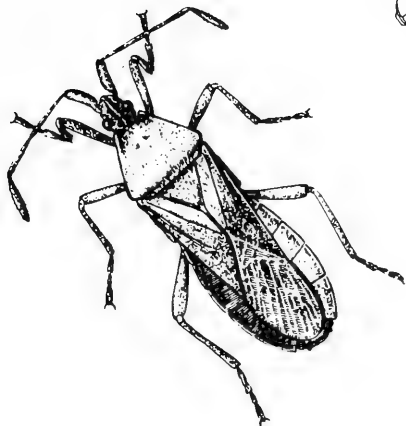
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101

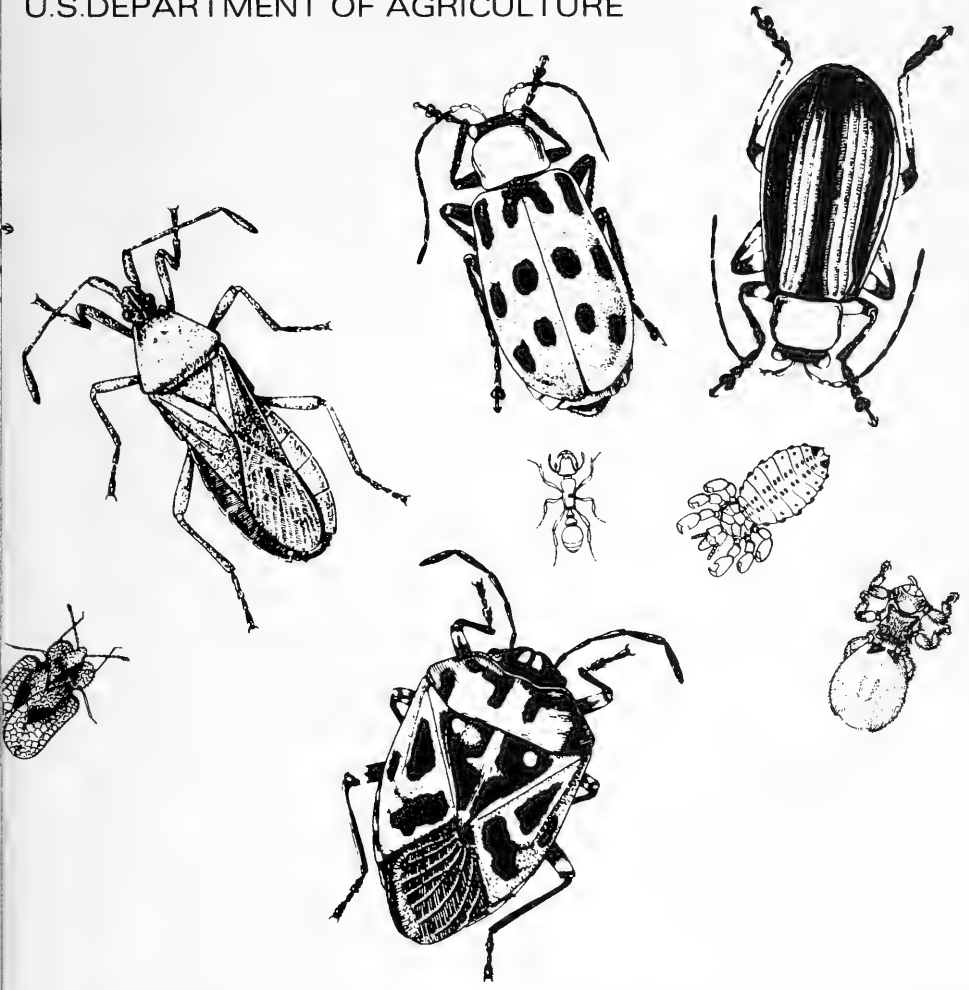


0004 SMINLISMIA122 33017 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

The Editors, CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG unchanged on sorghum in Nebraska; heavy in areas of Oklahoma and New Mexico. (p. 437).

POTATO LEAFHOPPER expected to increase on alfalfa in north-central Maryland; continues to threaten alfalfa and beans in Michigan. (p. 437).

SPRUCE BUDWORM defoliation of spruce heavy again this year in northern Michigan. (p. 441).

SCREWWORM cases continue to increase in Southwest; total of 5,013 cases confirmed this period. (pp. 441-442).

Detection

For new county records see page 445.

Special Reports

Collections of Pink Bollworm Moths in a Light Trap, 1953 to 1971. (pp. 448-450).

Gypsy Moth Quarantine. Map. Centerfold.

Reports in this issue are for week ending July 7 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	437
Insects Affecting	
Corn, Sorghum, Sugarcane...437	441
Turf, Pastures, Rangeland..438	441
Forage Legumes.....438	441
Soybeans.....439	441
Cotton.....439	441
Potatoes, Tomatoes, Peppers.....440	441
Deciduous Fruits and Nuts..	441
Citrus.....	441
Ornamentals.....	441
Forest and Shade Trees.....	441
Man and Animals.....	441
Beneficial Insects.....	443
Federal and State Plant Protection Programs.....	443
Hawaii Insect Report.....	445
Detection.....	445
Light Trap Collections.....	446
Collections of Pink Bollworm Moths in a Light Trap, 1953 to 1971.....	448
Gypsy Moth Quarantine. Map. Centerfold.	

WEATHER OF THE WEEK ENDING JULY 3

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: On Monday, July 3, a long front stretched from Maine through the Texas Panhandle to northern Utah. Lows were centered along the front in eastern Ohio and western Oklahoma. Thunderstorms developed along the front where cold air battled with warm air. Thunderstorms also erupted in humid air that lay over the central and southern Great Plains and the middle and southern Mississippi River Valley. Heavy local rains also fell in the northeastern parts of Pennsylvania, New York, New England, West Virginia, and Maryland. A large Arctic high over mid-America at midweek brought blue skies to the Northern States and scattered showers along the leading edge of cool air from Texas to the Ohio River. Showers also occurred over the Deep South. Showers fell from Florida to Pennsylvania late in the week and from the central Great Plains to southern New England over the weekend. Hail from weekend thunderstorms damaged sugar beets in north-eastern Colorado. No rain or only widely scattered light sprinkles fell from the Pacific Ocean to the central Rocky Mountains.

TEMPERATURE: Cold air pushed into the northern Great Plains north of a front which early in the week stretched from northern New England through the Texas Panhandle to northern Utah. Early morning temperatures north of the front were in the 30's and 40's. Casper, Wyoming, registered 30 degrees Tuesday morning. Maximums were in the 60's. These temperatures are 15 to 20 degrees cooler than normal for early July. Warm, humid air drifted northward south of the front. Temperatures averaged about 30 degrees warmer than in the cool air. Summer heat continued in the desert Southwest. Furnace Creek in Death Valley, California, warmed to 120 degrees Monday and 121 degrees Wednesday. A large high centered over Nebraska Wednesday helped to hold afternoon temperatures in the 60's and 70's over much of the East while warming the West. Weather of the week continued on page 447.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - NORTH CAROLINA - Caused heavy foliage damage to 25 acres of corn in Tyrrell County. Up to 5 larvae per row foot in spots up to 0.5 acre in size. Mostly fourth and fifth instars. (Van Dуйn).

CORN LEAF APHID (Rhopalosiphum maidis) - ILLINOIS - Colonies developed on field corn in southern area. In Jackson and Perry Counties, 50 percent of plants with some aphids in tassels; 1 in 50 plants rated medium. (Ill. Ins. Sur.). WISCONSIN - No buildup noted in tassels of sweet corn since first migrants found. Some colonies forming within whorls of field corn in southern Sauk County, however. (Wis. Ins. Sur.).

GREENBUG (Schizaphis graminum) - NEBRASKA - Populations on sorghum remained stable in most fields. Ranged 30-100 per plant on 100 percent of plants in Seward County field with 1-2 lower leaves discolored; 20-100 per plant on 90-100 percent of plants in 2 York County fields with no economic damage; 50-400 per plant in Saline County field with 20 percent of lower leaves lost; 5-50 per plant in Hamilton County with no economic damage. (Keith, Berogan). ARKANSAS - Taken on sorghum in Craighead County. This is a new county record. (Boyer). OKLAHOMA - Heavy in sorghum in Ottawa County; moderate to heavy in Caddo and Washita Counties. (Okla. Coop. Sur.). NEW MEXICO - This pest and Rhopalosiphum maidis (corn leaf aphid) medium to heavy on grain sorghum in Roosevelt and Curry Counties. Controls applied. (Mathews, Campbell).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Nymphs and adults ranged 10-30 per sweep of alfalfa in Frederick, Carroll, Baltimore and Howard Counties. Expect increase; yellowing seen in some fields. (U. Md., Ent. Dept.). MICHIGAN - Still threatening in alfalfa and beans. (Sauer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Counts in Dixie Valley ranged 2-60 per sweep on seed alfalfa in Churchill County and 6-300+ per sweep in Pershing County. Honeydew heavy, leaf drop occurring in heavier infested fields. (Stitt). WISCONSIN - Increase apparent in much alfalfa. Highest counts, 15 per sweep, noted in western Dane and in Marquette Counties. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - Moths decreasing rapidly in blacklight traps over State. Many larvae boring into stalks. Infestations ranged 16-40 percent in fields sampled in Seward, York, and Saline Counties. Little or no damage found in Frontier, Perkins, Keith, and Lincoln Counties. (Campbell). MISSOURI - Dissections in Mississippi County field showed 22 percent of plants infested. Mostly pupae in this field. (Langille). IOWA - Flight complete in central area. Larval survival very low due to cool weather. Tall corn in central area with up to 75 percent of plants showing leaf feeding, but dissection revealed living borers in 10-15 percent of plants. Very few fields will require control. (Iowa Ins. Sur., June 30). WISCONSIN - Populations seem generally low in southwest and northeast areas; highest counts seen in some sandier areas in central part of State and near Wisconsin River. (Wis. Ins. Sur.).

KENTUCKY - O. nubilalis damaged corn statewide; economic in Ballard County, controls applied. Percent infestation in central area by county: Fayette 2.2, Franklin 9.8, Woodford 0.9. (Barnett). VIRGINIA - Moth collections on Eastern Shore increased abruptly nights of July 1 and 2 with 93 moths taken. Only 5 moths taken preceding week; indicates beginning of emergence of second-brood moths. (Hofmaster). MARYLAND - Heavy on corn 18 inches or higher; ranged 7-10 first and second instars per 10 plants in Frederick, Carroll, and Baltimore Counties. Egg laying in these counties expected to remain heavy. Infestations in Talbot, Dorchester, Wicomico, and Somerset Counties ranged 40-80 percent. Pupation 80 percent. Increased egg laying on corn expected to be heavy within 14 days. (U. Md., Ent. Dept.). DELAWARE - First pupae of first summer generation taken in corn. Adults in black-light traps averaged less than one per night in Sussex County. (Burbutis, Kelsey). NEW YORK - Light to moderate in most early corn in Hudson Valley. Larvae in tassels in most early varieties. Moth catches light; egg masses difficult to find; first-brood activity declining. (N.Y. Wkly. Rpt., July 3).

CORN EARWORM (Heliothis zea) - NEW JERSEY - Moth catches in selected southern and central area fields continue abnormally heavy for this time of year. Recommend 4 to 5-day control interval in sweet corn plantings beginning to silk. (Ins.-Dis. Newsltr.).

SORGHUM MIDGE (Contarinia sorghicola) - MISSISSIPPI - Averaged 8 per head on blooming grain sorghum in Noxubee County. (Robinson).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - Larvae infested Bermuda grass pasture in Camden County. First infestation of season. (Thomas, Nolan).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - WASHINGTON - This species and S. cicatristriatus caused damage affecting 20-50 percent of several bluegrass lawns in Prosser, Benton County. (Klostermeyer).

A WHITEFLY (Aleurocybotus occiduus) - ARIZONA - Necessitated treatments in few over-irrigated fields of Bermuda grass at Yuma Valley, Yuma County. Honeydew main problem. (McHenry).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Larval counts decreased greatly at Ithaca and in other areas of State. New adults should increase next 14 days. Bathyplectes stenostigma (an ichneumon wasp), a larval parasite released in Ithaca area in 1971, recovered in area this period. (N.Y. Wkly. Rpt., July 3). MASSACHUSETTS - Larvae averaged 27 per 100 sweeps in Berkshire County. (Miller, June 30). KENTUCKY - Eggs averaged 10.4 and larvae 10 per square foot in Fayette County field. (Barnett, Parr).

OHIO - Hypera postica adults in northern Wayne County suppressed new-growth alfalfa in late cut fields. Larvae ranged 75-88 per 50 sweeps in Champaign County, averaged 66 per 50 sweeps in Logan County. (Fox). WISCONSIN - Threat ended for season. Larval and adult counts seldom exceed 4 per 10 sweeps in Fox River Valley area, southwest area, or central sands region. (Wis. Ins. Sur.).

NEW MEXICO - Hypera postica medium to heavy on alfalfa in Santa Fe and Rio Arriba Counties. Larvae ranged 23-53 per 25 sweeps in most fields. Most leaves damaged. (Patterson, Heninger). UTAH - Still damaging alfalfa in Box Elder County. (Lindsay).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Ranged from 40-50 per sweep to 100-200+ per sweep on 4,000 acres of alfalfa hay in Hualapai Valley, Washoe County. Populations lower in fields where aphids heavily parasitized. Infestations generally much reduced over past 2 weeks. (Adams). Ranged 75-100 per sweep in most alfalfa hay fields in Diamond Valley, Eureka County. (Martinelli). WISCONSIN - Increased in regrowth alfalfa. Small nymphs predominate in many fields. Counts variable; 50-70 per sweep not unusual in many fields in southwest, central, and northeast areas. Predator incidence low in these fields; aphid counts could increase next few weeks. (Wis. Ins. Sur.). MARYLAND - Light, ranged 5-10 per sweep, in Frederick, Baltimore, Carroll, and Montgomery Counties. Slightly above 1971 level. (U. Md., Ent. Dept.). MASSACHUSETTS - Averaged 736 per 100 sweeps in Berkshire County. (Miller, June 30).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Damage on first-cutting alfalfa variable statewide; in some areas leaf destruction about 20-25 percent. Little evidence of miner activity on regrowth. (Nielsen et al.). MASSACHUSETTS - Adults averaged 22 per 100 sweeps in Berkshire County; 17 percent of alfalfa leaflets showed larval mines. (Miller, June 30).

GRASSHOPPERS - WISCONSIN - Melanoplus femurrubrum increased on forage crops in many scattered areas over State. First instars ranged 50-200 per sweep in field in central Iowa County with damage apparent; averaged 15 per sweep in adjacent fields. Heavy in fields in southern Dane and eastern Marathon Counties. Most fields in central sands area with lower counts. Higher populations not necessarily on sandy ground as in previous years. Due to sporadic nature of infestations and magnitude of some populations, growers should check alfalfa regrowth. Dissosteira carolina and M. confusus adults also appearing; Arphia conspersa adults most noticeable along roadsides. (Wis. Ins. Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - NORTH CAROLINA - Up to 4 larvae per row foot in some northeastern area fields. About 150 acres observed in Camden County will need treatment if present trend continues; 15 percent defoliation observed in area. (Van Dуйn).

COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Punctured squares averaged 23 percent in 4 fields in Bryan County. Ranged 1-5 percent in about 10 percent of fields checked in Jackson, Harmon, and Greer Counties. Very light in Caddo, Washita, Wagoner, and Muskogee Counties. (Okla. Coop. Sur.). MISSISSIPPI - Percent punctured squares in some fields by county: Leake, 12 on 200 acres; Neshoba, 10 on 225 acres; Noxubee, 8 on 3,000 acres; Tippah, 18 on 200 acres; Yalobusha, 9 on 100 acres. (Robinson). ALABAMA - First-generation weevils caused increase in square infestations in most fields. Damaged squares ranged 10-60 percent. Controls

applied. Field infestations vary due to numbers of overwintered adults near fields and age of cotton. Percent punctured squares ranged 1-25. First weevil "hatchout" will occur July 8-25. (McQueen). GEORGIA - Percent punctured squares by county: Wilcox 0-4, Crisp 0-10, Terrell 0-8, Tift 18 in one field; ranged 0-25 over southern area. First-generation adults emerged and damaged squares over southern area. (Womack et al.). TENNESSEE - Counts ranged 0-55 percent punctured squares. First-generation "hatchout" expected July 12 on early cotton in southern tier of counties. (Locke, Gordon).

BOLLWORMS (Heliothis spp.) - TENNESSEE - H. zea counts below control level in most fields; however, few fields in Tipton County at, or above, control levels. (Gordon, Locke). GEORGIA - Egg laying generally lower than past 2 weeks as of June 30. Larval feeding very heavy in many southern area fields. (Womack). Current counts per 100 terminals by county: Wilcox, 0-2 eggs, 0-7 larvae; Crisp, 0-4 eggs, 1-11 larvae. (Hudson, Nix). Egg laying light over southern area; most larvae large, predominately H. virescens. (Womack). ALABAMA - Small larvae and eggs of H. zea ranged 1-10 per 100 terminals in all fields throughout State. Most serious problems in Dallas, Butler, and some southwest counties. (McQueen). MISSISSIPPI - Percent damaged squares by county: Noxubee 2, Tippah 5, Leake 10 on 200 acres. (Robinson). OKLAHOMA - H. zea damaged squares ranged 0-4 percent and eggs 1-2 per 100 terminals in Jackson, Harmon, and Greer Counties. Eggs averaged 1 per 100 terminals in Tillman County. (Okla. Coop. Sur.).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - OKLAHOMA - Ranged light to heavy (up to 53 per 100 terminals) in Jackson, Harmon, and Greer Counties, and 24-60 per 100 terminals in Tillman County. Still heavy in many fields in Caddo, Washita, and Beckham Counties. Ranged moderate to heavy in Okmulgee County; heavy in scattered fields in Bryan County; moderate in Muskogee County. Averaged 20 per 100 sweeps in Wagoner County. (Okla. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Continued to damage potatoes and tomatoes throughout infested area of northern part of State. Control general on commercial plantings. (Knowlton). Outbreak unusually severe in Box Elder County. (Lindsay).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Moved into potato fields in Greeley area, Weld County. This is early migration into late potatoes. (Marquardt).

VARIEGATED CUTWORM (Peridroma saucia) - VIRGINIA - Total of 149 moths collected nights of July 1 and 2, compared to 16 preceding week. Emergence much heavier than 37 moths collected for same period in 1971. (Hofmaster).

DECIDUOUS FRUITS AND NUTS

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First-generation damage averaged 26 percent in untreated pecan orchard in Tulsa County, 31 percent in 2 orchards in Rogers County. (Okla. Coop. Sur.).

AN ERIOPHYID MITE (Aculus comatus) - OREGON - Heavy on Daviana and Royal variety filberts at Corvallis, Benton County. (Krantz, July 1).

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Counts per leaf increased statewide. Leaf bronzing seen in some orchards. Cool weather temporarily slowing development. Expect summer generation overlap soon. (Thompson).

CITRUS

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Resistance to previous insecticides increased. Difficult to protect new tender growth at Yuma County citrus nurseries. (Ariz. Coop. Sur.).

ORNAMENTALS

SPRUCE SPIDER MITE (Oligonychus ununguis) - PENNSYLVANIA - All stages taken on Katsura tree (Cercidiphyllum japonicum) in Camp Hill, Cumberland County, October 21, 1971, by D. Stehr and R. Lehman. Determined by E.W. Baker. Adults and nymphs collected on Cryptomeria japonica at 2 locations in Allentown, Lehigh County, October 8 and November 4, 1971, by T. Wolf. Determined by E.W. Baker. These are new host records. (Kim).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MICHIGAN - Adults emerged; numerous in Marquette County. Larval defoliation severe again this year. Some tree mortality expected in infested area. (Johnson).

PINE SPITTLEBUG (Aphrophora parallela) - FLORIDA - Adult taken in blacklight trap July 5 near pine trees at Gainesville, Alachua County. This is unusual collection; only few records of this species in State, none farther south than Marion County. (Mead).

PINE CHAFER (Anomala oblivia) - TENNESSEE - Taken in Hardin County for a new county record. Determined by R.D. Gordon. (Bruer).

ELM LEAF BEETLE (Pyrrhalta luteola) - OKLAHOMA - Still heavy on Siberian elms in most areas. Second-generation egg deposition very heavy in Payne County. (Okla. Coop. Sur.). NEW MEXICO - Medium to heavy on Siberian elms at Espanola, Rio Arriba County, and Santa Cruz, Santa Fe County. Some heavy infestations, up to 20 larvae per leaf. (Heninger).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 5,013 confirmed cases reported in continental U.S. during period June 25 to July 1. This is largest number of laboratory confirmed cases to occur during any single week since start of program in 1962.

Screwworm cases by State as follows: Texas 4,901; New Mexico 32; Arizona 74; Oklahoma 6. Total of 1,067 cases confirmed in Mexico. Number of sterile flies released this period in U.S. totaled 204,016,000 as follows: Texas 177,648,000; New Mexico 2,910,000; Arizona 16,538,000; California 600,000; Oklahoma 1,920,000; Louisiana 2,550,000; Arkansas 1,850,000. Total of 3,062,000 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 300 per head on cows and 1,000 per head on bulls in Payne County. Heavy in Pittsburg County, moderate in Garfield, Washington, and Pontotoc Counties. (Okla. Coop. Sur.). MISSISSIPPI - Averaged 500+ on untreated cattle in Monroe, Clay, Noxubee, and Oktibbeha Counties. (Robinson). ILLINOIS - Average number per untreated beef animal by county: Jo Daviess 30.5, Ogle 27.8, Grundy 63.3, Kendall 1.6, Champaign 48.6, Ford 72.8. (Ill. Ins. Sur.). MARYLAND - Light in unsprayed herds, ranged 10-20 per head. Counts on sprayed livestock ranged 0-15 per head. (U. Md., Ent. Dept.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 3 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.). KENTUCKY - Adults averaged 40 per animal on cattle of various ages in Woodford County. (Barnett). MARYLAND - Increased after heavy rains in June and early July. Ranged 10-40 per head on most unsprayed beef cattle. Statewide increase of annoyance level expected, especially along Chesapeake Bay shores. (U. Md., Ent. Dept.).

FACE FLY (Musca autumnalis) - MARYLAND - Increased after heavy rains in June. Counts on unsprayed beef ranged 20-40 per head. Counts on sprayed dairy stock ranged 5-15 per head. Population at annoyance level in Frederick, Baltimore, Harford, and Montgomery Counties. (U. Md., Ent. Dept.). ILLINOIS - Average number per untreated beef animal by county: Jo Daviess 7.9, Ogle 4.5, Grundy 0.5, Kendall 0.8, Champaign 0.3, Ford 3.7. (Ill. Ins. Sur.). KENTUCKY - Adults averaged 20 per animal on cattle of various ages in Woodford County. (Barnett). MISSISSIPPI - Ranged up to 75 per face on mixed cattle in Monroe County; averaged 30 per face on 400 head. (Robinson). GEORGIA - Populations heaviest ever seen in northern area of State. (Nolan).

MOSQUITOES - GEORGIA - Heavy throughout southern part of State. (Nolan). UTAH - Very annoying in Cache County. Severe in most cultivated areas in Allen Canyon area of Rich County; very troublesome in Corinne, Locomotive Springs, and Cedar Mountain areas of Box Elder County. Abundant and annoying in farm areas around Abraham, Millard County. (Parish, Knowlton). NEVADA - Aedes nigromaculis adults and larvae heavy at Sparks, Washoe County. (Ferreto).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - MISSOURI - Specimens collected in Andrew and Montgomery Counties. These are new county records. (Munson).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Moderate on cattle in Pittsburg County and in scattered areas of Washington County. (Okla. Coop. Sur.).

U. S. DEPARTMENT OF AGRICULTURE
 ANIMAL AND PLANT HEALTH INSPECTION SERVICE
 PLANT PROTECTION AND QUARANTINE PROGRAMS
 AND CANADA DEPARTMENT OF AGRICULTURE
 COOPERATING WITH AFFECTED STATES



COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED.
 COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED

GENERALLY INFESTED AREA-STATE, FEDERAL, AND CANADIAN REGULATIONS
 (ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED)

SUPPRESSIVE AREA-STATE, FEDERAL, AND CANADIAN REGULATIONS.
 (SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)



ERADICATED-REGULATION REMOVED

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES

RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. FROM RED INTO OR THROUGH GREEN OR WHITE.
2. FROM GREEN INTO OR THROUGH WHITE.
3. GREEN INTO GREEN.
4. WITHIN GREEN.*

*IF REQUIRED BY AN AUTHORIZED INSPECTOR.

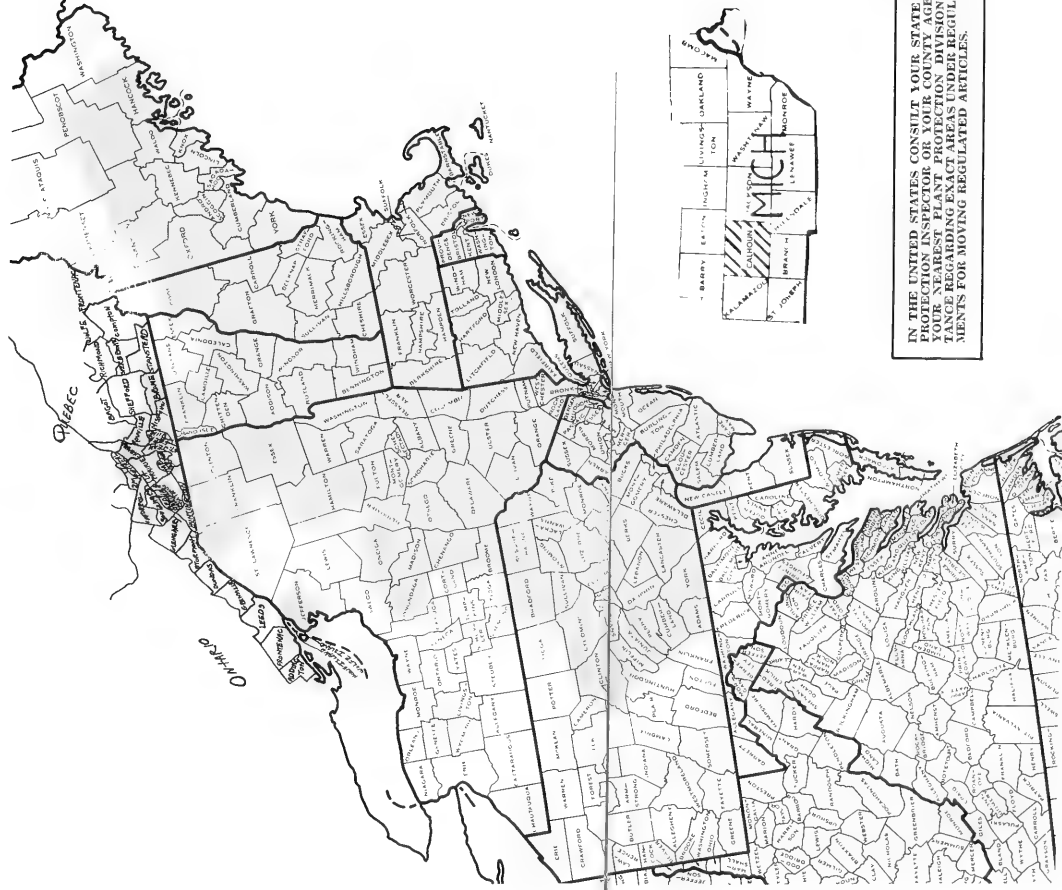
Manufactured wood products, such as shingles, flooring, furniture, handles, etc., are exempt.*

Shavings, sawdust, wood flour, excelsior, and cedar bedding are exempt.*



GYPSY MOTH QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
AND CANADA DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES



IN THE UNITED STATES CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION DIVISION, AND IN CANADA YOUR NEAREST PLANT PROTECTION DIVISION, FOR REGULATIONS REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED
COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED

GENERALLY INFESTED AREA—STATE, FEDERAL, AND CANADIAN REGULATIONS
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED)

SUPPRESSIVE AREA—STATE, FEDERAL, AND CANADIAN REGULATIONS
(SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)

ERADICATED—REGULATION REMOVED

RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. FROM RED INTO OR THROUGH GREEN OR WHITE.
2. FROM GREEN INTO OR THROUGH GREEN OR WHITE.
3. GREEN INTO GREEN.
4. WITHIN GREEN.*

*IF REQUIRED BY AN AUTHORIZED INSPECTOR.

THE FOLLOWING REGULATED ARTICLES MUST BE MOVED UNDER
CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED

1. Trees, shrubs with persistent woody stems, and parts thereof, **except** seeds, fruits, and cones.

Trees and shrubs, and parts thereof, are exempt if grown in a greenhouse throughout the year and so labeled on the outside of each container.*

Boughs, cuttings, and scions with stems no greater than one-half inch in diameter are exempt.*

Parts of trees and shrubs that have been dried, pressed, waxed, lacquered, varnished, or similarly surface-treated, are exempt.*

2. Timber and timber products, including but not limited to lumber, planks, poles, logs, cordwood, and pulpwood.

Lumber is exempt if dressed or sawed four sides with ends clipped and free of surface bark, or if kiln dried, provided such lumber is shipped direct after processing and the waybill or other shipping document is marked to show that the lumber was shipped immediately after processing.*

Manufactured wood products, such as shingles, flooring, furniture, handles, etc., are exempt.*

Shavings, sawdust, wood flour, excelsior, and cedar bedding are exempt.*

-
3. Stone and quarry products.

Stone and quarry products are exempt if processed by grinding or pulverizing.*

4. Mobile homes, recreational vehicles, and associated equipment moving from hazardous parks or recreational sites.

*Exempt if not exposed to infestation after the prescribed handling.

BENEFICIAL INSECTS

LADY BEETLES - OHIO - All stages of Coleomegilla maculata, Hippodamia convergens, Coccinella novemnotata, and C. transversoguttata noted throughout southeastern and central areas. One beetle per 3-5 pepper plants 4-6 inches tall seen in Washington County. (Fox). ARKANSAS - Thousands of aestivating Coleomegilla maculata adults seen on top of Rich Mountain, Polk County. (Allen). OKLAHOMA - Several species, mainly Hippodamia convergens, ranged 0-28 per 100 sweeps in cotton in Jackson, Harmon, and Greer Counties; averaged 1 per 20 plants in Tillman County. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Citrus and gardenia in Sacramento, Sacramento County, heavily infested. Ranged from 10 per leaf to hundreds per leaf. (Cal. Coop. Rpt.).

GRASS BUGS - UTAH - Labops spp., including few L. utahensis, caused discoloration of giant ryegrass, crested wheatgrass, and several other grasses in all higher areas of Mount Nebo Loop area in Utah and Juab Counties. Black species damaged Russian wild ryegrass in Yost area of Box Elder County. Most found in this area Irbisia spp., with I. pacifica most common. (Knowlton et al.).

GRASSHOPPERS - OREGON - Spraying for control of Melanoplus sanguinipes, Camnula pellucida, Oedaleonotus enigma, M. bivittatus, and M. packardii on 145,000 acres in Pilot Rock area of Umatilla County completed July 6. Results good. Additional projects scheduled to begin July 10 on 125,000 acres in John Day Valley, Grant County, and 300,000 acres in Baker and Union Counties; July 12 on 123,000 acres in Morrow County, and July 15 on 140,000 acres in Wallowa County. (Penrose). NEVADA - Total of 10,368 acres comprised of 4,000 acres of crested wheatgrass and 6,368 acres of adjacent rangeland treated for M. sanguinipes and O. enigma in Doby Summit area, Elko County. (Wilson). Nymphs of M. sanguinipes ranged 20-25 per square yard on 300 acres of alfalfa hay in Hualapai Valley, Washoe County. (Adams). In Diamond Valley, Eureka County, M. sanguinipes nymphs and adults ranged 10-12 per square yard on 100 acres of alfalfa hay. Adult M. sanguinipes (95 percent) and M. bivittatus (5 percent) ranged 15-20 per square yard on another 260 acres of alfalfa hay in same area. (Martinelli). M. bivittatus, M. sanguinipes, and C. pellucida ranged 25-35 per square yard on 50 acres of abandoned clover below Grass Valley, Pershing County. (Rowe).

NORTH DAKOTA - Mainly M. sanguinipes, M. keeleri, and M. confusus ranged 1-30 (averaged 13) per square yard on 13,000 acres in northern part of Sheyenne National Grasslands in Ransom and Richland Counties. Southern parts of grasslands had less than 1 grasshopper per square yard. Development ranged from first instar to adults. (Grasser). OKLAHOMA - M. differentialis and M. bivittatus ranged 20-40 per square yard in pecan orchard planting of fescue in Tulsa County; becoming serious on pecan foliage in orchard. (Okla. Coop. Sur.).

GYPSEY MOTH (Porthetria dispar) - RHODE ISLAND - Defoliation of white oaks near 100 percent in many areas. Larvae feeding on red oak, white pine, beech, American chestnut, and shack huckleberry. (Field, June 30). PENNSYLVANIA - Defoliation 15-70 percent in area of Berks and Schuylkill Counties bounded by Interstate Highway 78 and State Highways 501, 895, and 183. Pupation begun in more heavily infested areas; no pupae found in areas of light defoliation, many larvae in last instar. (Cameron, June 22). Heavy feeding along Berks and Schuylkill County line and Schuylkill and Lehigh County line. Forced pupation noted at Hawk Mountain and at Shartlesville; many very small, apparently starving larvae in heavily defoliated areas. (Kadow, June 27).

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - First adults of season taken July 6 on wild grape within quarantine zone in Calhoun County. Emergence about 7 days later than in 1971. (Hanna). OHIO - Several hundred specimens dug out of turf in Wayne County; more than half were adults; other stages also present. Spot emergence occurred, peak emergence not yet started. (Fox). TENNESSEE - Adults emerged in several eastern counties. (Hammett). ALABAMA - Single adult taken in trap June 27 in old infested area in Russell County in area along U.S. I-85 between State Highways 37 and 169. (Barwood). NORTH CAROLINA - Adults feeding heavily on weeds throughout State. One soybean field of 5 surveyed in southern Coastal Plain with 1 beetle per row foot. On corn seeds in this area and in Piedmont, little damage noted. (Johnson).

VIRGINIA - (P. japonica) infested strawberries in Montgomery, Appomattox, Pulaski, Prince Edward, and Fairfax Counties during late June. Infestation and damage low, but may increase rapidly. (Allen). WEST VIRGINIA - First adults emerged in Kanawha County June 16 (Cole); in Summers County June 20 (Moore). Adults caused moderate damage to shade trees, roses, grapes, and vegetables in Kanawha, Putnam, and Mason Counties by June 29. (Hacker). MARYLAND - Adults emerged statewide; populations heaviest in Prince Georges and Montgomery Counties. Adult emergence expected to continue over next 7-10 days. Populations light but noticeable by homeowners. Controls applied to ornamental plantings in central county areas. (U. Md., Ent. Dept.). PENNSYLVANIA - First adults of season in Franklin County seen on roses near Carlisle June 27. Adults collected on black locust in Harrisburg, Dauphin County, June 29, and on goldenrod in Montgomery County June 27. (Maxwell et al.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Larvae in many fields with blooms southeast of Safford, Graham County. One field with 60 percent of blooms rosetted. Boll infestations ranged 10-20 percent in some Yuma Valley fields, Yuma County. Few growers anxious to start spray program although only 2-4 percent infestations found in most of their fields. (Ariz. Coop. Sur., June 30).

WHITEFRINGED BEETLES (Graphognathus spp.) - NORTH CAROLINA - First adults of season found feeding on astor June 26 at airport in Rowan County. (Bowers).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey continued in San Diego, San Diego County. Some previously infested properties negative. Parasite activity increased; 2,321 parasites collected for release on 35 new properties: 2,245 Cales sp., 26 Amitus sp., and 50 Eretmocerus sp. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Corn - CORN EARWORM (*Heliothis zea*) heavy in 1.5 acres of sweet corn at Pupukeya, Oahu; 62 percent of mature ears with one or more larvae; confined to silks and tips. Negligible in 2 acres at Waialua; less than one percent infested ears. (Kawamura).

Turf and Pasture - GRASS WEBWORM (*Herpetogramma licarsisalis*) larvae heavy, up to 15 per square foot, in 15-acre Kikuyu grass pasture at Hana, Maui; damage heavy. Larvae less than 2 per square foot in other pastures in same area, with light spotty damage. Adults heavy in pastures at Kipahulu; larvae nil. (Ah Sam).

General Vegetables - BEET ARMYWORM (*Spodoptera exigua*) light in 1.5 acres of broccoli at Waialua, Oahu; 10-15 percent of leaves affected on 30 percent of plants. Up to 9 (average 3) larvae per infested leaf. All stages of GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) moderate to heavy in 1.5 acres of bittermelon at Pupukeya, Oahu. Eggs and nymphs light on young terminal leaves in adjacent 0.5 acre of seequa (*Luffa acutangula*). Larval mines of LEAFMINER FLIES (*Liriomyza* spp.) moderate on older leaves; adults trace. All stages of *T. vaporariorum* trace in one acre of bush beans at Waialua. Leafminers generally light; moderate on older leaves. (Kawamura).

Fruits and Nuts - BLACK CITRUS APHID (*Toxoptera aurantii*) nymphs and adults moderate on young terminals of 4 Citrus plants at Waipahu, Oahu; *Coelophora inaequalis* (a lady beetle) moderate, preying on aphids. *T. aurantii* population normally fluctuates with vegetative flushes of Citrus throughout year; however, several lady beetles and a parasite appear to keep pest under control. (Otsuka).

General Pests - CHINESE ROSE BEETLE (*Adoretus sinicus*) damage heavy to foliage of 30 roadside *Erythrina* trees at Hana, Maui; up to 50 percent of leaf area on many trees affected. Damage light in 0.5 acre of peanuts at Keeau, Hawaii; 5-10 percent of leaves with light damage. (Ah Sam, Matayoshi).

Forest and Shade Trees - KOA BUG (*Coleotichus blackburniae*) nymphs and adults light on 12 *Acacia confusa* trees at Mililani Memorial Park, Oahu. Sightings of this elusive endemic pest on this host quite common during past few months. (Kawamura).

DETECTION

New County Records - BROWN RECLUSE SPIDER (*Loxosceles reclusa*)
MISSOURI - Andrew, Montgomery (p. 442). GREENBUG (*Schizaphis graminum*) ARKANSAS - Craighead (p. 437). PINE CHAFER (*Anomala obliqua*) TENNESSEE - Hardin (p. 441).

Collections of Pink Bollworm Moths in a Light Trap, 1953 to 1971,

Waco, Texas

C.B. Cowan, Jr. 1/, C.R. Parencia, Jr. 2/, and R. N. McBride 1/

A light trap has been operated by personnel of the Blackland Cotton Insects Investigations Laboratory, Waco, Texas, at the same location from 1953 to 1971. The trap was equipped with a mercury vapor lamp from 1953 through 1957 and with a blacklight lamp, thereafter.

Moth collections of five species of Lepidoptera, during the years noted have provided much useful information. However, this brief report is concerned only with the pink bollworm.

Figure 1 shows that more pink bollworm moths were collected in 1971 than in any previous year. The total, 61,897, was almost as many as were collected (65,572) in the previous 18 years. The large number of moths collected in 1971 reflected the heavy infestation in the cotton crop resulting from late harvest and stalk destruction in 1970 due to adverse weather conditions followed by an extremely dry, mild winter.

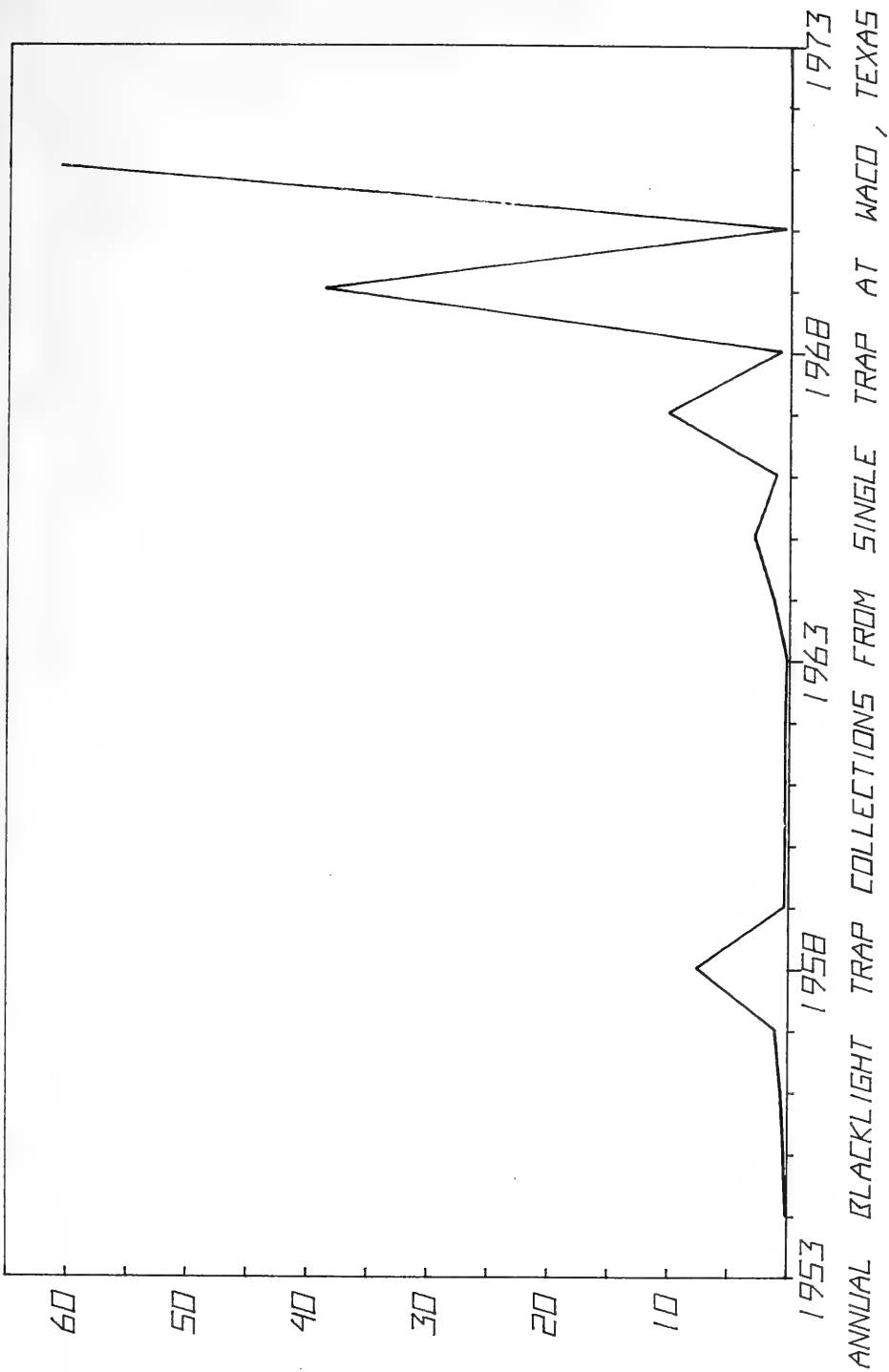
Figure 2 shows that the largest numbers of moths in 17 of the 19 years were collected in September, indicating that moth movement increases greatly as the cotton crop matures and immature fruit becomes scarce. Peak collections occurred during August in 1954 and in 1963, both drouth years when the crop matured early. Collections of moths were low each year from April through mid-July indicating little movement of moths from overwintering larvae and of moths during the main fruiting period.

Parencia et al. (J. Econ. Ent. 55(5):692-695, 1962) stated: "Light trap data gave some indication of pink bollworm survival in early spring when moths migrated in search of fruiting fields. Lack of much moth movement between fields during the main fruiting period would make moth collection data valueless in predicting the degree of infestation buildup during that important period when control measures may be needed. Collections late in the season served in part to index the abundance of the pest." The observations continue to be pertinent for the data accumulated in subsequent years.

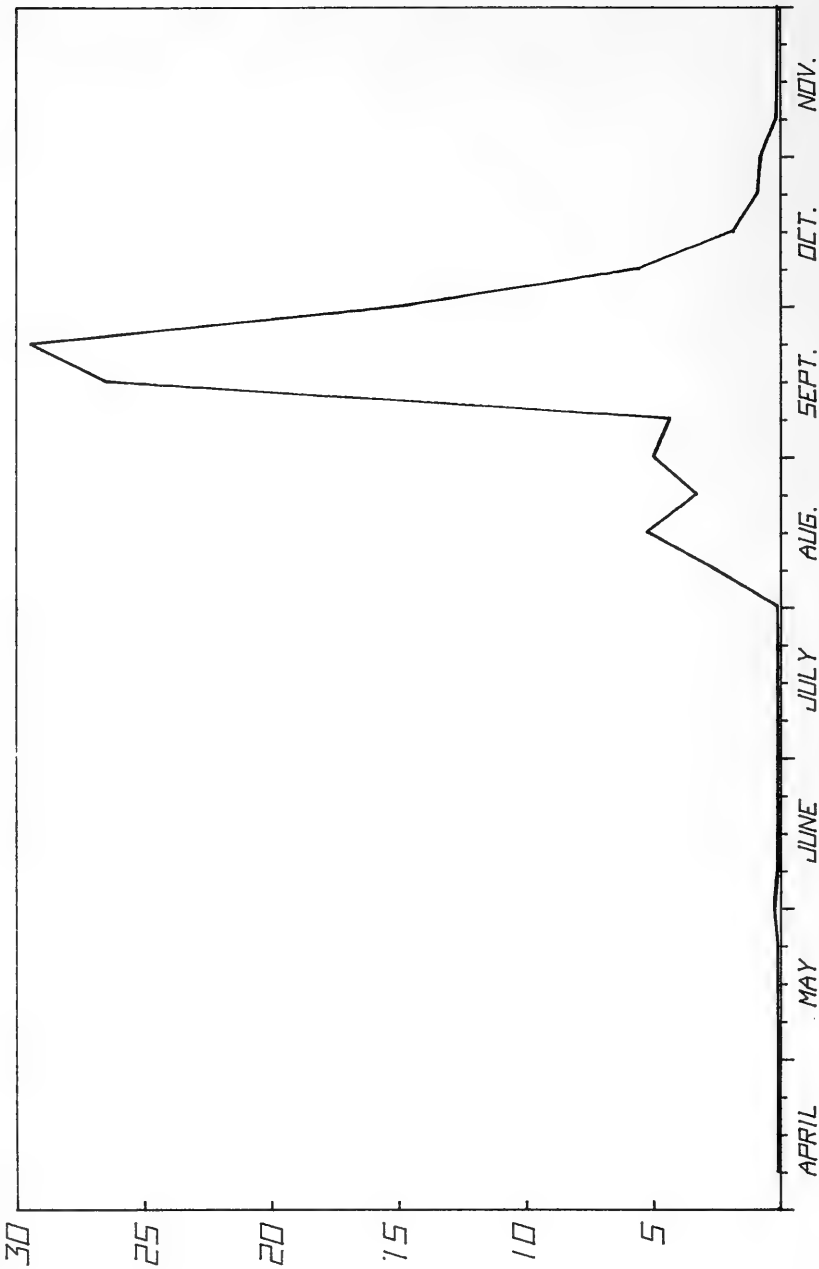
1/ Entomology Research Division, Agr. Res. Serv., USDA, Waco, Texas 76710.

2/ Entomology Research Division, Agr. Res. Serv., USDA, Beltsville Maryland 20705.

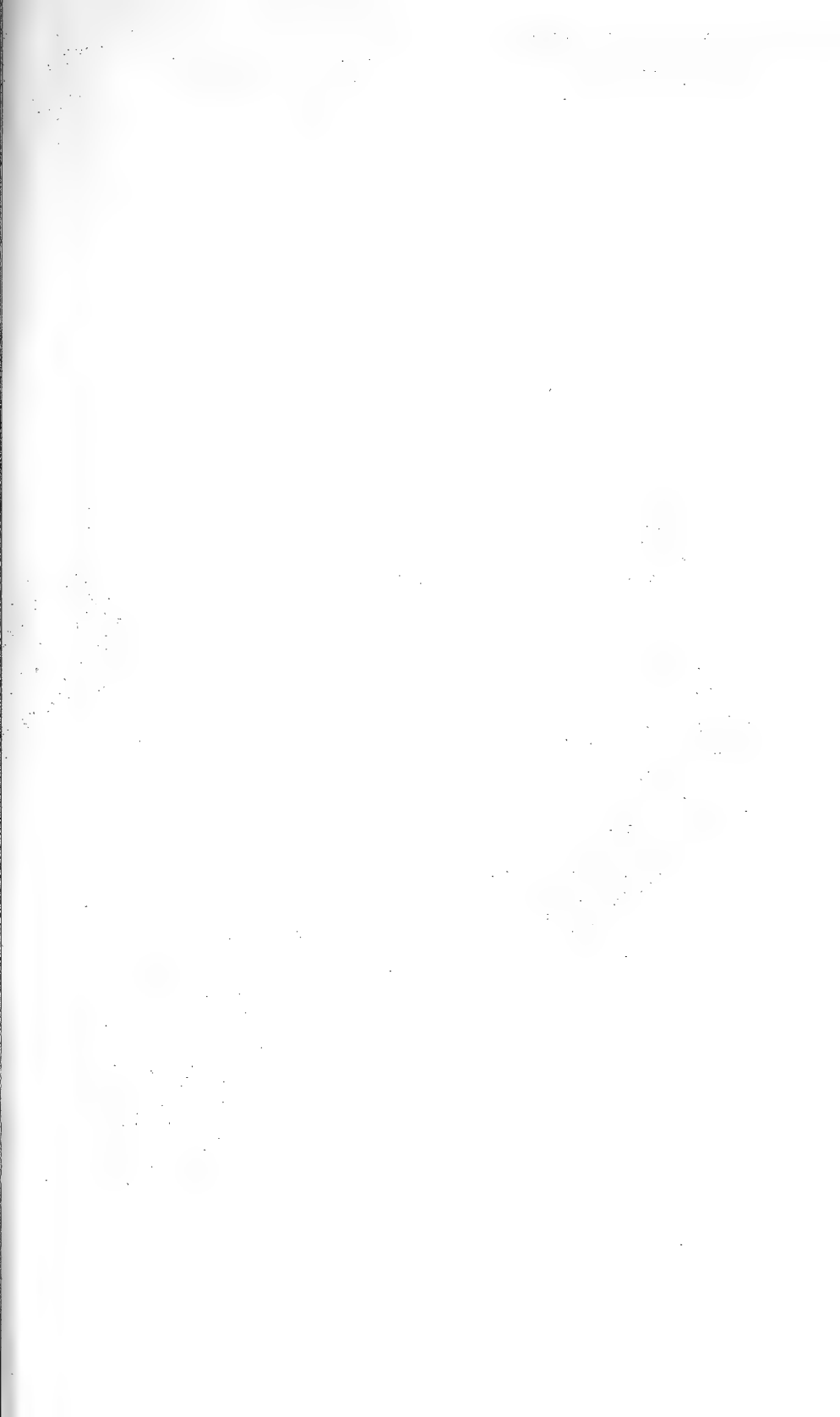
THOUSANDS



PERCENT
COLLECTED



FREQUENCY OF PINK BOLLWORM WEEKLY COLLECTIONS FROM A SINGLE
BLACKLIGHT TRAP, 19-YEAR SUMMARY (1954-1971) AT WACO, TEXAS



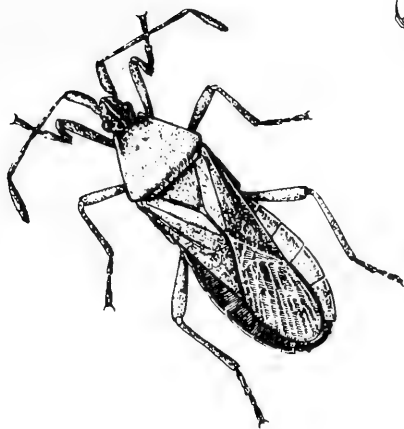
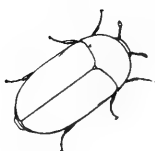
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



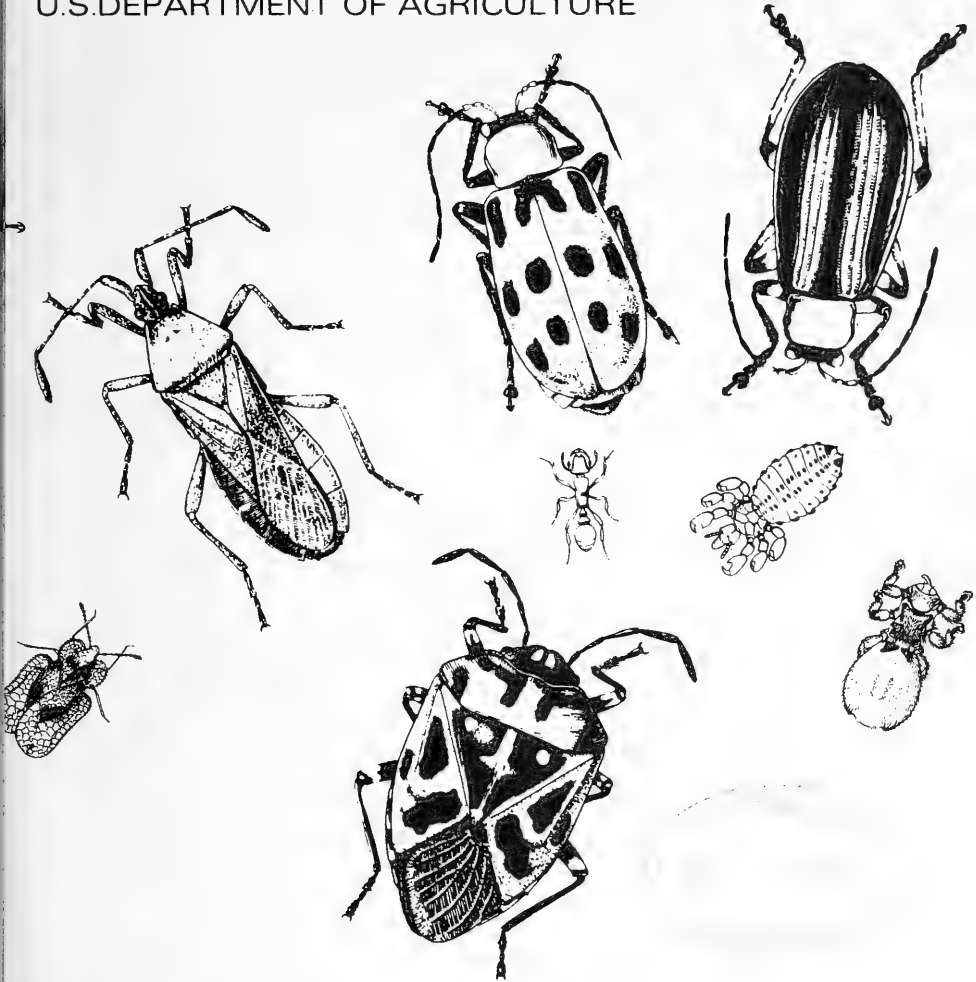
0004 SMINLISMIA122 33017 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by

PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

The Editors, CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG increased on sorghum in areas of Texas, Kansas, and Nebraska. POTATO LEAFHOPPER damaged alfalfa in Maryland and Missouri, increased in central and northeastern Ohio. Damage and populations expected to increase rapidly in Maryland with onset of hot weather. (pp. 453-454).

CORN ROOTWORMS economic on corn statewide in Iowa. (p. 455).

ALFALFA WEEVIL preventing regrowth of alfalfa in Montana; percent parasitism by an ichneumon wasp high in Wisconsin. PEA APHID heavy on alfalfa in areas of Utah, North Dakota, Minnesota, and Wisconsin. (p. 456).

SUNFLOWER BLOSSOM MIDGE, a newly described species, potential problem on sunflower in west-central Minnesota. (p. 459).

EUROPEAN RED MITE outbreaks potentially damaging in southern Ohio apple orchards. (p. 461).

A NOTODONTID MOTH heavy in west-central Lower Michigan. Complete defoliation expected over much of area infested in 1971. (p. 462).

SCREWORM decreased in Southwest; total of 3,589 cases reported this period is 1,424 fewer cases than last period. (p. 463).

GRASSHOPPERS pose severe threat on forage in southwest Wisconsin. (p. 457). Heavy on rangeland and cropland in Texas, Oklahoma, New Mexico, and Nevada. Controls completed or underway in other areas. (p. 465).

First GYPSY MOTH larval infestation reported in Delaware. (p. 465).

SOYBEAN CYST NEMATODE reported for first time in Alabama. (p. 466).

Detection

New State records include ARMY CUTWORM in Michigan (p. 453), a JUNIPER SAWFLY in Delaware (p. 463), a SCYTOTID SPIDER in Kansas (p. 464), and SOYBEAN CYST NEMATODE in Alabama. (p. 466).

For new county records see page 460.

Reports in this issue are for week ending July 14 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	453
Insects Affecting	
Corn, Sorghum, Sugarcane....	454
Small Grains.....	455
Turf, Pastures, Rangeland....	456
Forage Legumes.....	456
Soybeans.....	457
Peanuts.....	457
Cotton.....	458
Tobacco.....	459
Miscellaneous Field Crops.....	459
Potatoes, Tomatoes, Peppers.....	459
Deciduous Fruits and Nuts.....	461
Citrus.....	461
Small Fruits.....	462
Forest and Shade Trees.....	462
Man and Animals.....	463
Detection.....	460
Corrections.....	460
Beneficial Insects.....	464
Federal and State Plant Protection Programs.....	464
Hawaii Insect Report.....	467
Light Trap Collections.....	468
Weather of the Week.....	470

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-JULY TO MID-AUGUST 1972

The National Weather Service's 30-day outlook for mid-July to mid-August is for temperatures to average above seasonal normals west of the Continental Divide. Below normal temperatures are indicated elsewhere except for near normal in the Northeast as well as along the middle Atlantic and gulf coasts. Rainfall is expected to exceed normal over the eastern quarter of the Nation as well as the middle Mississippi Valley and eastern portions of the central and southern Plains. Subnormal totals are indicated for the northern Plains, California, and most of the Pacific Northwest as well as the Rio Grande Valley and the west gulf coast. Elsewhere near normal rainfall is in prospect.

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

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - MICHIGAN - Larvae, 1-3 per square yard, taken on bentgrass green of golf course at Kalamazoo, Kalamazoo County, May 25 by B.L. Lee. Determined by D.M. Weisman. This is a new State record. Larvae damaged onions in Ottawa County July 6. Collected by R. VanKlombenberg. Determined by J.H. Newman. This is a new county record. (Sauer).

ASTER LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Increased in some southeast and east-central counties. Ranged 100-700 (averaged 350) adults and nymphs per 100 sweeps in wheat, barley, oats, and flax in Traill, Cass, Richland, and Ransom Counties. (Brandvik).

CORN EARWORM (Heliothis zea) - MARYLAND - Below normal in corn but rapid increase expected next 14 days. Ranged 2-4 per 100 ears in process and field corn in Wicomico, Dorchester, and Somerset Counties. (U. Md., Ent. Dept.). ARIZONA - Controls applied on field and sweet corn in Yuma County. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Decreased throughout South Plains area near Lubbock. Ranged 0-2,000 per plant in fields inspected in 26 Panhandle counties. (Daniels, July 7). OKLAHOMA - Still on grain sorghum in Tillman County, predation by lady beetles reduced counts. (Okla. Coop. Sur.). KANSAS - Mostly light to moderate but occasionally heavy on sorghum in northeast, north-central, and central areas. (Bell). NORTH DAKOTA - Averaged 200 per 100 sweeps in several fields in Cass County. (Brandvik). MISSOURI - Light to moderate on sorghum throughout west-central and southwest areas. Colonies on 6-41 percent of plants in boot stage. (Munson).

ILLINOIS - R. maidis percent infestation on field corn ranged up to 90 in central district, up to 60 in west-southwest district, up to 90 in southwest district. Very light with many whorls infested with only single winged adult. Weather very favorable for buildup. (Ill. Ins. Rpt.). INDIANA - Infestations infrequent in northern third of State; no colonies observed in corn sampled. (Meyer). Alates common in experimental corn in Tippecanoe County; colony formation begun. (Shade). Colonies observed in sorghum in Randolph County. (Matthew).

GREENBUG (Schizaphis graminum) - TEXAS - Continued to increase on grain sorghum north of Dallas and Fort Worth. Very few fields in adjacent counties treated. Light to moderate in Wichita, Knox, Wilbarger, and Taylor Counties. Light and spotted on South Plains near Lubbock. Colonies hard to find in most fields. Where colonies found, greenbugs averaged less than 50 per plant. Highest counts in Lubbock area on older grain sorghum; 200-750 per plant in 3 fields. Decreased in other areas. In Blacklands counties near Stephenville, parasites and predators increasing steadily. None detected in Hill County. Increased in northern Panhandle; moderate in Collingsworth County. (Turney et al., July 7). OKLAHOMA - Scattered and moderate in sorghum in Ottawa and Craig Counties. (Okla. Coop. Sur.).

KANSAS - S. graminum increased rapidly on sorghum in eastern areas of north-central and central districts. Treatment needed in some fields, probably soon in others. Parasitic wasps and lady beetles generally light in area. Some heavy infestations still found in northeastern district, particularly in Leavenworth,

Jackson, Atchison, Brown, and Neosho Counties. Counts up to 4,000 per plant found on boot-stage sorghum in Brown County. Light in sorghum in southeast district as far north as Chanute, Neosho County; serious infestations frequently reported in counties further north and some southern counties in east-central district east of Emporia. Light on sorghum in western parts of north-central, central, south-central, and all western districts. Parasitic wasps generally light in greenbug-infested fields in most areas except in southeast district; control not as effective as in 1971. Lady beetles also generally light and ineffective. (Bell). NEBRASKA - Schizaphis graminum increased on grain sorghum in southeast and central districts. Heavy in some early planted fields, with 1-2 lower leaves killed. Controls reported. Ranged 10-1,200 per lower leaf in 20 grain sorghum fields in Saunders and Lancaster Counties. Occasional lady beetle adults, larvae, and egg masses seen. Predators generally light in most fields. Parasitism by Lysiphlebus testaceipes (a braconid) about 1 percent or less, but increasing. (Keith).

ARKANSAS - S. graminum taken in Fulton, Lawrence, Mississippi, and Independence Counties for new county records. Widespread and heavy in Clay County; less extensive in Greene County. As many as 5 leaves per plant red; up to 500+ aphids per leaf noted. Controls applied. Light in other counties, biological control underway. Predators, especially lady beetles, very numerous in all areas; however, doubtful predators and parasites can control rapid increases in Clay and Greene Counties. (Boyer). MISSOURI - Light in most sorghum checked in southwest and west-central areas; aphids on 2-18 percent of plants. Most colonies small, no damage observed except in very dry areas. (Munson). INDIANA - Alates and colonies occasional in sorghum in Randolph County field. Collected by D.L. Matthew July 10. This is a new county record. (Matthew).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Adults and nymphs caused light yellowing of alfalfa foliage in Frederick and Carroll Counties. Ranged 5-20 per sweep in heaviest infested alfalfa. Light in snap beans in Baltimore, Carroll, and Prince Georges Counties. Expect damage and population to increase rapidly with onset of hot weather. (U. Md., Ent. Dept.). OHIO - Nymphs and adults increased in alfalfa in central and northeastern counties, but not yet of economic significance. (Fox). MISSOURI - Heavy populations, 8-50 per sweep, caused some damage to alfalfa in dry areas. (Munson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - INDIANA - Ranged up to 100 per sweep in alfalfa field in St. Joseph County. This is a new county record. Previous catches made in contiguous Elkhart County, and in Kosciusko and Fulton Counties; previously reported from many counties in southern portion of State. (Meyer). WISCONSIN - Ranged up to 12 per sweep in alfalfa near Wisconsin River and up to 35 per sweep in one Marquette County field. Present in most alfalfa in northeastern counties; counts not heavy. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - WISCONSIN - Few moths still taken in blacklight traps in most areas, still heavy in some eastern counties. Larval feeding more evident in all areas. Larvae generally light in all areas, but counts high in some fields. Up to 30 percent of sweet corn infested in some Rock and

Walworth County fields. Some treatment underway in Green Lake and Fond du Lac Counties. (Wis. Ins. Sur.). INDIANA - Egg mass counts very low in northern districts, larvae ranged to second and occasional third instar. Ostrinia nubilalis oviposition appears spread over long period; some fields may accumulate large numbers of egg masses. Infestations above 50 percent observed in east-central counties. (Matthew, Meyer). TENNESSEE - Second-generation moths flying in Marshall County corn. (Pless). MARYLAND - Development and emergence delayed 7-10 days due to cool, wet weather in June. Infestations on Eastern Shore light to moderate; infested stalks ranged 10-40 percent. Heavier in Baltimore, Howard, Montgomery, and Harford Counties; damaged stalks ranged 10-90 percent. Most borers on Eastern Shore pupated. Adult emergence expected week ending July 21. (U. Md., Ent. Dept.). MAINE - Small numbers of eggs and larvae found in southern and western parts of State. (Gall).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARIZONA - Some early sorghum plantings at Yuma, Yuma County, reduced up to 50 percent. (Ariz. Coop. Sur.).

CORN ROOTWORMS (Diabrotica spp.) - KANSAS - D. virgifera (western corn rootworm) emerged in corn in Atchison County July 6. Emergence also reported in Brown, Greenwood, Lyon, Sheridan, Thomas, and Grant Counties. Some severe rootworm damage reported in untreated corn in Grant County and in some corn in Sheridan and Thomas Counties. D. longicornis (northern corn rootworm) adults reported in trace numbers in Greenwood County corn. (Bell).

MISSOURI - D. virgifera adults ranged 0.5-5.5 per corn plant in 2 infested areas in southwest district. Very few fields in area with infestations. (Munson). IOWA - Larvae D. virgifera and D. longicornis ranged 11-45 (average 23) per plant in untreated corn field in Webster County. Larvae in second or third instar, 80 percent in second stage. Larvae in Clayton County ranged 6-30 (average 20) per plant; 80 percent third stage with 10 percent prepupae. Economic statewide. (Iowa Ins. Sur.). INDIANA - Adults common in areas where first specimens seen last period in Porter and La Porte Counties. No economic infestations observed. (Matthew, Turpin). NEW JERSEY - Few D. longicornis seen on corn at localities in Warren and Hunterdon Counties. (Ins.-Dis. Newsltr.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Very heavy in some sections of central area. Ranged 15-80 per sorghum head in McLennan County. Present throughout most of North Central area, but in most cases not heavy enough to justify treatment. (Hoelscher, Turney, July 7).

SMALL GRAINS

HESSIAN FLY (Mayetiola destructor) - SOUTH DAKOTA - Heavily damaged winter wheat in Elm Springs area, Meade County. Some fields in area with up to 25 percent damage. (Kantack).

ENGLISH GRAIN APHID (Macrosiphum avenae) - NORTH DAKOTA - Prevalent in most barley, wheat, and oats in Traill, Cass, Richland, and Ransom Counties. Counts variable, ranged 50-400 (averaged 155) per 100 sweeps. Colonies present on leaves and heads. Much wheat in these counties not headed out. (Brandvik).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - Larvae heavy in pastures in Tift County. (McCormick).

CHINCH BUG (Blissus leucopterus leucopterus) - ILLINOIS - Ranged 80-120 per square foot in zoysia grass lawns in St. Clair County. (Ill. Ins. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MONTANA - Heavy on estimated 36,000 acres of alfalfa in Custer, Richland, Dawson, Wibaux, Fallon, and Carter Counties. Most first-crop alfalfa cut early enough not to be damaged. Weevil activity preventing regrowth of second crop. (Pratt). MINNESOTA - Collected on alfalfa in Ramsey County June 21 by H.C. Chiang. Determined by E.F. Cook. This is a new county record. (Minn. Pest Rpt.). WISCONSIN - Larvae averaged 3 per sweep in Grant County field, ranged 1-4 per 10 sweeps in much alfalfa in northeastern area. Percent larval parasitism by Bathyplectes curculionis (an ichneumon wasp) by county: Dunn 33, St. Croix 50, Chippewa 80, Polk 50, Pierce 75, Eau Claire 80, Iowa 80. (Wis. Ins. Sur.). KENTUCKY - Larvae averaged 40 per 100 sweeps in prebloom alfalfa in Todd County. Mostly third and fourth instars averaged 2 per square foot in Fayette County alfalfa; eggs averaged 13.8 per square foot. (Barnett). OHIO - Larvae per 50 sweeps on second-growth alfalfa by county: Morrow 32, Columbiana 15, Holmes 21, Portage 132; Crawford 1 per sweep. Adults per 50 sweeps by county: Crawford 17, Mahoning 21, Portage 5. Less than 5 larvae per 50 sweeps found in mixed clover and timothy fields in Morrow and Geauga Counties. (Fox).

PEA APHID (Acyrtosiphon pisum) - UTAH - Averaged 700 per 10 sweeps in Delta, Sutherland, and Abraham area alfalfa in Millard County. (Parrish). Heavy in some Washington County fields. (Huber). NORTH DAKOTA - Heavy on second-crop alfalfa in Traill, Cass, Richland, and Ransom Counties; too heavy to count in some fields. Estimates ranged 5-1,000 (averaged 400) per sweep. Second-cutting yields will be reduced in areas where moisture short. (Brandvik). MINNESOTA - Heavy on alfalfa in southwest, south-central, and west-central districts. Ranged 3,000-6,000 per 100 sweeps; up to estimated 25,000 per 100 sweeps in few cases. Second cutting of alfalfa begun in some fields. (Minn. Pest Rpt.). WISCONSIN - Counts varied in northeastern area alfalfa due to density of stands; ranged 30-300 per sweep in heavier growth. Counts much lower in southwestern area; ranged 12-25 per sweep. Increased in Rock County; ranged 40-60 per sweep. Averaged 7 per 10 sweeps in Bayfield County. (Wis. Ins. Sur.). KENTUCKY - Averaged 150 per 100 sweeps in Todd County alfalfa field. (Barnett).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Infestations declined noticeably on alfalfa regrowth. (MacCollom). MASSACHUSETTS - Damage not obvious on 3-week-old untreated alfalfa in Hampshire and Berkshire Counties; however, adults very numerous, nearly every leaflet bears 10-30 feeding and oviposition punctures. (Jensen). NEW JERSEY - Mines easily found in second-cutting alfalfa throughout Burlington County. Significant leaf deterioration occurred in some fields. Hot weather and early cutting important in limiting damage. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Mines found in 0.24-37.8 percent of leaflets sampled in 4 alfalfa fields in Bucks and Northampton Counties, July 3-6. (McDonald, Valley).

GRASSHOPPERS - WISCONSIN - Severe threat on forage in some areas, especially in southwestern counties. Decreased in areas where above normal in previous years. Many eggs still hatching, nymphs not evident on plants. Difficult to properly evaluate situation on statewide basis due to erratic nature of infestations. Heavy in southern Lafayette County, averaged 40+ per sweep in fields checked. Averaged 15 per sweep in Dane and Green Counties, with 1-8 per sweep common. Averaged 25 per sweep in alfalfa field in northern Rock County, but well over 40 per sweep along roadside area and moving into soybeans; ranged 6-10 per sweep in other parts of county. Light, 2-3 per 10 sweeps to highs of 5 per sweep, in Dodge, Fond du Lac, Sheboygan, Manitowac, Oconto, Brown, Outagamie, eastern Waupaca, Waushara, Green Lake, and Marinette counties. Moderate, 15 per square yard, along roadsides and 4 per sweep in alfalfa, where heavy populations prevailed in 1971. Melanoplus femurrubrum and M. sanguinipes dominant. (Wis. Ins. Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Above normal, with good growing conditions; soybeans ahead of developing larvae. Larvae light in most fields in Kent, Talbot, Dorchester, Wicomico, and Somerset Counties; heaviest counts ranged 7-20 larvae per 3 row feet. Adults active, egg laying decreased. Foliage damage ranged 5-20 percent in most Eastern Shore fields to date. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Averaged 1 per 2 row feet on soybeans in Lowndes County. (Robinson).

THREESTRIPED BLISTER BEETLE (Epicauta lemniscata) - OKLAHOMA - This species and E. occidentalis heavy, damaged soybeans in Love county. Some fields treated. (Okla. Coop. Sur.).

JAPANESE WEEVIL (Calomycterus setarius) - IOWA - Adults completely stripped outside rows of soybeans near field of bromegrass in Scott County. Infestation severe, second treatment necessary for control. (Iowa Ins. Sur., July 7).

PEANUTS

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Light larval infestations in 20 peanut fields in Butler and Barbour Counties.. corresponds with infestations in several other counties during last 7 to 15 days; expected all fields in 200,000+ acreage in 9 southeast counties affected. Some controls applied; doubtful if infestations high enough to require areawide efforts. (Bond et al.). FLORIDA - Heavy, averaged 10 larvae per row foot in 50-acre peanut field at Newberry, Alachua County. Controls applied. (Strayer).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Moderate in 50-acre field, damaged tap roots and pegs; controls applied at Newberry, Alachua County. (Strayer).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - TENNESSEE - Punctured squares ranged 1-35 percent. Peak emergence of first-generation weevils expected week of July 17. (Locke, Patrick). **SOUTH CAROLINA** - Emergence of overwintered weevils about complete. Few new generation weevils found in test plots. Adults per acre ranged 7-18 in treated plots, 0-189 in untreated plots. Larval infestations ranged 1-2 percent in treated plots. (Locke et al.). **GEORGIA** - Percent punctured squares ranged 0-26 in Wilcox County and 0-16 in Crisp County. (Hudson, Nix). **ALABAMA** - First-generation "hatchout" continued; relatively high throughout south and central area. Most growers began or continued controls. Some fields in northern area reached damaging square infestations of 10-40 percent, most larger fields in thin wooded areas remain below 10 percent. (McQueen). **MISSISSIPPI** - Percent infestation by county: Sharkey, 2 on 200 acres; Noxubee, 18 on 20 acres and 8 on 260 acres; Chickasaw, 12 on 120 acres; Pontotoc, 5 on 100 acres; Madison, "hotspots" noted on 300 acres; Sunflower, 10 and 7 in 2 fields totaling 1,500 acres with treatment scheduled on 30 acres. (Robinson).

LOUISIANA - Collected 71 *A. grandis* adults in traps this period; 47 in 12 traps in Madison Parish and 24 in 10 traps in Tensas Parish, all adjacent to ground trash collection sites. This makes totals of 2,734 weevils taken in traps in Madison Parish and 795 weevils taken in traps in Tensas Parish since March 17. In Madison Parish, punctured squares ranged 1-12 (average 4) percent in 14 fields; ranged 1-31 (average 10.3) percent in 22 plots. (Cleveland et al.). **TEXAS** - Punctured square counts remain light in McLennan and Falls Counties; however, very heavy weevil "hatchout" occurred this period and several growers began treatments. Percent punctured squares averaged 4.2 (maximum 7) in 6 treated fields; averaged 2.9 (maximum 23) in 24 untreated fields. (Cowan et al.).

OKLAHOMA - *A. grandis* percent punctured squares by county: Jefferson 40-45, Jackson 5-9, and Tillman, Harmon, and Greer 3-5. Counts increased in Caddo and Washita Counties but averaged less than 10 percent. Averaged 24 percent in 11 fields checked in Bryan County. (Okla. Coop. Sur.).

BOLLWORMS (*Heliothis* spp.) - TENNESSEE - *H. zea* infestations continued well below control levels. (Locke, Patrick). **SOUTH CAROLINA** - *Heliothis* spp. larvae light in most fields; infestations ranged 1-2 percent. (Locke et al.). **GEORGIA** - Counts per 100 terminals ranged 2-14 eggs and 2-11 larvae in Wilcox County and 2-15 eggs and 1-14 larvae in Crisp County. (Hudson, Nix). **MISSISSIPPI** - Infestations light on 4,000 acres in Madison County, light on 120 acres in Chickasaw County, and averaged 2 percent on 200 acres in Sharkey County. (Robinson). **LOUISIANA** - Damaged squares ranged 1-5 (average 2.3) percent in 10 of 14 fields examined in Madison Parish; ranged 1-3 (average 1.3) percent in 9 of 22 plots checked. Damaged squares found in 3 of 4 fields examined in Tensas Parish; averaged 1 percent in 1 field, 2 percent in each of other 2 fields. (Cleveland et al.). **TEXAS** - Counts per 100 terminals in Falls and McLennan Counties averaged 7.1 (maximum 8.4) eggs and 1.5 (maximum 1.5) larvae in 6 treated fields; 5.8 (maximum 22) eggs and 3.9 (maximum 12.8) larvae in 24 untreated fields. Percent damaged squares averaged 2.2 (maximum 4.2) in 6 treated fields and 5.3 (maximum 18) in 24 untreated

fields. Injured bolls averaged 1.5 (maximum 3.2) percent in 6 treated fields and 1.2 (maximum 5.2) percent in 22 untreated fields. Of 40 larvae collected on cotton, 4 determined H. virescens. Large increase of H. virescens moths noted in black-light trap. (Cowan et al.).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - OKLAHOMA - Ranged light to heavy in cotton in Harmon and Jackson Counties, heavy in Jefferson County, and light in Greer County. Ranged up to 50 per 100 terminals in Washita, Caddo, and Beckham Counties and 6-7 per 100 terminals in Tillman County. Moderate in Bryan, Marshall, Garvin, and Okmulgee Counties. (Okla. Coop. Sur.).

CLOUDED PLANT BUG (Neurocolpus nubilis) - ALABAMA - Adults and nymph taken in cotton field at Mount Meigs, Montgomery County. This is a new county record. (Jenkins et al.).

TOBACCO

TOBACCO HORNWORM (Manduca sexta) - MARYLAND - Remained below economic levels in most fields. About 30 acres treated in Calvert and St. Marys Counties to date. Most counts ranged below 2 larvae per 50 plants. (U. Md., Ent. Dept.). KENTUCKY - Larvae averaged 4 per 100 tobacco plants in Christian County and 8 per 100 burley tobacco plants in Marshall County. (Barnett, Raney).

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - Economic in 5 percent of 138 tobacco fields surveyed July 10 and 11 in Surry County area. Increased about 1 percent since June 30. (Hunt).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Light on type 32 tobacco; ranged 2-10 per plant in St. Marys, Charles, and Prince Georges Counties. No controls needed. (U. Md., Ent. Dept.).

MISCELLANEOUS FIELD CROPS

SUNFLOWER BLOSSOM MIDGE (Contarinia schulzi) - MINNESOTA - Potential problem on sunflower in Norman County. No adults seen, first larvae seen July 11 in volunteer sunflowers. Larvae heavy July 13 in cultivated sunflower field in northwestern part of county; ranged 60-100 per unopen blossom head in marginal rows. Misshapen, or cone-shaped heads, caused by this newly described gall forming midge, not seen but will appear soon. (Minn. Pest Rpt.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - Becoming more common on potatoes throughout State. Scattered unsprayed fields show moderate to severe defoliation. Adults, eggs, and larvae present. Apparently due to lack of control, not to resistance. (Gall).

POTATO APHID (Macrosiphum euphorbiae) - MARYLAND - This and Myzus persicae (green peach aphid) increased in most fields in Worcester and Somerset Counties. Populations light but expected to increase rapidly before harvest. Preplant systemic insecticides much weakened due to excessive rains during late June and early July. (U. Md., Ent. Dept.).

Potato Aphids in Maine - In untreated potato plots, 3 Myzus persicae (green peach aphid) at Houlton, Aroostook County, 2 at Lincoln, Penobscot County. Found one Acyrtosiphon solani (foxglove aphid) at Caribou, Aroostook County. Counted 182 Macrosiphum euphorbiae (potato aphid) at Lincoln, 37 at Houlton, 39 at Caribou; found 3 spring migrants at Caribou, one at Fort Fairfield, Aroostook County. Aphis nasturtii (buckthorn aphid) numerous at Lincoln; none found at Fort Fairfield. Erratic aphid populations primarily due to different planting dates and heights of plants. (Gall).

A SCIARID FLY (Phyxia scabiei) - WASHINGTON - Larvae mining tubers (infested 25+ percent) for third consecutive year in large field near Eureka, Walla Walla County. Larvae associated with common scab which is more prevalent in 120-acre circular irrigation fields. (Landis).

DETECTION

New State Records - ARMY CUTWORM (Euxoa auxiliaris) - MICHIGAN - Kalamazoo County. (p. 453). A JUNIPER SAWFLY (Monoctenus melliceps) DELAWARE - Sussex County. (p. 463). A SCYTOTID SPIDER (Loxosceles refescens) - KANSAS - Riley County. (p. 464). SOYBEAN CYST NEMATODE (Heterodera glycines) - ALABAMA - Escambia County. (p. 466).

New County Records - ALFALFA WEEVIL (Hypera postica) MINNESOTA - Ramsey (p. 456). ARMY CUTWORM (Euxoa auxiliaris) MICHIGAN - Ottawa (p. 453). CEREAL LEAF BEETLE (Oulema melanopus) VIRGINIA - Spotsylvania (p. 464). CLOUDED PLANT BUG (Neurocolpus nubilis) ALABAMA - Montgomery (p. 459). A EULOPHID WASP (Tetrastichus julis) MICHIGAN - Clinton (p. 464). GREENBUG (Schizaphis graminum) ARKANSAS - Fulton, Lawrence, Mississippi, Independence. INDIANA - Randolph (p. 454). JAPANESE BEETLE (Popillia japonica) GEORGIA - Columbia. SOUTH CAROLINA - Fairfield (p. 466). SPOTTED ALFALFA APHID (Therioaphis maculata) INDIANA - Joseph (p. 454).

CORRECTIONS

CEIR 22(27):429 - GRASSHOPPERS - Line 6: Oedaleonotus enigma should read Oedaleonotus enigma.

CEIR 22(27):430 - Second paragraph under KANSAS - Agenotettix deorum should read Agenotettix deorum.

CEIR 22(27):431 - DETECTION - New County and Island Records - Line 5: (Schizaphus graminum) should read (Schizaphis graminum).

CEIR 22(28):444 - JAPANESE BEETLE (Popillia japonica) - ALABAMA - Russell County should read Lee County. (McQueen).

EDICIOUS FRUITS AND NUTS

EUROPEAN RED MITE (Panonychus ulmi) - MAINE - In commercial blocks, mite forms ranged from 0.04 to 5.00 per leaf. Egg counts heavy, averaged 26-42 per leaf. Generally under control in most orchards here miticides applied. Mites moved onto new foliage. Will soon be generally distributed throughout trees. (Gall). OHIO - Potential damaging outbreaks detected in southern area orchards. Counts up to 20-25 per leaf on Red Delicious apples noted. In central area, populations up to 10 per leaf occurring. Emergency controls applied. (Holdsworth).

ORCHARD MOTH (Laspeyresia pomonella) - MAINE - Pheromone trap catches increased sharply. Eggs readily found on fruit in unsprayed orchards, but no fruit entries seen yet. Earliest laid eggs should be hatching. (Gall, July 7).

LEAF SLUG (Caliroa cerasi) - UTAH - Severe on cherry and pear foliage in Cache and Weber County orchards. (Davis). IDAHO - Heavy on pears, cherries, and Crataegus sp. at Moscow, Latah County. Some smaller trees averaged one larva per leaf July 12. (Gittins).

LEAF WEBWORM (Hyphantria cunea) - TENNESSEE - Heavy on pecan and walnut trees in western area. Many small webs on variety of trees in central area. (Locke, Patrick).

LEAF MARGINED APHID (Monellia costalis) - MISSISSIPPI - Moderate to heavy on pecans in Oktibbeha County; honeydew present. (Robinson).

INSECT TRUS

Insect Situation in Florida - End of June - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 73 (norm 57) percent of groves; economic in 47 (norm 35) percent. Population very high and much above normal. Will continue increase through July with rapid buildup on fruit. Highest districts south, west, central, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 72 (norm 4) percent of groves; economic in 52 (norm 53) percent. Population near average high level for June and near summer peak abundance. Decrease expected after mid-July. Highest districts central, south, west, and east. CITRUS RED MITE (Panonychus citri) infested 38 (norm 68) percent of groves; economic in 12 (norm 43) percent. Population lowest reported for June in 21 years of record. Population approaching summer peak, expected to remain in low range. Highest districts are south and west. BLACK SCALE (Saissetia oleae) infested 92 (norm 79) percent of groves; economic in 83 (norm 57) percent. More abundant than any time in 21 years of record. Further increase expected in July followed by decrease in August. Populations at high level in all districts: East, central, south, north, and west. GLOVER SCALE (Lepidosaphes loyerii) infested 87 (norm 87) percent of groves; economic in 8 (norm 28) percent. Population below normal and in moderate range. Little change expected. Highest district central. PURPLE SCALE (Aspidiotus beckii) infested 71 (norm 77) percent of groves; economic in 10 (norm 10) percent. Below normal abundance and will remain at low or moderate level in all districts. AN ARMORED SCALE (Unaspis citri) infested 31 percent of groves; economic in 20 percent. Increase expected.

YELLOW SCALE (Aonidiella citrina) infested 42 (norm 66) percent of groves; none economic (norm 8 percent). **CHAFF SCALE** (Parlatoria pergandii) infested 42 (norm 64) percent of groves; none economic (norm 11 percent). These scales will remain below normal and at low level. **GREEN SCALE** (Coccus viridis) infested 27 (norm 7) percent of groves; economic in 14 (norm 1) percent. Occurs in scattered areas of east, central, and south districts. Population higher than any prior month in 21 years of record. **WHITEFLIES** infested 84 (norm 73) percent of groves; economic in 27 (norm 26) percent. Population slightly above normal and high. Adults and eggs will be abundant on new flush until mid-July. Highest districts east, west, and north. **MEALYBUGS** infested 73 (norm 72) percent of groves; economic in 23 (norm 31) percent. Population increased into high range but slightly below normal. Decrease expected after mid-July. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

COTTONCUSHION SCALE (Icerya purchasi) - ARIZONA - Built up in lemon grove at Yuma, Yuma County. No Rodolia cardinalis (vedalia) present. (Ariz. Coop. Sur.).

SMALL FRUITS

RASPBERRY CANE BORER (Oberea bimaculata) - VERMONT - Girdling of new cane growth and wilting severe in commercial and home raspberry plantings. (MacCollom).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - UTAH - Caused moderate damage to grape foliage in "Dixie" area of Washington County. (Huber).

GRAPE PHYLLOXERA (Phylloxera vitifoliae) - PENNSYLVANIA - All stages taken on wine grapes in northeast Erie County. Averaged 14 galls per leaf; 47 percent of vines examined had one or more infested shoots. (Jubb).

A SOFT SCALE (Saissetia miranda) - CALIFORNIA - Light to medium on fig in Brawley, Imperial County. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - OHIO - Seriously damaged red and white pine in Stark County. (Nielsen, Purrington).

A NOTODONTID MOTH (Symmerista canicosta) - MICHIGAN - Egg hatch begun, egg laying continued heavy. Counts heavy throughout most of infested area in Lake, Oceana, Manistee, Mason, Muskegon, and Newaygo Counties. Complete defoliation expected over much of area infested in 1971. Overwintering mortality heavy in areas most heavily infested and completely defoliated early last year. Defoliation may not be heavy in these areas this season. Egg parasitism heavy in some areas. (Eiber).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OKLAHOMA - Adults feeding near ends of Siberian elm branches in Beaver, Beaver County; caused considerable leaf drop and dieback of terminals. (Okla. Coop. Sur.).

A JUNIPER SAWFLY (Monoctenus melliceps) - DELAWARE - Larvae heavy on juniper at Delmar, Sussex County. Collected by C. Phillips July 9, 1972. Determined by P.O. Burbutis. This is a new State record. (Burbutis).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 3,589 confirmed cases reported in continental U.S. during period July 2-8. This was decrease of 1,424 cases from 5,013 cases reported for previous period. Screwworm cases for period July 2-8 by State as follows: Texas 3,518; New Mexico 19; Arizona 47; Oklahoma 4. Total of 505 cases confirmed in Mexico. Number of sterile flies released this period in U.S. totaled 191,716,000 as follows: Texas 167,430,000; New Mexico 3,270,000; Arizona 16,316,000; California 600,000; Louisiana 3,940,000; Arkansas 160,000. Total of 2,854,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - OHIO - Adults annoyed beef and dairy cattle throughout central and northeastern areas. Highest counts seen on Guernsey cattle in Crawford and Geauga Counties; averaged 40+ per face (Fox), and in Wayne 35+ per face (Treece). WISCONSIN - Light to moderately annoying to cattle in Polk, Chippewa, Columbia, Calumet, Jefferson, and Wood Counties. (Wis. Ins. Sur.). CALIFORNIA - Ranged 10-25 per face on cattle in Shasta County, and occurred in higher elevations. Calves suffered, particularly with eye problems. (Cal. Coop. Rpt.).

MOSQUITOES - MAINE - Aedes spp. still abundant in many areas; will create problems for at least 7-14 days. (Gall, July 7). MARYLAND - Annoyance levels of Aedes spp., mainly A. vexans, peaked in State. Populations of floodwater species above normal. Conditions for heavy adult emergence established during recent excessive flooding. (U. Md., Ent. Dept.). ARKANSAS - Psorophora confinnis averaged about 300 per night per New Jersey light trap in Lonoke County. (Boyer). WISCONSIN - Mosquitoes moderate in most areas, heavy in few localities. Severe localized annoyance to man and cattle reported in Iron, Calumet, Wood, and Chippewa Counties. (Wis. Ins. Sur.). MINNESOTA - Cool weather reduced light trap collections. Total count 3,346 compared with 9,300 previous week. A. vexans and Coquillettidia perturbans each accounted for 45 percent of total collections. A. triseriatus in 55 percent of larval collections. C. perturbans dominant in evening bite collections. In daytime bite collections A. vexans dominant. (Minn. Pest Rpt.).

UTAH - Mosquitoes very troublesome over much of Rich, Uintah, Cache, and Duchesne Counties. (Knowlton, Hanson). Very annoying in St. George, Bloomington, Shivwit areas of Washington County. (Huber). Mosquitoes seriously annoyed horses throughout much of Uintah and Duchesne Counties. (Knowlton, Hanson). Annoying with fogging underway in Logan area of Cache County. (Roberts). Serious in northern Skull Valley, Tooele County. (Knowlton). Heavy and annoying on farms in west Delta, Sutherland, and Abraham areas of Millard County. (Parrish). Very troublesome to man and livestock along Virgin River, Washington Fields, and through Shivwit Reservation in Washington County. (Huber). CALIFORNIA - Annoyance increased as populations increased over State. (Cal. Coop. Rpt.).

HORN FLY (Haematobia irritans) - ALABAMA - Ranged 200-500 per animal in herd of 75 at catchpen in Bibb County. (Owens et al.). MISSISSIPPI - Averaged 200 per head on cattle in Pontotoc County. (Robinson). TEXAS - Ranged 200-2,000 per cow in Trans-Pecos area. Moderate in Wichita, Young, Baylor, and Shackelford Counties; heavy in Archer County. Continued to increase on livestock in all Blacklands counties. (Neeb et al., July 7). OKLAHOMA - Heavy on cattle in Craig and Garvin Counties; moderate in Beaver, Pawnee, Oklahoma, and Cleveland Counties; light in Ottawa and Hughes Counties. (Okla. Coop. Sur.). SOUTH DAKOTA - Counts per side in northern Meade County: 400-1,000 (averaged 800) on cows, 7-40 (averaged 21) on calves, about 900 on bulls. (Jones). NORTH DAKOTA - Quite variable on 4 beef herds in Richland and Ransom Counties; ranged 10-700 per animal. (Brandvik). WISCONSIN - Annoyance to cattle ranged light to moderate in Polk, Chippewa, Columbia, Calumet, Jefferson, and Wood Counties. (Wis. Ins. Sur.).

BLACK FLIES (Simulium spp.) - MAINE - Increased at Orono, but generally less abundant than in 1971. Populations declining in many areas of State. (Gall, July 7).

A SCYTOTID SPIDER (Loxosceles rufescens) - KANSAS - Collected in building in Manhattan, Riley County, by R.J. Elzinga during August 1970. Determined by N. Heryford; confirmed by W.J. Gertsch. This is a new State record. (Bell).

BENEFICIAL INSECTS

LADY BEETLES - UTAH - These and other predators became more numerous and effective in alfalfa fields and home gardens in Cache, Millard, and Weber Counties. (Knowlton, Parrish). **ARKANSAS** - Reproduction of Hippodamia convergens and Coleomegilla maculata heavy, especially in fields infested with Schizaphis graminum (greenbug). H. convergens more numerous than C. maculata in sorghum. In 1971, C. maculata out-numbered H. convergens in sorghum and corn. All stages of lady beetles present. (Boyer).

A EULOPHID WASP (Tetrastichus julis) - MICHIGAN - Recovered in Ovid Township in Clinton County June 9 by G. McQueen. This is a new county record. Originally released at this location June 9 and June 18, 1971. (Sauer).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - Adults taken on oats in Spotsylvania County June 2 by G.H. Hall. This is a new county record. (PP).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - New infestation on mulberry in Springville, Tulare County, 10 miles from Porterville infestation. Extent of infestation being checked. Bio-control release of Cryptolaemus spp. (lady beetles) and lacewings continued. Total of 2,600,000 Cryptolaemus spp. and 1,174,000 lacewings released in Porterville. Ant control necessary in release area. Cryptolaemus spp. activity slowed; lacewing populations maintained themselves. (Cal. Coop. Rpt.).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - First flight observed June 26 in Newark, Wayne County. (N.Y. Wkly. Rpt.). OHIO - Twelve adults noted in flight evening of July 11 in

Cleveland. Previously, last adults usually ended flight by July 6. Cool, wet weather believed cause of change in pattern (Custer, Roach).

GRASSHOPPERS - NORTH DAKOTA - Infested 2,900 acres of rangeland in Hankinson Block of Sheyenne National Grasslands in Richland County. Ranged 4-20 (averaged 10) per square yard. Melanoplus sanguinipes dominant. (Grasser). TEXAS - Melanoplus spp. and other grasshoppers ranged 40-100 per square yard in isolated alfalfa fields in Ward and Midland Counties. Heavy in several High Plains and Trans-Pecos counties. Heavy in Collingsworth, Randall, Gray, Carson, and Potter Counties. Some end row and pasture treatments applied. Heavy in Brewster County; ranged 20-45 per square yard. (Clymer, Neeb, July 7). OKLAHOMA - Cooperative control program completed on 38,000 rangeland acres in Beaver County. Grasshoppers heavy and damaged soybeans in Wagoner County; moderate in mungbeans in Garfield County. (Okla. Coop. Sur.). NEW MEXICO - Heavy on about 1,100,000 acres of rangeland in Quay, Guadalupe, De Baca, Curry, and Roosevelt Counties. (N.M. Coop. Rpt.).

NEVADA - Melanoplus sanguinipes 90 percent), and M. femurrubrum and Camnula pellucida (10 percent), ranged 18-20 per square yard on 100 acres of alfalfa and 100 acres of tall wheatgrass and ryegrass in Rye Patch area, Pershing County; damage heaviest to alfalfa. (Munk, Nishida). M. sanguinipes (98 percent) and M. bivittatus (2 percent) ranged 20-30 per square yard on 1,400 acres of native meadow and alfalfa and 200 acres of Federal rangeland at Quinn River Crossing Ranch, Humboldt County; greasewood completely defoliated on rangeland. Treatment planned. (Rowe). OREGON - Spraying for control of M. sanguinipes, C. pellucida, Oedaleonotus enigma, M. bivittatus, and M. packardii currently underway on total of 548,000 acres in Baker, Union, Morrow, and Grant Counties. Controls scheduled July 15 in Wallowa County on about 140,000 acres. Grasshopper development estimated at least 14 days later than normal. Most in third and fourth instars, few adults found. (Jackson).

GYPSY MOTH (Porthetria dispar) - MASSACHUSETTS - Larvae damaging in several counties since June 20; especially so on abandoned apple trees. (Jensen, July 7). RHODE ISLAND - First pupae observed July 3; larvae feeding on wide range of trees and undergrowth in Washington County. (Relli, Field, July 7). PENNSYLVANIA - Pupae seen at Pecks Pond, Pike County, for first time in area; defoliation heavy. (Jackowski, July 6). Adults heavy in Bridgeton Township, Bucks County. Males, females, and egg laying noted. (Raub). DELAWARE - Larvae found feeding on Norway maple in New Castle County July 7. Collected by J.S. McDaniels, determined by P.O. Burbutis. (Burbutis). This is first larval infestation reported in State. Moths previously trapped in State in 1969 and 1970. (PP).

JAPANESE BEETLE (Popillia japonica) - MAINE - Single localized infestation reported in Augusta, Kennebec County. Less severe than in 1971. (Gall). VERMONT - Heavy on raspberry and grapes in infested areas. Common on ornamentals. (MacCollom). RHODE ISLAND - First adults of season in Providence County July 10. (Relli). NEW JERSEY - Common on flowering plants in central counties. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Adults seen on various ornamental plants in Montgomery, Bucks, Chester, and Philadelphia Counties. (Raub, July 6). OHIO - First adult emergence seen June 29. (Wille, Turner). NORTH CAROLINA - Variable infestations over State.

Infestations in 3 cornfields in southern Coastal Plain ranged up to 8 adults per silking ear. Of 10 soybean fields surveyed in Coastal Plain, 2 infestations ranged up to 1 per row foot. Some areas report very light populations. (Hunt). SOUTH CAROLINA - Trapped 15 adults along State Highway 215 near Jenkinsville, Fairfield County, June 21, by J.L. King. This is a new county record. Trapped 10 adults July 3 west of Highway I-85 in Anderson County. (King). GEORGIA - Adults collected along roadside at Martines in Columbia County June 21 by Hargrove and M.C. Blount. This is a new county record. (PP). TENNESSEE - Adults trapped in new areas of Hawkins, Monroe, Morgan, Roane, and Sullivan Counties. (PP). Adult trapped at farmers market in Memphis, Shelby County, June 6. (Jackson, Burner).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Infestation 56 percent in one Yuma Valley field; ranged 0-17 percent in Yuma County. Boll infestations ranged 1-3 percent at Parker Valley. Light throughout Safford area, Graham County, and San Simon area, Cochise County. (Ariz. Coop. Sur.). FLORIDA - Four larvae, 7 pupae taken from wild cotton at 2 Key Largo locations and 3 larvae taken from wild cotton on Upper Key Largo, Monroe County, June 30. (Creamer).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ALABAMA - Cysts collected on soybeans near Atmore, Escambia County, July 11 by T. Lemons and Daniel. Determined by A.M. Golden. This is a new State record. (PP).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Inspection continued in areas outside known infested area in San Diego, San Diego County. Very light in new properties in northern area, 13 in southern part of San Diego. Weather continues to deter parasite activity. Presently 177 release sites located in area. Some parasites collected and released at new sites. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

General Vegetables - WESTERN FLOWER THRIPS (Frankliniella occidentalis) heavy in one acre of bush beans at Waialua, Oahu. About 40 percent of planting with 50+ nymphs and adults per leaf except on young terminal leaves. Moderate scarification of heavily infested leaves. Trace in remaining acreage. PEPPER WEEVIL (Anthonomus eugenii) larvae light on fruits in 2 acres of sweet peppers at Makaha, Oahu. Severe on this host in late April resulting in 100 percent fruit infestation. LEAFMINER FLIES (Liriomyza spp.) moderate in green onion fields at Waianae, Oahu; mines ranged light to moderate on 35-45 percent of leaves. BEE T ARMYWORM (Spodoptera exigua) moderate in 2-acre onion planting; 15-20 percent of leaves with one or more larvae. Liriomyza spp. heavy in 0.75 acre of young snap beans; up to 8 adults and 20 pupae per leaf. Liriomyza spp. mines and CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate to heavy on older leaves. (Kawamura).

General Pests - SOUTHERN GREEN STINK BUG (Nezara viridula) adult activity moderate in yard plantings of orchids at Wailuku, Maui; caused 10-30 percent bud drop. Moderate in yard planting of long beans at same area. Adults light in one acre of eggplant at Waianae, Oahu; 5 of 6 adults observed bore eggs of Trichopoda pennipes (a tachina fly). (Miyahira, Kawamura).

Beneficial Insects - PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) larval activity heavy in nodes of puncturevine (Tribulus terrestris) in various areas on Maui. Of minimum of 50 internodes examined at 4 locales, effects of activity ranged from zero at Lahaina to 100 percent at Waikapu. Of 71 T. cistoides internodes examined at Waikapu, 68 percent exhibited similar activity. (Miyahira). Field examination of Melastoma malabathricum (Indian rhododendron) at various areas on Hawaii during June showed average of 40 percent of fruits and terminals infested by larvae of a NOCTUID MOTH (Selca brunella). On Kauai, fruits examined during same month showed infestations of 44 and 14 percent, respectively, at Hanahanapuni and Knudsen Gap. (Miyahira, Sugawa). Light numbers of Trathala flavo-orbitalis and Casinarina infesta (ichneumon wasps) and Eucelatoria armigera (a tachina fly) emerged from larvae of GRASS WEBWORM (Herpetogramma licarsisalis) collected from lightly infested Kikuyu grass pastures at Ulupalakua, Maui, during June. (Miyahira). Twenty one adults of a CHALCID (Brachymeria obscurata) emerged from 25 Hedylepta blackburni (coconut leafroller) pupae collected from lightly infested coconut trees at Wailua, Kauai. B. obscurata purposely introduced in 1895 from Japan to aid in control of Chrysodeixis chalcites (a noctuid moth). (Sugawa).

LIGHT TRAP COLLECTIONS

State	Locality	Date	Precip. (inches)	Temp. (F)	Humidity (%)	Wind (mph)	Wind Dir.	Moon	Phase	Species																						
										Bl. Backlight	Bl. Mercury Vapor	Bl. Translucent	Bl. O. Other	Bl. Translucent	Bl. O. Other	Bl. Translucent	Bl. O. Other	Bl. Translucent	Bl. O. Other	Bl. Translucent	Bl. O. Other											
FLORIDA	Gainesville 7/7-13									1	4	4	4	10	4	4	12	10	4	4	1	2										
										189																						
										172																						
										37																						
IOWA	Beaconsfield 6/30-7/6									32	7	8	1																			
										2																						
										3																						
KANSAS	Hiawatha 7/10									32	7	8	1																			
										2																						
										3																						
KENTUCKY	Bowling Green 7/11									BL																						
										BL																						
MICHIGAN (County)	Lenawee 7/5-11									BL																						
										BL																						
										BL																						
										BL																						
										BL																						
MINNESOTA	Crookston 7/5-11									BL																						
										BL																						
										BL																						
										BL																						
MISSISSIPPI (County)	Sharkey 7/3-9									6	5	5																				
										22	5																					
NEBRASKA	Aurora 7/6									BL																						
										93	22	3																				
										213	3																					
NEW JERSEY	Evesboro 7/3-10									BL																						
										BL																						
										BL																						
										BL																						

LIGHT TRAP COLLECTIONS

Table with columns: Location, Temp., Humidity, Wind, Trap, and various species counts. Species include Spodoptera frugiperda, Spodoptera exigua, Heliothis virescens, and many others.

WEATHER OF THE WEEK ENDING JULY 10

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

HIGHLIGHTS: Summer heat intensified in the west. The Northeast warmed, averaging 5 to 10 degrees warmer than the previous week. A large area from California to the central Rocky Mountains received no rain.

PRECIPITATION: A large High moved off the Atlantic coast early in the week. Southwesterly winds behind the High spread moisture laden air over central and eastern portions of the Nation, setting the stage for widespread thunderstorm activity. Thunderstorms were widely scattered and generally light from the Rocky Mountains to the Atlantic coast Monday. Heavy showers doused a few spots in the central Great Plains. Overnight rains of 4 to 5 inches in western Kansas, 4.71 inches at Kearney, Nebraska, and up to 6 inches at Red Cloud, Nebraska, overflowed creeks and rivers. About 5 inches of rain at Miregrove, Minnesota, in 2 hours Tuesday night flooded the village and heavy thundershowers in eastern Nebraska and western Iowa caused creeks to rise in those areas. A weak tropical storm moved inland near Myrtle Beach, South Carolina, Tuesday night. It dumped a 2-day total of 3 to 6 inches of rain over the eastern portions of the Carolinas and northward to New England. With the soils already saturated by previous rains, only moderate showers produced local flooding in some areas. The heaviest weekend showers were in the central Great Plains. Over 3 inches fell at Dodge City, Kansas, in 6 hours Sunday morning. Some severe thunderstorms with hail and high winds occurred over the upper and middle Mississippi River Valley. Hail 3 to 4 inches in diameter caused property damage about 12 miles east of La Crosse, Wisconsin, Sunday afternoon. Much of the West received no rain. Over mid-America and the East, amounts were very unevenly distributed.

TEMPERATURE: A High weakened and moved off the Atlantic coast Southwesterly winds behind the High brought warm, moist air from the Gulf of Mexico. Temperatures Monday afternoon were in the 90's over the Great Plains and the 80's over most of the East. Worland, Wyoming, recorded 100 degrees Monday afternoon. The Pacific Northwest was moderately cool early in the week but warmed considerably by midweek. Pendleton, Oregon, recorded 97 degrees Wednesday afternoon. The mercury reached the 100-degree mark daily in the Desert Southwest. Nighttime temperatures were only a few degrees below 100 degrees. Needles, California, registered 97 degrees 2 o'clock Wednesday morning and 118 degrees in the afternoon. Summer heat prevailed over most of the Nation by midweek. Afternoon temperatures soared to the 90's over most of New York and parts of New England reaching 94 degrees at Boston, Massachusetts, Wednesday. In the opposite corner of the Nation, Furnace Creek in Death Valley, California, recorded 125 degrees. A High off the Atlantic coast pumped 90 degrees of heat northward along the Atlantic seaboard over the weekend. The central Great Plains cooled. Salina, Kansas, registered 107 degrees Friday but only 70 degrees Saturday. Heat intensified in the Northwest. The Dalles, Oregon, recorded 101 degrees Sunday afternoon. Blistering heat continued in the Sacramento Valley in California. Red Bluff, in the northern end of the valley, recorded 118 degrees Friday and Stockton registered 114 degrees, the warmest Stockton has ever been. Furnace Creek in Death Valley, California, recorded 128 degrees Friday and Saturday. Temperatures averaged above normal over the West and Northeast and below normal over mid-America and the Southwest.



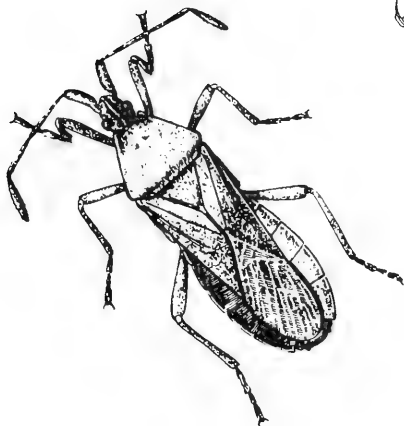
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



0004 SMINLISMIA122 33017 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



823
C 77
Ent

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

The Editors, CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG heavy or economic on sorghum in areas of Texas, Kansas, and Nebraska. Also economic in Indiana where first infestations on sorghum recorded. POTATO LEAFHOPPER threatening on forage in Ohio, heavy on alfalfa in Maryland and Virginia. (pp. 473-474).

CORN ROOTWORM adults emerging; damage to corn reported in Oklahoma, Nebraska, Illinois, and Ohio. (p. 475). Second EUROPEAN CORN BORER adult flight underway in Delaware; larvae heavier than in recent years in Michigan. (p. 476).

MEXICAN BEAN BEETLE expected to be economic on soybeans in Maryland. (p. 478).

BOLL WEEVIL heavy on 90,000 acres in Alabama; damage heavier than in 1971 in North Carolina. (p. 478).

SUNFLOWER BLOSSOM MIDGE continues a problem on sunflower in Red River Valley of Minnesota and North Dakota. HOP APHID, HOP LOOPER, and TWOSPOTTED SPIDER MITE general on hops in Yakima Valley of Washington. (p. 480).

COLORADO POTATO BEETLE a problem in most potato-growing areas of Maine. (p. 480).

SPRUCE BUDWORM will be a major forest pest in Lower Michigan, and JACK PINE BUDWORM infesting most jack pine stands throughout northern portion of Lower Peninsula. (p. 483).

GRASSHOPPERS economic on 2,500,000 acres of rangeland in Idaho. (p. 486).

Detection

A THRIPS collected in California is a new North American record. This species is known from the Canary Islands and Spain. Host range includes citrus, willow, and acacia. (p. 483).

New State records include ALFALFA LEAF BLOTCH-MINER in Vermont (p. 478) and a GRASSHOPPER in New Hampshire (p. 481).

For new county records see page 481.

Reports in this issue are for week ending July 21 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....473

Insects Affecting

Corn, Sorghum, Sugarcane....475	Potatoes, Tomatoes,
Small Grains.....477	Peppers.....480
Turf, Pastures, Rangeland...477	Beans and Peas.....481
Forage Legumes.....477	General Vegetables.....481
Soybeans.....478	Deciduous Fruits and Nuts..482
Peanuts.....478	Citrus.....482
Cotton.....478	Ornamentals.....483
Tobacco.....479	Forest and Shade Trees.....483
Sugar Beets.....480	Man and Animals.....484
Miscellaneous Field Crops...480	

Detection.....	481
Beneficial Insects.....	485
Federal and State Plant Protection Programs.....	485
Hawaii Insect Report.....	487
Corrections.....	487
Light Trap Collections.....	488

WEATHER OF THE WEEK ENDING JULY 24

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Vigorous thunderstorms broke out along a quasi stationary front which early in week stretched from the Great Lakes to the Texas Panhandle. Some thunderstorms produced hail and heavy rain. Hail of 1-inch size bounced off the streets of Calamis, Iowa, 5 inches of rain fell at Lowden, Iowa. These towns are about 20 miles northwest of Davenport. Twisters occurred in central Kansas, east-central Iowa, and northern Illinois late Monday evening. The most severe damaged farmsteads and injured cattle north-northeast of Peoria, Illinois. Heavy rains approaching 10 inches and strong winds caused property damage west of Chicago early Tuesday. After the front across mid-America dissipated about midweek, another front farther north brought active weather to the northern and central Great Plains. Showers were especially heavy north of St. Cloud, Minnesota, where 10.84 inches fell at Ft. Ripley, 8.90 inches at Long Prairie, and 8.10 inches at Onamia in the 24-hour period ending Saturday morning. The central Great Plains received substantial showers Sunday and light rains fell in the Deep South. The Far Southwest continued dry. Numerous dust devils swirled across the desert near Blythe, California, Wednesday afternoon.

TEMPERATURE: On Monday, July 17, a mountain of air with a central pressure of 1025 millibars was centered about 600 miles northeast of Bermuda. This Bermuda High as it is frequently called moved westward reaching the Carolina coast Thursday. By Friday morning it had become quasi stationary over the western Carolinas. Very light but generally southerly breezes over the backside of the High spread warm, humid, hazy weather along the eastern edge of the Nation early in the week and the eastern half of the Nation by Friday. Weather of the week continued on page 490.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - OHIO - Total of 1,153 adults taken in 3 blacklight traps in single night in Wayne County. Largest number taken in single night in 7 years. (Rings). NEW YORK - Larvae in whorls of corn in some areas; ragging of leaves evident. (N.Y. Wkly. Rpt., July 17). VERMONT - Present in 2 corn fields in Washington County; damage severe in one field. (MacCollom).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Ranged 0-50 per plant in most grain sorghum checked in northeast area. Ranged 100-300 per plant in few fields. Numbers declined due to plant maturity, predators, and parasites. (Okla. Coop. Sur.). KANSAS - Light to moderate in most of State; some heavy populations seen in Finney, Grant, Haskell, and Stevens Counties of southwest district. (Bell). WISCONSIN - Gradually increased in corn tassels. About 80 percent of tassels infested in most fields; aphids very light on each plant except in few fields. Predators increased. (Wis. Ins. Sur.). ILLINOIS - Increased, but no fields with serious damage seen. (Ill. Ins. Rpt.). OHIO - Variable on field corn in southeast area. Heaviest counts found in 3 fields in Washington County; heavy in whorls of 95 percent of plants. Populations lighter in Licking County, with 7 of every 10 plants infested. (Fox). MARYLAND - Continued well below normal in few corn fields in Dorchester and Wicomico Counties. Infested stalks ranged 5-10 percent in these fields. (U. Md., Ent. Dept.).

GREENBUG (Schizaphis graminum) - ARIZONA - Infested field of 2 to 3-foot sorghum, up to 1,000 aphids per plant, at Kansas Settlement area, Cochise County. Controls applied. (Ariz. Coop. Sur.).

TEXAS - Heavy in isolated fields in Glasscock County. Lower 4 leaves killed; colonies ranged 3-7 per leaf with 150-700 aphids per colony. Light in young grain sorghum in Glasscock, Reeves, Pecos, Knox, Hardeman, and Wichita Counties. (Neeb, Boring, July 14). Currently generally light on grain sorghum in Rolling Plains and Trans-Pecos areas. In Trans-Pecos area, light numbers and damage reported on young grain sorghum in El Paso, Hunt, and Reeves Counties. Ranged light to heavy in most South Plains counties. Generally light in Collingsworth, Carson, Castro, Swisher, Oldham, Sherman, Parmer, and Hartley Counties in Panhandle. (McIntyre et al.).

OKLAHOMA - S. graminum counts per grain sorghum plant in northeast counties ranged as follows: Tulsa 0-15 in 1 field; Nowata 0-55 in 2 fields; Craig 0-85 in 1 field and 0-140 in 1 field; Ottawa 0-35 in 4 fields; Delaware 0-20 in 2 fields; Mayes 0-50 in 1 field; Rogers 0-170 in 1 field and 50-400 in 1 field. Sorghum heading in most fields. Predators (mainly lady beetles) and parasites (mainly Lysiphlebus testaceipes) present and greenbug counts appear to be declining in most fields. S. graminum moderate in sorghum in Bryan County, light in Cimarron County. (Okla. Coop. Sur.). ARKANSAS - Light in all but one field surveyed in Benton, Carroll, Madison, and Washington Counties. Benton, Carroll, and Madison are new county records. Predators and parasites expected to aid in preventing buildup. Conditions improved, controls declined in Clay County. Heavy rains reduced aphid numbers. Predator and parasite counts still high in untreated fields. (Boyer).

KANSAS - S. graminum activity decreased. Parasitic wasps, Lysiphlebus testaceipes (a braconid) in particular, and lady beetles (primarily Hippodamia convergens) very active in control.

Buildup of beneficial insects too slow in some cases and some severe damage to sorghum seen: 35-50 percent of plants on 2 Pottawatomie County fields destroyed with severe damage to remainder; same condition seen in Wabaunsee County field and one in Riley County. Built up rapidly in southern Marion County with some economic infestations. Economic populations still found in Clay, Washington, and Marshall Counties; controls applied. Generally light in sorghum over remainder of State; some controls applied in Harvey and Hamilton Counties. Some greenbug activity still noted in Lyon, Osage, and Franklin Counties. (Bell).

NEBRASKA - Schizaphis graminum peaked in most grain sorghum in Nemaha and Johnson Counties. Parasitism by Lysiphlebus testaceipes increased; in 10 fields, parasitism ranged 20-95 percent, heaviest in early planted sorghum. Some borderline infestations economic with 2-3 lower leaves dead or dying. About 10,000 acres treated in Nemaha County past 14 days. S. graminum near economic level in Lancaster, Platte, and Seward Counties. Ranged 100-1,500 per lower leaf; parasitism about 1-5 percent. Flights heavy. Alates reinfested Saunders County field 6-7 days after treatment. All alates in first and second instars; ranged 50-250 per plant in whorls and lower leaves. Most late sorghum in southeast and east districts heavily infested. (Roselle et al.). Small colonies seen on scattered sorghum plants in Adams County. (Swanson). Light in southwest area, increased week ending July 14. About 40 percent of plants with 1-3 colonies (up to 200 greenbugs) per plant noted. No serious damage seen. (Campbell).

MISSOURI - S. graminum populations declined in all areas checked. (Munson). IOWA - Ranged 30-360 per plant on forage sorghum in Polk and Story Counties. Averaged 260 per plant with 100 percent of lower leaves discolored or lost in Polk County field. Most fields show no economic damage. Mummies ranged 22-30 per plant. Parasitism ranged 7-29 (average 22) percent. (Iowa Ins. Sur.).

INDIANA - Infestation in grain sorghum noted in Tippecanoe, Parke, Vigo, Clay, Greene, Dubois, and Spencer Counties. Economic in Parke County, possibly in Vigo County. Controls applied. These are all first records of infestations on sorghum. (Matthew).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Continued erratic in alfalfa. Averaged 1 per sweep but increased to 2-3 per sweep in some fields in southwest. Much yellowing in some alfalfa on sandy soils in Sauk, Dane, and Iowa Counties; up to 40 per sweep in some of these fields. (Wis. Ins. Sur.). OHIO - Threatening (3 per sweep) in mixed clover and timothy in Athens County field and 2 per sweep in Fairfield County alfalfa field. Counts per 50 sweeps of alfalfa by county: Licking 60, Vinton 45, Perry 30, Wayne 8. (Fox). MARYLAND - Nymphs and adults ranged 5-30 per sweep in alfalfa in Frederick, Carroll, and Prince Georges Counties. Yellowing still evident in several fields. (U. Md., Ent. Dept.). VIRGINIA - Averaged 3 adults per sweep in alfalfa ready to cut in Montgomery County; few nymphs present. (Pienkowski).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Up to 400 per sweep damaged 300 acres of seed alfalfa in Dixie Valley, Pershing County. Chemical controls ineffective on this nonresistant variety; seed yield reduced 75 percent. (Stitt). KANSAS - Light, 30-60 per 10 sweeps in alfalfa field in Nowata County, 20 per 10 sweeps in Tulsa and Washington Counties. Light in Wagoner County. (Okla. Coop. Sur.). ARKANSAS - Generally low in alfalfa in northwest area. Ranged 0-200 per 100 sweeps in Washington County. Heavy rain, improving moisture conditions, expected to check infestations. (Boyer).

TOBACCO HORNWORM (Manduca sexta) - KENTUCKY - Percent damage by county based on 100 plants checked: Jessamine 1, Grant 3, Gallatin 4, Garrard 2, Pulaski 6.5, Lincoln 7, Boyle 2, Henry 1.5, Carroll 2.5, and Casey 7 percent. No significant damage incurred on tobacco in Trimble County. Most tobacco in stage 5 or 6. (Barnett).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - COLORADO - D. virgifera (western corn rootworm) adults emerged in Akron area of Washington County. (Hantsbarger). **OKLAHOMA** - D. virgifera damage heavy in untreated cornfield in Cimarron County. (Okla. Coop. Sur.). **NEBRASKA** - D. virgifera and D. longicornis (northern corn rootworm) heavy locally near Mead, Saunders County, in untreated corn. Lodging severe in some fields. (Hill). Several scattered, locally heavy infestations in Chase and Perkins Counties in areas with heavier soils under center pivot irrigation systems. Some control failures reported. (Campbell).

WISCONSIN - First apparent damage by Diabrotica spp. at Arlington Experimental Farm in Columbia County July 12 following storm; lodged corn plants seen in several fields in southern counties since then. Field in Grant County had 28 percent lodged plants. Large numbers of adults will not be apparent in corn for 2-3 weeks. (Wis. Ins. Sur.). **ILLINOIS** - Adults emerging in central and western sections; expected to emerge in northern section this period. Beetles cut off silks of corn in central area field. Pollination just begun, silk feeding will be critical next 3-5 days. (Ill. Ins. Rpt.). **INDIANA** - D. longicornis adults light through southern districts in cornfields or in sweeps of roadside weeds. (Meyer). Adults still in soil in Randolph County. (Turpin). **OHIO** - D. longicornis adults averaged 5 per silk in Van Wert County field. Much "goosenecking" seen. (Fox).

DUSKY SAP BEETLE (Carpophilus lugubris) - MARYLAND - Adult and larval infested ears ranged 10-30 percent in fresh market corn in Queen Annes, Dorchester, and Wicomico Counties. Light to moderate damage to process corn expected next 14 days. (U. Md., Ent. Dept.).

A SUGARCANE WEEVIL (Nicentrus saccharinus) - FLORIDA - Collected 4 larvae and 1 adult by sweeping goosegrass (Eleusine indica) during special survey at Miami Shores, Dade County, July 13. (Pierce). Reported as new United States record in CEIR 22(27): 431. (PP).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Second adult flight begun in most areas of Sussex County. Few fresh egg masses on corn and peppers. (Burbutis, Kelsey). **MARYLAND** - Remained light to moderate on corn in Kent, Queen Annes, Dorchester, and Wicomico Counties. Infested stalks ranged 10-70 (averaged 40) percent. Moth emergence expected to continue next 10-15 days. Infestations in central area ranged 10-90 (averaged 50) percent. (U. Md., Ent. Dept.). **WEST VIRGINIA** - Larvae in 20 percent of whorls of field corn in Ohio County. (Hacker).

OHIO - Number of plants infested by O. nubilalis per 50 plants checked by county: Pike 20, Jackson 16, Meigs 5, Washington zero, Morgan 18, Perry 13, Fairfield 12, Licking 2, Pickaway 14. (Fox).

MICHIGAN - O. nubilalis larvae heavier in field corn than in any recent year in Ingham, Eaton, and Shiawassee Counties. Most larvae established in stalk or deep in whorl. Growers in more northern counties should check corn for egg masses or small larvae. (Ruppel et al.). WISCONSIN - Pupation of first generation begun. Second moth flight expected July 24-29; peak flight should occur in about 21-28 days, depending on weather. Large number of first-generation moths still taken in blacklight traps in eastern counties where development slower, apparently due to effect of Lake Michigan on temperatures. (Wis. Ins. Sur.). IOWA - First pupa observed in Polk County July 19. Development appears 7-14 days behind average. (Iowa Ins. Sur.). MISSOURI - Larvae light in southeast area corn. (Jones). Egg masses averaged 11 per 100 plants in northwest area. (Munson).

CONCHUELA (Chlorochroa ligata) - TEXAS - Heavy on grain sorghum in soft dough stage in Glasscock County, averaged 2-8 per sorghum head in "hot-spots" and 0-1 per sorghum head in other areas of field. Damage reported on grain sorghum from Stonewall, Jones, Throckmorton, Runnels, Tom Green and Taylor Counties. Sorghum head infestations averaged 2-4 per head with 20-60 stink bugs per head in parts of fields. Average of 2 per head is economic in milk and soft dough stage. Also reported from Stephens and Hamilton Counties during week ending July 14. Stephens County reported 20+ per head in two fields; 8-10 per head noted in Hamilton area. (Neeb et al., July 14). Currently, damage still moderate to heavy on milo in Jones, Throckmorton, Tom Green, Runnels, and Taylor Counties in Rolling Plains. Heaviest infestations ranged 2-4 per head. Decreased in Tom Green and Taylor Counties. Many producers made 1-2 treatments to control pest. Damaged grain sorghum in Mitchell County. (Boring, McIntyre).

YELLOW SUGARCANE APHID (Sipha flava) - ARKANSAS - Light in some northwest area fields. An occasional aphid taken in Washington and Carroll Counties. Survey negative in Benton and Madison Counties. Carroll County is a new county record. (Boyer).

GRASSHOPPERS - ILLINOIS - Continued potential problem on corn, soybeans, and hay crops. Presently remain in hay fields and in fence rows, ditch banks, and roadsides. (Ill. Ins. Rpt.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Heavy in several counties near Denton during past 7 days. Populations seem to be building up in Rolling Plains area near Vernon. Early midge infestation seen building up on Johnson grass in that area. (Turney, Boring, July 14). Counts currently declined in south-central area, but still threatening to late grain sorghum in area. Damaged sorghum in several counties. Midges heavy in late planted sorghum in Johnson, Kaufman, Ellis, Hunt, Collin, and Denton Counties in north-central area. Light to moderate in Knox, Baylor, and Archer Counties in Rolling Plains. Infestations ranged from less than 1 to near 2 midges per head. In southern South Plains, midges reproducing on grain sorghum. (Cole et al.). MISSOURI - Adults, 1-4 per head, infested sorghum heading and blooming in southeast area. (Jones).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - VIRGINIA - Severe on field corn in large Nansemond County field. (Coggsdale).

SMALL GRAINS

WHITE GRUBS (*Phyllophaga* spp.) - NORTH DAKOTA - Larvae damaged wheat northeast of Sheldon in Cass County. Populations, 5-6 per square foot, totally destroyed 10 acres in one field. Infestations and light damage seen in corn. Damaging infestations of this species rare in State. (Brandvik).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - COLORADO - Adults reported in unprecedented numbers in forest near Long Draw Reservoir of Roosevelt National Forest. In denser woods on north faces, 500 or more seen in flight in any direction. (Thatcher).

TURF, PASTURES, RANGELAND

SAGEBRUSH DEFOLIATOR (*Aroga websteri*) - UTAH - Damage moderate to sagebrush in some northern range areas, particularly in Box Elder County. (Knowlton). NEVADA - Infested 250+ acres of sagebrush in Wall Canyon area, Washoe County, and unknown acreage in Eastgate area, Churchill County, and Shoshone Mountains along U.S. Highway 50 in Lander County. (Lauderdale).

FORAGE LEGUMES

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - Adults and larvae heavy in alfalfa in Dome and Roll Valley, Yuma County. Growers either cut crops or applied controls. (Ariz. Coop. Sur.). NEW MEXICO - Larvae ranged 0-37 per 25 sweeps and caused considerable damage to alfalfa near Farmington, San Juan County. (Heninger).

ARMYWORMS - WASHINGTON - Larvae averaged 2 per sweep in alfalfa seed field north of Pasco, Franklin County; much damage in weedy portion of field. *Mamestra configurata* (bertha armyworm), *Amathes c-nigrum* (spotted cutworm), *Spodoptera praefica* (western yellowstriped armyworm), and unspecified species dominate. *S. praefica* now full grown, left foliage. *Autographa californica* (alfalfa looper) and *Colias eurytheme* (alfalfa caterpillar) also present. (Johansen). *A. c-nigrum* and several other cutworms damaged alfalfa for seed near White Swan, Yakima County. (Griffin et al.).

ALFALFA WEEVIL (*Hypera postica*) - UTAH - Larvae damaged some alfalfa in Cache County. (Burtenshaw). NEW MEXICO - Problem in alfalfa fields in Farmington area, San Juan County. Heaviest at Waterflow, adults ranged 4-31 and larvae 0-33 per 25 sweeps. (Heninger).

PEA APHID (*Acyrtosiphon pisum*) - OKLAHOMA - Moderate to heavy in alfalfa in Pawnee County. (Okla. Coop. Sur.). IDAHO - Damaged alfalfa throughout Jefferson County. Most fields required controls by July 19. (Gooch).

GRASSHOPPERS - WISCONSIN - *Melanoplus femurrubrum* severe threat to forage in several areas. Hatch continued in southwest and central areas; populations increased 25 percent over last period. Averaged 20+ per sweep in all alfalfa sampled; counts heavier at some locations and in some fields. Grasshoppers migrating into tobacco, soybeans, and gardens. *M. sanguinipes* adults heavy in field near Sauk City, Sauk County. (Wis. Ins. Sur.).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - NEW JERSEY - Heavy in all Warren County alfalfa. (Ins.-Dis. Newsltr.). MASSACHUSETTS - Mined leaflets ranged 25-30 percent in untreated mature alfalfa stand in Hampshire County. Sample of stems showed about 40 percent of leaflets mined in 4-week-old stand of untreated alfalfa in Berkshire County. (Jensen). VERMONT - Specimens collected from alfalfa at North Hartland, Windsor County, May 26, 1972, by P. Benedict. Determined by G.C. Steyskal. This is a new State record. (PP).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Heaviest defoliated fields in Queen Annes, Dorchester, Wicomico, and Somerset Counties ranged 10-20 percent; ranged 20-30 percent in Prince Georges County with newly emerged adults active. Most beetle activity subsided on Eastern Shore due to pupation (60 percent). Egg laying expected within next 2 weeks. Second generation populations expected to be economic in Worcester, Somerset, Wicomico, Prince Georges, and Dorchester Counties. (U. Md., Ent. Dept.). NORTH CAROLINA - Up to 3 adults per row foot in scattered fields. Damage generally restricted to northeastern counties with few damaged fields scattered over Robeson County area. (Lowery, Hunt).

BEAN LEAF BEETLE (Cerotoma trifurcata) - NEBRASKA - Heavy, 6-8 beetles per plant, in scattered Dodge County fields. Up to 20 percent defoliation noted. (Novotny).

PEANUTS

REDNECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Ranged up to 6 per peanut plant in Caddo County. (Okla. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Damage heavier than 1971 season; 25+ percent of squares damaged on early cotton in Scotland and Nash County area. Next 14-21 days critical for control. (Robertson). SOUTH CAROLINA - Emergence of overwintered weevils about complete. First-generation weevils seen in few fields. Larval infestations ranged 1-2 percent in treated plots and 3-9 percent in untreated plots in Florence area. (Taft et al.). Numerous in Pee Dee and Savannah River areas; light in Piedmont area. Cotton generally 2-3 weeks late statewide; many fields still without blooms. (Sparks). TENNESSEE - Punctured squares ranged 0-20 percent in fields surveyed in central area. (Cagle).

ALABAMA - A. grandis heavy in south and central areas. Square infestations generally 10-70 percent. Infestations proportioned to controls. Infestations in older Marshall County cotton ranged 50-60 percent on 20,000 acres; one of heaviest infestations in 20+ years. Controls planned. Heavy infestation from overwintered weevils unusual in mid-July. Heavy in all highland cotton in De Kalb, Jackson, Morgan, Cullman, Blount, Etowah, and other counties on 70,000+ acres. First "hatchout" in mountain area cotton in northern part of State will occur July 25 to August 5; now occurring in older cotton in Tennessee Valley area. (McQueen).

MISSISSIPPI - First generation of: Anthonomus grandis emerged. Punctured squares averaged 8 percent in Calhoun, Noxubee, Lowndes, and Yalobusha Counties; 7 percent in Adams, Amite, Lamar, Lawrence, Lincoln, Marion, Forrest, Jeff Davis, Pike, Walthall, and Jones Counties; 3 percent in Bolivar, Coahoma, De Soto, Humphreys, Sharkey, Sunflower, Tallahatchie, and Washington Counties. (Robinson). LOUISIANA - Punctured squares found in 47 of 48 plots in Madison Parish; infestations ranged 3-30 (averaged 16.3) percent in infested plots. Punctured squares found in 13 of 14 fields; infestations ranged 1-28 (averaged 10.8) percent in 13 fields. In Tensas Parish, punctured squares found in one of two fields in areas where diapause controls applied in fall 1971; infestation 7 percent in this field. In untreated areas, 2 fields checked; infestation 16 percent in one, 23 percent in other. No weevils found in 2 untreated fields examined by row foot method. (Cleveland et al.). OKLAHOMA - Percent infestation by county: Wagoner 4-17, Muskogee 13, Bryan 22, Grady less than 1, Caddo 7-8, Washita 7-8, Jackson 0-19, Harmon 0-25, Greer 0-8, and Tillman 0-3. Light to moderate in Cleveland County. (Okla. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - NORTH CAROLINA - Eggs, primarily H. zea, appeared on cotton in Scotland County. (Hunt). SOUTH CAROLINA - H. zea larvae light in most cotton in Florence area; percent infestation ranged 1-2 in treated plots and 1-2 in untreated plots. (Taft et al.). H. zea common in cotton throughout southeast and southwest areas. Light in Dillon and Marlboro County area. (Sparks). MISSISSIPPI - Heliothis spp. damaged squares ranged 2-3 percent in Yalobusha, Grenada, Coahoma, Bolivar, De Soto, Tallahatchie, Washington, Warren Counties. (Robinson). LOUISIANA - Damaged squares ranged 1-8 (averaged 3) percent in 35 of 48 plots examined in Madison Parish. Damaged squares found in 12 of 14 fields examined; ranged 1-5 (averaged 3) percent in infested fields. (Cleveland et al.). OKLAHOMA - Percent H. zea damaged squares by county: Bryan 7, Muskogee 6, Wagoner 4, Grady less than 1. In Jackson, Harmon, Greer, and Kiowa Counties, eggs ranged 1-5 per 100 terminals, small larvae ranged 0-4 per 100 terminals; damaged squares ranged 0-4.5 percent in Harmon County and 0-2 percent in others. (Okla. Coop. Sur.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - MISSISSIPPI - Heavy on approximately 600 acres of cotton in Washington County. (Robinson, July 15).

BANDEDWING WHITEFLY (Trialeurodes abutilonea) - ALABAMA - Adults light in all cotton fields in Cherokee and Marshall Counties. These are new county records. Collected by H. Hall and R.I.D. Murphy. Determined by H.F. McQueen. (McQueen).

CLOUDED PLANT BUG (Neurocolpus nubilis) - ALABAMA - A few specimens collected in cotton in Marshall County. This is a new county record. Collected by R.I.D. Murphy. Determined by H.F. McQueen. (McQueen).

TOBACCO

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Increased on untreated tobacco. Infested plants ranged 2-4 per 10 plants in Prince Georges and Charles Counties. Populations generally light to date. (U. Md., Ent. Dept.). VIRGINIA - Built up in some tobacco fields in Pittsylvania County. (Dominick).

GREEN JUNE BEETLE (Cotinis nitida) - KENTUCKY - Heavy on tobacco at one Pulaski County location. (Barnett).

SUGAR BEETS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Infestations on sugar beets lowest for time of year for past 12 years. Development of beet yellows minimized in Yakima and Walla Walla Counties. (Landis).

MISCELLANEOUS FIELD CROPS

SUNFLOWER BLOSSOM MIDGE (Contarinia schulzi) - MINNESOTA - Outlook for some sunflower growers not encouraging in certain counties in Red River Valley. Infested area 10 miles wider than in 1971; includes southern Polk, western two-thirds of Norman, and northern Clay Counties. Sunflowers with blossoms ready to open infested with several hundred small larvae. Most infested sunflower fields 5-6 feet tall. Infestations heaviest in marginal rows. No effective chemical control known for this pest. (Minn. Pest Rpt.). NORTH DAKOTA - Larvae in sunflower heads in Grand Forks, Traill, and Cass Counties. Infestation not widespread; found only in advanced fields with heads about one inch or larger. Larval counts in field borders ranged up to 200 (averaged 11) per head in infested fields. Heaviest in fields south of Galesburg in Cass County and east of Grandin in Traill County. (Brandvik).

A FLEA BEETLE (Longitarsus waterhousei) - OREGON - Caused loss of 100 acres of mint near Stayton, Marion County. Adults averaged 472 per sweep before treatment. Decreased to 6 per 100 sweeps after controls applied. (Berry).

HOP APHID (Phorodon humuli) - WASHINGTON - Populations above normal and general on hops near Prosser, Benton County. Ranged 50-100 per leaf in some hop yards. (Cone).

HOP LOOPER (Hypena humuli) - WASHINGTON - Second-generation eggs hatched, larvae moved up hop plants and fed on leaves. Infestation general in hop-growing area of Yakima Valley; more noticeable than past 3 years. (Cone).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - WASHINGTON - Averaged 300 per older leaf in 50-leaf sample on hops near Grandview, Yakima County. Infestation general in hop-growing area in Yakima Valley; developed rapidly. Metaseiulus occidentalis (a phytoseiid mite) on some infested hop leaves; up to 221 specimens of this predator observed per 50 infested leaves. (Cone).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - Problem in most potato-growing areas in State. Fourth-instar larvae very common in Presque Isle area, Aroostook County. Populations and number of locations continued to increase. Treatment made in severely damaged field in Piscataquis County. (Gall). MARYLAND - Second-generation adults laying eggs throughout State. Heaviest populations restricted to lower Eastern Shore. Most potato and tomato acreage protected with scheduled sprays. One 15-acre field in Wicomico County 60 percent defoliated. (U. Md., Ent. Dept.). COLORADO - Adults and larvae averaged 6 per 10 sweeps in potatoes in Fort Collins area, Larimer County. (Hantsbarger).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - Controls applied to peppers. Damage remained light but egg laying expected to increase rapidly with first-generation borers emerging this period. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - OREGON - Aphids increased significantly in traps in Chalk Butte, Mitchell Butte, Newell Heights, and Adrian areas of Malheur County July 10-14. Aphid movement continued heavy in Adrian and Mitchell Butte areas July 16-21. Growers advised to check fields closely. (Henninger). Very few nymphs present on potatoes in Klamath Basin, Klamath County. (Schuh). NEW JERSEY - Light to moderate on peppers in Cumberland County. (Ins.-Dis. Newsltr.).

BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Counts variable on peas, increased generally. Counts ranged 9-80 per sweep in Columbia, Green Lake, and Fond du Lac Counties. Reproduction heavy; expect continued increase next few weeks. Several thousand acres of peas treated in Fond du Lac and Green Lake Counties. (Wis. Ins. Sur.).

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - IDAHO - Full-grown larvae general in pea and lentil fields in Latah County. Many lentil fields treated to prevent cutting off of seed pods. (Portman).

GENERAL VEGETABLES

EGGPLANT FLEA BEETLE (Epitrix fuscula) - OHIO - Adult activity on eggplant increased 2 to 5-fold past 3 weeks in Wayne County. Up to 11 adults per plant; damage extensive, killed 15 percent of plants and 1-2 leaves on 65 percent of remaining plants. Determined by E.H. Smith. (Fox).

DETECTION

New North American Record - A THRIPS (Scirtothrips inermis) - CALIFORNIA - Los Angeles County. (p. 483).

New State Records - A GRASSHOPPER (Metrioptera roeselii) - NEW HAMPSHIRE - Nymphs and adults common at Durham, Strafford County, July 12. Collected and determined by E.K. Ede. ALFALFA LEAF BLOTCH-MINER (Agromyza fontella) - VERMONT - Windsor County. (p. 478).

New County Records - BANDEDWING WHITEFLY (Trialeurodes abutilonea) ALABAMA - Cherokee, Marshall (p. 479). CEREAL LEAF BEETLE (Oulema melanopus) NEW YORK - Schuyler (p. 485). CLOUDED PLANT BUG (Neurocolpus nubilis) ALABAMA - Marshall (p. 479). GREENBUG (Schizaphis graminum) ARKANSAS - Benton, Carroll, Madison (p. 473). RANGE CATERPILLAR (Hemileuca oliviae) NEW MEXICO - Chaves, De Baca (p. 486). YELLOW SUGARCANE APHID (Sipha flava) ARKANSAS - Carroll (p. 476).

DECIDUOUS FRUITS AND NUTS

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Continued steady increase in orchards without summer controls. Ranged 15-20 per leaf; heavier in some instances. All stages present, adults and eggs most numerous. (Thompson). MASSACHUSETTS - Average per leaf on untreated Red Delicious and McIntosh varieties in Hampshire County, respectively: eggs 12 and 4; adults 4 and 19. (Jensen).

PEAR PSYLLA (Psylla pyricola) - IDAHO - Second to fourth instar larvae, 1-5 per leaf, damaged small pear orchard at Wilder, Canyon County. One adult noted July 10. (Scott). WASHINGTON - Heavy flight noted July 16 at Yakima, Yakima County. (Landis).

APPLE APHID (Aphis pomi) - MASSACHUSETTS - Average per terminal on Red Delicious and McIntosh varieties in Hampshire County, respectively: Untreated, 281 and 177; alternate row sprayed, 175 and 30; treated, 5 and 8. (Jensen).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Damaged foliage of pecan trees in Wilbarger, Wichita, Clay, Baylor, and Throckmorton Counties. Damage also reported in El Paso, Hudspeth, Reeves, Ward, Winkler, Ector, and Martin Counties. (Neeb, Boring).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Damaged foliage of pecan trees in Nolan, Taylor, Runnels, and Tom Green Counties. (Boring).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Second-generation larvae light in pecan orchard in Okfuskee County. First-generation moths emerged in Tulsa County; no eggs or larvae found. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larvae caused first heavy fall of pecan nuts of season under some trees at Auburn, Lee County. (Bagby).

PECAN SPITTLEBUG (Clastoptera achatina) - MISSISSIPPI - Heavy in most orchards over State. Infestations reported from Hinds, Coahoma, Tallahatchie and Yalobusha Counties. (Neel).

CITRUS

Insect Situation in Florida - Mid-July - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 82 (norm 65) percent of groves; economic in 57 (norm 42) percent. Population much above average and very high on leaves and fruit. Will continue increase through July on leaves and through August on fruit, then decrease. Highest districts south, west, central, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 76 (norm 74) percent of groves; economic in 55 (norm 52) percent. Population slightly above normal, near summer peak, and in high range. Decrease expected. Highest districts central, west, east, and south. CITRUS RED MITE (Panonychus citri) infested 40 (norm 70) percent of groves; economic in 10 (norm 42) percent. At the lowest July level in 21 years of record. Population will continue in low range. Highest districts are south and west. BLACK SCALE (Saissetia oleae) infested 97 (norm 83) percent of groves; economic in 91 (norm 63) percent. Population is highest recorded at any time in 21 years of record. Decrease expected in August. All districts very high: East, central, south, north, and west. AN AMORED SCALE (Unaspis citri) infested 38 percent of groves; economic in 22 percent.

Population greater than any prior month. Slight increase expected. GLOVER SCALE (Lepidosaphes gloverii) infested 82 (norm 82) percent of groves; economic in 7 (norm 24) percent. Population below normal, in moderate range and decreasing. Highest district south. 1972 population lightest since 1962. PURPLE SCALE (L. beckii) infested 72 (norm 75) percent of groves; economic in 3 (norm 10) percent. Population below normal and at low or moderate level in all districts. Decrease expected. YELLOW SCALE (Aonidiella citrina) infested 45 (norm 64) percent of groves; none economic, norm 9 percent. CHAFF SCALE (Parlatoria pergandii) infested 41 (norm 60) percent of groves; none economic, norm 8 percent. These two scales will continue below normal and at low level in all districts. GREEN SCALE (Coccus viridis) infested 30 (norm 7) percent of groves; economic in 16 (norm 2) percent. This soft scale more numerous than any time in 21 years of record. Occurs in east, central, and south districts. Will persist until cold weather occurs. WHITEFLIES infested 88 percent of groves; economic in 30 percent. Population above normal and in high range. Little change predicted. Highest districts east and west. MEALYBUGS infested 77 percent of groves; economic in 22 percent. The summer peak population occurred in late June. It reached high range but was below normal. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

ORNAMENTALS

A THRIPS (Scirtothrips inermis) - CALIFORNIA - Collected on liquid-amber trees at Long Beach, Los Angeles County, May 25, 1972, by Edwards and E. Heuer. Determined by K. O'Neill. This is a new North American record. This thrips, known from the Canary Islands and Spain, has a large host range including citrus, willow, and acacia. Survey to determine extent of infestation in area is continuing. To date, no infestations found on citrus. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - ARKANSAS - Heaviest infestations seen in years on untreated evergreen shrubs in Fayetteville area. (Boyer). OKLAHOMA - Damage heavy (70-90 percent defoliation) on sycamore trees in scattered areas of southern Mayes County. Also noted on young black locust in area. (Okla. Coop. Sur.).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MICHIGAN - Increased this year in all swamp conifer stands with overmature balsam in Otsego County. Defoliation obvious in Roscommon County along State Highway 18 where feeding was heavy. Defoliation increasing in southeast Cheboygan County where all balsam brown and larvae heavy. Species will be major pest in Lower Peninsula. (Flink).

JACK PINE BUDWORM (Choristoneura pinus) - MICHIGAN - Infesting most jack pine stands throughout northern Lower Peninsula. Larvae heavy in northern Ogemaw County, browning of foliage obvious throughout most of Crawford County. Damage appears less than in 1971 in southeast Grand Traverse County. (Flink).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - PENNSYLVANIA - Much heavier than previous years on many spruce at residences and in Christmas tree plantations in and near Auburn, Schuylkill County. (Simons).

REDHEADED PINE SAWFLY (Neodiprion lecontei) - ALABAMA - Larvae heavy on 25 Loblolly pines, 12 to 36 inches high, at golf course in Linden, Marengo County. Controls applied. (Miller).

FALL CANKERWORM (Alsophila pometaria) - WEST VIRGINIA - Larvae caused 70-80 percent defoliation of maple, oak, and other trees on 1,900 acres in Dolly Sods area of Tucker County. (Miller).
MICHIGAN - Defoliated several square miles of forest in southwest Cass County. (Flink).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Damage heavy on foliage of shade trees in El Paso, Hudspeth, Reeves, Pecos, Winkler, Ector, and Martin Counties. (Neeb).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Leaves on most Siberian elms in northern San Juan County skeletonized by heavy populations. (Heninger).

A LACE BUG (Corythucha confraterna) - CALIFORNIA - Severely damaged large sycamore trees on Fort Sutter grounds in Sacramento, Sacramento County; 300-500 immatures and 15-20 adults per leaf. Undersides of leaves appear mottled due to excrement. Very hot weather caused dessication of leaf tissue and heavy leaf drop. Trees treated with systemic injection. (Cal. Coop. Rpt.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 3,392 confirmed cases reported in continental U.S. during period July 9-15. Screw worm cases by State as follows: Texas 3,317; New Mexico 11; Arizona 58; Oklahoma 6. In Texas, one case reported from Shelby County which borders on Louisiana. Total of 1,252 cases confirmed in Mexico. Number of sterile flies released this period in U.S. totaled 156,012,000 as follows: Texas 132,346,000; New Mexico 3,060,000; Arizona 17,116,000; California 600,000; Oklahoma 1,400,000; Louisiana 790,000; Arkansas 700,000. Total of 980,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - VERMONT - Irritated cattle during recent hot, humid weather. (MacCollom). OHIO - Counts per 10 animals checked by county ranged: Holmes 1-38, Wayne 3-12, Ashland 20-43. (Heller). KENTUCKY - Averaged 15 per animal on cattle in Garrard County. (Barnett). ILLINOIS - Increased rapidly past 2 weeks; annoying pastured cattle. State average 25 per animal, with up to 38 per animal in individual herds. (Ill. Ins. Rpt.). WISCONSIN - Annoyance to cattle moderate to severe in Outagamie and Chippewa Counties. (Wis. Ins. Sur.). IOWA - Ranged 5-10 per head on untreated beef cattle in Story County, 10-15 per head in Marion County. (Iowa Ins. Sur.). SOUTH DAKOTA - Unchanged or decreased on herds checked. Ranged 6-14 (averaged 10) per head on cows, 6-12 (averaged 7) on calves. (DelFosse). UTAH - Very annoying to horses and cattle in Collinston and East Garland area, Box Elder County, and Ogden and Hooper area, Weber County. (Knowlton).

HORN FLY (Haematobia irritans) - VERMONT - Remained light; averaged up to 50 per cow. (MacCollom). OHIO - Counts per 10 animals by county ranged: Holmes 0-12, Wayne 0-2, Ashland 0-60. (Heller). MISSISSIPPI - Counts 500+ on 75 head of Angus cattle in Oktibbeha County. Averaged 20+ per head in treated herd of 200 stocker

steers pastured in Clay County. (Robinson). IOWA - Averaged 200 per head on untreated beef cattle in Story County; ranged 250-350 (average 320) in Marion County. (Iowa Ins. Sur.). TEXAS - Decreased in Rolling Plains area past 7 days. Moderate to heavy on cattle in Trans-Pecos area. Counts ranged 400-3,000 per animal on untreated cattle. (Boring, Neeb, July 14). Currently, activity continued heavy throughout most sections of State. Heavy on livestock in south-central area. Moderate to heavy throughout Trans-Pecos area on cattle. Decreased slightly with hot weather in Panhandle area near Amarillo, Potter County. (Cole et al.). OKLAHOMA - Moderate to heavy on cattle in Beaver, Cimarron, Payne, Pawnee, Craig, Custer, Lincoln, Seminole, Cleveland, Hughes, and Okfuskee Counties. (Okla. Coop. Sur.). NEBRASKA - Ranged 500-3,000 per head on untreated range animals pastured near North Platte, Lincoln County. (Campbell). SOUTH DAKOTA - Unchanged on untreated cattle in northern Moody County. Ranged 200-950 per side (averaged 600) on cows, 10-35 per side (averaged 20) on calves. (DeFosse). UTAH - Ranged light to very severe on cattle herds in Cache, Uintah, and Duchesne Counties. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Increased in southern counties, annoyance to cattle light in most areas; moderate in portions of Outagamie, Rock, and Columbia Counties. (Wis. Ins. Sur.). IOWA - Annoyance light to most beef cattle herds. Ranged 10-40 per head in Marion and Story Counties. (Iowa Ins. Sur.). OHIO - Counts per 10 animals checked by county ranged: Holmes 0-4, Wayne 0-3, Ashland 0-1. (Heller). VERMONT - Numerous in some areas where manure accumulations not removed. (MacCollom).

MOSQUITOES - UTAH - Very annoying in Logan Canyon and Franklin Basin, Cache County; at Locomotive Springs and around farms in Corinne and Tremonton area of Box Elder County, and Delta and Abraham area of Millard County. (Knowlton). OHIO - Adult counts increased throughout State due to recent warm weather. (Fox). MASSACHUSETTS - Much more numerous in urban and suburban areas over State than 1971 at this time. (Jensen). ALABAMA - Culex pipiens quinquefasciatus (southern house mosquito) and other species heavy throughout State. Controls being planned in some southern area towns. (Barwood et al.).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - All stages of Hippodamia convergens, Coleomegilla maculata, and Scymnus spp. in grain sorghum in northeast area. Ranged up to 5 per plant in some fields. Light in soybeans in northeast area. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Adults collected on wheat in Schuyler County May 25 by R.E. Lemaire. Determined by R.E. White. This is a new county record. (PP).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - New area of infestation found on mulberry and ricepaperplant in Exeter, Tulare County, 10 miles from Porterville infestation. Find is result of routine inspection and survey. (Cal. Coop. Rpt.)

GRASSHOPPERS - CALIFORNIA - Camnula pellucida heavy and damaging on 2,100 acres of game reserve rangeland along lower Klamath River in Siskiyou County. Treatment planned. (PP). NEVADA - Unspecified nymphs averaged 10 per square yard in 100 acres of clover and native hay in Jacks Valley, Douglas County. (Munk). IDAHO - Economic in all southern counties and along western border as far north as Lewiston, Nez Perce County, on Clearwater River. Infestations heavy on estimated 2,500,000 acres. Treatments made on 631,000 acres in Adams, Twin Falls, Gooding, Elmore, Lincoln, Minidoka, Blaine, and Jerome Counties during June. (Pollard). UTAH - Winged forms moving from rangeland to cultivated fields in Box Elder, Cache, and Millard Counties. (Knowlton, Lindsay). Ranged 2-5 per square yard in Box Elder and Cache Counties with controls applied at Paradise. (Lindsay, Burtenshaw). NEW MEXICO - Nymphs averaged 2-9 per 25 sweeps, caused minor damage to alfalfa in northern San Juan County. Heaviest infestations seen at Bloomfield. (Heninger).

NEBRASKA - Melanoplus spp. nymphs ranged 8-16 per square yard in brome grass field margins, roadside ditches, and terraces in southeast and eastern districts. (Roselle, Keith, Palmer). NORTH DAKOTA - Scattered economic infestations in southern McHenry, northwest McLean, and northwest Sheridan Counties. Up to 40 (averaged 6) per square yard in roadsides and field margins; up to 15 per square yard in fields. Melanoplus bivittatus, M. sanguinipes, and M. femurrubrum dominant. (Grasser, July 14). Averaged less than one per square yard in McKenzie, Billings, and Golden Valley County rangeland areas. M. sanguinipes (second to fourth instars) dominant. Rangeland in excellent condition. (Grasser). MINNESOTA - Late general hatch of Melanoplus femurrubrum in Pope and eastern Swift Counties. Scattered heavy roadside counts found; most first instar nymphs. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - INDIANA - Two larvae and one pupa, all dead, found while spot checking 8,000 trailers arriving for camporee at Camp Atterbury in central district. Movement of so many trailers, some from infested areas, caused some concern. (Meyer). VERMONT - Egg laying begun in Chittenden County. (MacCollom).

JAPANESE BEETLE (Popillia japonica) - INDIANA - Adults averaged 1 per 10 linear feet on soybeans in Noble County field. (Clark). TENNESSEE - Several extensions of known infestations seen in Bradley, Polk, Hawkins, Roane, Sullivan, and Unicoi Counties. (Gordon). VIRGINIA - Adults feeding on corn silks in Culpeper County. (Allen et al.). PENNSYLVANIA - Total of 3,276 adults taken in bait traps July 7-14 in College Station, Centre County. (Adams). Adults heavy in Darlington, Beaver County, July 15. (Carter). NEW YORK - Adults active in Lake George area, Warren County. (N.Y. Wkly. Rpt., July 17). VERMONT - Adult emergence delayed, but now increasing in Burlington area of Chittenden County. (MacCollom).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Larvae collected on rangeland in Chaves County June 20 and on roadside gama grass in De Baca County July 7 by M.R. Perry. Determined by D.M. Weisman. These are new county records. (PP).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ILLINOIS - Collected from soybeans in Washington County July 17 by D.I. Edwards. Determined by A.M. Golden. This is a new county record. (PP).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Adults feeding on peanut foliage on 50-acre field near Webb, 40-acre field at Wicksburg, and 80 acres of peanuts at Cottonton in Houston County. Controls necessary. (Roney, Wilson). First adult of season taken July 10 at old infestation in Guntersville. (Murphy).

HAWAII INSECT REPORT

Corn - CORN LEAFHOPPER (Peregrinus maidis) moderate in 5 acres of field corn at Kilauea, Kauai; moderate in whorls of 5 acres of sweet corn at Kaumakani. Negligible in 5 acres of sweet corn at Waianae, Oahu; less than 10 percent of plants infested. Nymphs and adults of Tytthus mundulus (cane leafhopper egg sucker) common amid P. maidis infestation in Kilauea planting; nil in other 2 plantings. (Sugawa, Kawamura). CORN EARWORM (Heliothis zea) heavy in 5 acres of sweet corn at Waianae; 85 percent of mature ears with one or more larvae. Chemical control only occasionally employed in this planting. (Kawamura).

General Vegetables - ONION THRIPS (Thrips tabaci) light to moderate in several fields of green onion at Waianae, Oahu; heavy in recently abandoned 0.1 acre planting. Although population of T. tabaci has been generally light to moderate and sporadic in green onions on Oahu, incidence generally increased and became widespread throughout island during the first half of year. BEAN FLY (Melanagromyza phaseoli) heavy in yard planting of long beans at Wailuku, Maui; 100 percent of petioles infested. (Ah Sam). BLACK CITRUS APHID (Toxoptera aurantii) moderate on scattered lemon trees in 5-acre community garden at Kaumakani, Kauai. Two CITRUS SWALLOWTAIL (Papilio xuthus) larvae collected from this host situation first week of July. Adult of P. xuthus collected in late June from lime tree at Poipu, Kauai, for new island record; discovery of these 2 larvae may indicate widespread establishment of this pest on Kauai. (Sugawa).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) light under bark of 80 kiawe trees at Hickam Air Force Base, Oahu; heavy infestation reported at this location in late June (CEIR 22(27):431). Light trap collections first 2 weeks of July indicate marked decrease in adult population at Halawa, Oahu; averaged 46 per week. Weekly average for July from this trap 200+. (Kumashiro, Otsuka).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) - On Hawaii, following period of heavy rainfall, first of 3 planned aerial drops of snail bait made at Kahaluu, Kona, during June. Snail activity during June nil at Poipu and Wahiawa, Kauai, due to very dry conditions. (Yoshioka, Sugawa).

CORRECTIONS

CEIR 22(29):451 - Number 28 in upper right corner should read Number 29. (PP).

Weather of the week continued from page 472.

Light thundershowers brought little relief from heat, humidity, and atmospheric pollution. Afternoon temperatures reached the high 80s and low 90s from the Great Lakes to Texas and eastward to the Atlantic Ocean. Minimum temperatures were mostly in the 70s. Patches of light fog dotted the eastern third of the Nation on most mornings and the rising sun was reddish orange due to pollutants in the air. The Far Southwest continued hot with temperatures exceeding 100 degrees every afternoon at some locations. The Southwest was not quite so hot as during the previous week; however, the quasi stationary front stretched from the Great Lakes to the Texas Panhandle early in the week. Temperatures north of the front were quite comfortable, generally reaching the 70s in the afternoons. This front disappeared about midweek as the Bermuda High spread westward and on Thursday afternoon 90-degree heat spread to the central Great Plains. Montana and North Dakota were in cool air. Temperatures there ranged from the 40s in the mornings to the 70s and 80s on Monday and Tuesday and the 60s on Wednesday. The coolest weather occurred in the high Rockies where on Tuesday and Wednesday mornings the mercury dipped to 34 degrees. The Bermuda High moved westward reaching the lower Mississippi River Valley by the weekend and continued to bring hot, sultry weather to the eastern half of the Nation. Arctic air cooled the West. Montana and neighboring States were especially cool averaging 6 to 18 degrees cooler than normal.



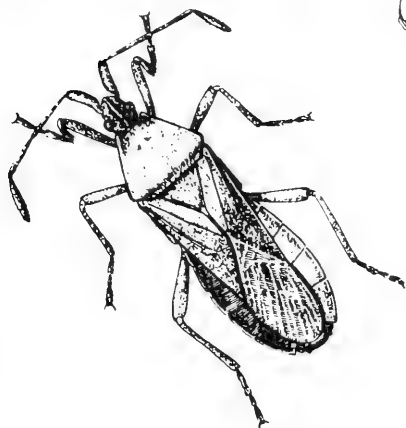
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



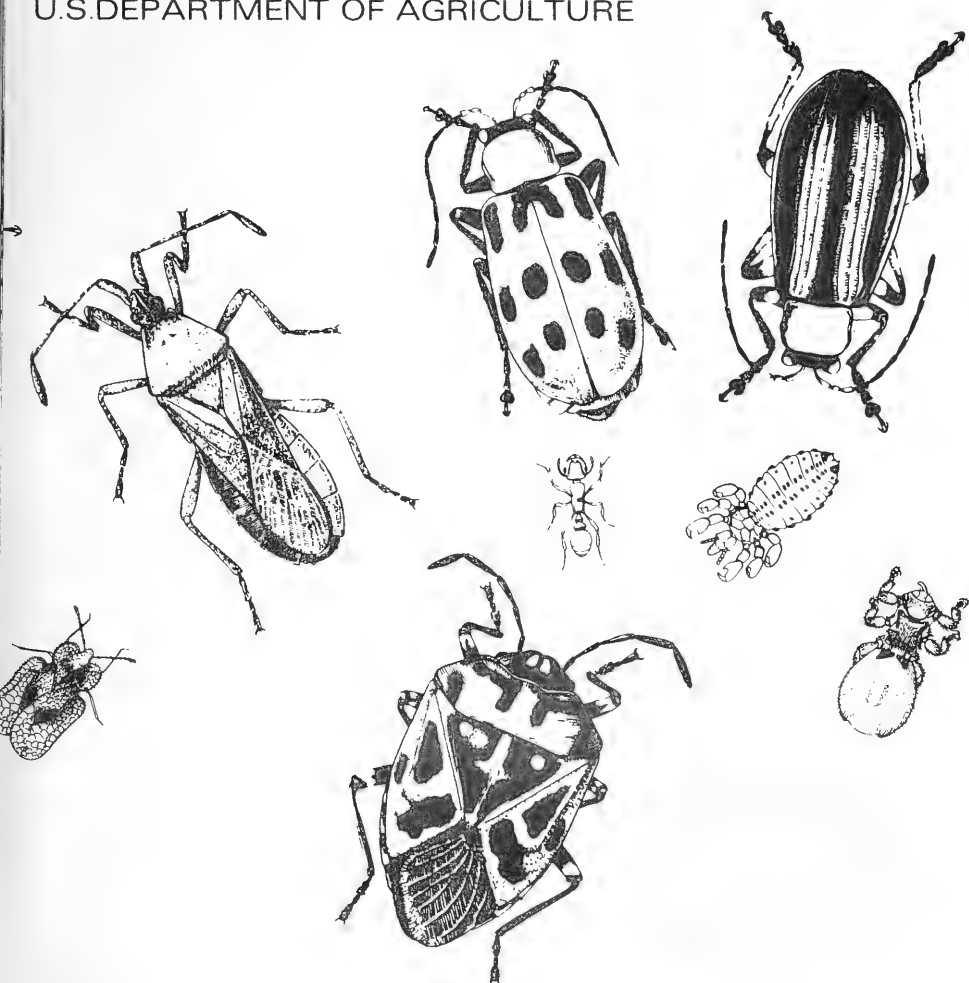
0004 SMINLISMIA122 33017 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by

PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM outbreak reported on grasses in Georgia. Damage to other crops reported from other areas. (p. 493). Moth collections heavy in some areas. (pp. 508-509). FALL ARMYWORM also damaging grasses in Georgia and Mississippi. (p. 498).

GREENBUG increased on sorghum in South Plains and Trans-Pecos areas of Texas, southwest Kansas, and Arkansas Valley of Colorado. Parasites effective in some areas. POTATO LEAFHOPPER increased on hay crops in west-central Ohio. (pp. 494-495).

CORN ROOTWORM adults emerging; feeding on corn silks reported. Second-brood EUROPEAN CORN BORER egg laying underway. (pp. 496-497).

BOLL WEEVIL infestations increased on cotton in South Carolina and Georgia, remain heavy in southern and central Alabama. (pp. 499-501).

PEAR RUST MITE near outbreak level on pears in southwest Oregon; unusually heavy in many pear-growing areas of California. (p. 503).

DOUGLAS FIR TUSSOCK MOTH widespread on Douglas-fir in central Washington. SOUTHERN PINE BEETLE reaching epidemic proportions throughout Alabama. (p. 504).

Detection

An ARMORED SCALE reported for first time in Florida. (p. 498).

For new county and parish records see page 502.

Special Reports

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1971. (pp. 510-511).

Khapra Beetle. Selected References 1970. (pp. 512-513).

Reports in this issue are for week ending July 28 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	493
Insects Affecting	
Corn, Sorghum, Sugarcane.....	496
Turf, Pastures, Rangeland....	498
Forage Legumes.....	498
Soybeans.....	499
Cotton.....	499
Tobacco.....	501
Sugar Beets.....	501
Miscellaneous Field Crops....	501
Potatoes, Tomatoes, Peppers.....	502
Beans and Peas.....	502
Deciduous Fruits and Nuts..	503
Citrus.....	503
Ornamentals.....	503
Forest and Shade Trees.....	503
Man and Animals.....	504
Detection.....	502
Beneficial Insects.....	505
Federal and State Plant Protection Programs.....	505
Hawaii Insect Report.....	507
Light Trap Collections.....	508
Estimates of Damage by the European Corn Borer To Grain Corn in the United States in 1971.....	510
Khapra Beetle, Selected References 1970.....	512
Weather of the Week.....	514

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

AUGUST 1972

The National Weather Service's 30-day outlook for August is for temperatures to average below seasonal normals from the Continental Divide to the Appalachians. Above normal temperatures are indicated for the western quarter of the Nation and also the middle and north Atlantic coast. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal from eastern portions of the central and southern Plains, through the middle Mississippi and Ohio Valleys to the Northeast. Subnormal totals are indicated for central and southern portions of the Pacific coast and the Inter-mountain Region. In unspecified areas, near normal totals 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.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - GEORGIA - Outbreak first noted July 18 in southern area; had moved as far north as Carroll County by July 30. Infestations heavy but spotty on corn and Coastal Bermuda grass pastures. Corn leaves being stripped to midrib as high as ear level and in some instances to tassel level. Outbreak this late in season unprecedented in State during past 20 years. (Jordan). Decreasing in south-central area; damaged millet in Monroe and Fayette Counties. (Tippens et al.). ALABAMA - Heavily damaged 30-acre field of Coastal Bermuda grass in Blount County. Controls applied. Undetermined species heavy in several large Coastal Bermuda grass fields at Midway, Bullock County, and at Smiths Station, Lee County. (Loyd, Dyar, Alley). P. unipuncta and Spodoptera frugiperda (fall armyworm) ranged 2-10 per whorl in young home garden corn in Lee County. (McQueen). FLORIDA - P. unipuncta larvae heavy, damaged stand of Coastal Bermuda grass at Jasper, Hamilton County. (Fla. Coop. Sur.). NORTH CAROLINA - Heavy damage to corn still reported in Hyde and Tyrrell County area. About 40 acres stripped near Fairfield, Hyde County. Damage most likely in fields with or near heavy grass, particularly fall panicum. (Van Dуйn).

MAINE - Additional P. unipuncta infestations and damage reported, mostly in central area. Increasing northward. (Gall). NEW HAMPSHIRE - Heavily damaged about 25 acres of timothy at Kensington, Rockingham County; larvae killed by disease. Damaged corn at Stoddard, Cheshire County. Larvae ranged 10-12 per square foot in hayfield at Stratham, Rockingham County. (Bowman). OHIO - Total of 5,777 moths taken in blacklight trap at Wooster, Wayne County, June 14-20. (Fox). MICHIGAN - Damaged scattered fields of corn, small grains, and grasses in Bay, Arenac, Genesee, Saginaw, Tuscola, Luce, Menominee, and Montcalm Counties. (Newman). WISCONSIN - Moths heavy at some blacklight trap sites. Larval buildup possible in small corn and Sudan grass for livestock feed. One Marinette County cornfield heavily infested week ending July 21; larvae apparently migrated from adjacent infested grassy peafield. (Wis. Ins. Sur.). SOUTH DAKOTA - Larvae in 40 percent of oatfields checked in Clay and Turner Counties. Below economic levels; averaged one per 5 square feet. (Kantack).

CORN EARWORM (Heliothis zea) - NEW JERSEY - Moth counts increased; spray protection now needed on sweet corn at 3-day intervals, except from central area northward. Increase expected to continue during August. (Ins.-Dis. Newsltr.). MARYLAND - Infestations in corn for canning ranged below 5 percent in Kent, Queen Annes, Dorchester, and Wicomico Counties. Counts and damage expected to increase rapidly. (U. Md., Ent. Dept.). VIRGINIA - Larvae infested sweet corn in southern tidewater regions. Survey of 15 fields of field corn showed 14.5 percent of ears in all fields infested. Percent infestation by county: Dinwiddie 16, Sussex 28, Southampton 5, Isle of Wight 18, Nansemond 4; no larvae detected in Prince George County. Moth flights very light and corn maturing in area. (Allen). KENTUCKY - Damaged whorls of late corn in Warren County. (Barnett). KANSAS - Ear infestations in silking field corn in Sedgwick County ranged 90-95 percent; some sweet corn in Shawnee County showed about 10 percent ear infestation. (Bell). MISSISSIPPI - Larvae averaged 15 per 100 corn ears in 40 acres in Pontotoc County, 25 per 100 ears in 27 acres in Amite County; 250 acres of sorghum treated in Madison County for whorl infestations. (Robinson).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Heavy in sorghum at Sulfur Springs Valley, Cochise County. (Ariz. Coop. Sur.). TEXAS - Light to moderate on sorghum in El Paso, Hudspeth, Reeves, Pecos, Midland, and Glasscock Counties in Trans-Pecos area. Generally distributed throughout most of High Plains area near Amarillo. Populations began to decline. Beneficial species heavy in High Plains. (Neeb, Clymer). MISSISSIPPI - Heavy in 800 acres of sorghum in Madison County. (Robinson). OKLAHOMA - Ranged 50-300 per plant in most sorghum checked in panhandle counties; ranged 500-1,000 per plant in occasional fields. Averaged 500 per plant in Tillman County. Heavy in Jackson, Kiowa, Greer, and Harmon Counties, light in Washita and Caddo Counties. (Okla. Coop. Sur.). KANSAS - Light to moderate in sorghum in south-central and southwest districts; heavy in occasional fields in Reno and Seward Counties. (Bell).

WISCONSIN - R. maidis decreased on corn tassels due to heavy rains. Some found in silks and at bases of plants. (Wis. Ins. Sur.). ILLINOIS - Light on corn. Control not necessary. Lady beetles and flower bugs numerous in many fields helping hold aphids in check. (Ins. Bull.). INDIANA - Heaviest on corn grown for grain in southeast district; infestation ranged 4-88 percent in all 12 fields checked; aphids ranged 1-100 per infested plant. Corn mostly in early to late whorl stages; some tasseled. Single infested field found in south-central district; 3 fields infested of 7 checked in southwest district. Counts lower in south-central and southwest districts; maximum averaged 42 per infested plant. (Meyer).

OHIO - R. maidis ranged light to heavy in most field corn in south-west and west-central areas. Counts heaviest where corn in late whorl stage; 90-100 percent of plants in this stage in Darke, Clinton, Warren, and Auglaize Counties with heavy counts. (Fox). MARYLAND - Very light to date on corn Statewide. Moderate on stalks and tassels in several isolated fields in Wicomico and Dorchester Counties. (U. Md., Ent. Dept.).

GREENBUG (Schizaphis graminum) - TEXAS - Continued to build up in grain sorghum in most South Plains counties; ranged light to heavy. In northern Panhandle, populations generally light across area with heaviest infestations in older fields. Some fields in Collingsworth, Donley, Castro, Deaf Smith, and Parmer Counties may need controls. Beneficial species generally moderate to heavy with more parasitic wasp activity observed daily. S. graminum moderate in irrigated grain sorghum in Knox County. Activity increased in Trans-Pecos area. Heaviest activity found in fields in soft to hard dough stage. Counts ranged 2-5 colonies per leaf, ranged 25-900 aphids per colony. (McIntyre et al.). ARKANSAS - Infestations continued at low level in northeast area. Predators and parasites held aphid counts at low level. S. graminum feeding signs seen on sorghum in northwest area, predators and parasites held numbers to low level. (Boyer).

OKLAHOMA - S. graminum counts per sorghum plant by county: Beaver 40-800, Texas 50-1,500, Cimarron 20-200. Heaviest counts usually in fields in boot stage or beginning to head. Parasites and predators present in all fields, but numbers low. Scattered fields treated. Greenbug light in most corn checked in area. Averaged 100 per plant in grain sorghum in Tipton area, Tillman County. (Okla. Coop. Sur.). KANSAS - Some significant increases of S. graminum occurred in some southwest counties, especially

n Grant, Haskell, and Finney Counties. Few economic infestations seen; however, fields in area will need frequent checking. Declined in sorghum in Washington and Marshall Counties as parasitic wasps continued to increase; some decrease attributed to recent heavy rains. Some *S. graminum* economic infestations and/or treatments reported in Chase, Dickinson, Barton, Pawnee, Reno, Harvey, and Stafford Counties. Parasitism by *Lysiphlebus testaceipes* (a braconid) moderate to heavy in most areas surveyed except southwest district. Scattered fields of young sorghum showed significant stand loss (up to 50 percent) along with severe damage to remaining plants by *S. graminum* in Washington County and in one Marion County field. Greenbug counts on corn in fields in Jackson County much decreased following heavy rains; about 1 winged aphid per 25 plants and few very young offspring found. (Bell). COLORADO - Increased rapidly in untreated sorghum in Arkansas Valley; ranged 0-1,000+ per plant. (Schweissing).

NEBRASKA - Parasitism by *Lysiphlebus testaceipes* ranged 10-95 percent. Most sorghum fields out of danger as result of parasites and predators. *S. graminum* noneconomic in western area. (Keith). IOWA - Declined on grain and forage sorghums. Parasitism increased to 25-percent level in 2 fields of forage sorghum in Story County. (Iowa Ins. Sur.). SOUTH DAKOTA - *S. graminum* building up again in milo. (Kantack). NORTH DAKOTA - Damaged wheat and barley in boot stage in localized area south of Elliott, Ransom County. Damage 100 percent 2 rods along edges and ends of fields. Counts 3,000 per 100 sweeps in damaged areas of fields. Controls applied to most severely damaged fields. (Brandvik).

POTATO LEAFHOPPER (*Empoasca fabae*) - OHIO - Increased 2 to 5-fold in west-central hay fields due to hot, humid weather past 14 days. Adults and nymphs economic in following counties: Preble (alfalfa), 5 per sweep; Darke (red clover), 35 per 50 sweeps; Butler (alfalfa), 3 per sweep; Mercer (alfalfa), 2-3 per sweep; Butler (clover-timothy), 1-2 per sweep, Logan (clover-timothy), 7 per 50 sweeps. Yellowing occurred in Darke and Butler alfalfa fields. Late instars heavy and damaging Muskingum County alfalfa. (Flessel, Fox). WISCONSIN - Generally low, 2-3 per sweep, in southwest area alfalfa; some sandy soiled fields ranged 50-75 per sweep. Yellowing increased in these fields. (Wis. Ins. Sur.). MARYLAND - Unchanged in alfalfa; heaviest counts ranged 10-25 per sweep in border areas of fields in Baltimore, Montgomery, and Frederick Counties. Remained light in snap beans, ranged 2-5 per sweep in Carroll, Prince Georges, Queen Annes, and Dorchester Counties. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEVADA - Infested about 900 acres of seed alfalfa in Dixie Valley of Churchill and Pershing Counties; ranged 20-100 per sweep. These infestations are in addition to 300 acres reported in CEIR 22(30):474. (Stitt). COLORADO - Ranged 0-100 per 100 sweeps of alfalfa in Pueblo, Rowley, Otero, Bent, and Prowers Counties. (Schweissing). OKLAHOMA - Heavy in scattered alfalfa fields in Okfuskee County. (Okla. Coop. Sur.). ARKANSAS - Light on alfalfa, 0-200 per 100 sweeps, in northwestern area. Expect increase if current hot, dry weather continues. (Boyer). KANSAS - Serious, economic or bordering on economic, in alfalfa in Sedgwick County. Averaged about 4 per trifoliolate leaf in field of 7-inch alfalfa; up to 30 on some lower leaflets. Little leaf shed noted but some yellowing of lower leaves seen. In another field just cut, large number of aphids seen on ground, especially beneath windrows; green stubble

often solidly covered with aphids, especially bordering windrows. (Bell). WISCONSIN - Increased on alfalfa in sandier soiled region of western Dane County and southern Sauk County. Up to 300 per sweep in some fields; average nearer 50 per sweep. Alates about 10 percent of population. Counts per individual stem ranged 10-15. (Wis. Ins. Sur.).

TOBACCO HORNWORM (*Manduca sexta*) - KENTUCKY - This species and *Heliothis* spp. damaged tobacco. Percent damage by county, based on examination of 100 plants per location: Franklin 10, Green 15, Scott 1, Adair 10, Metcalfe 8.5, Warren 3, Marion 8. (Barnett).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (*Diabrotica* spp.) - TEXAS - *D. virgifera* (western corn rootworm) heavy locally in corn in Dallam County near Texline. Adults emerged, damage heavy to corn silks. Controls applied. (Hills). OKLAHOMA - Light numbers of *D. virgifera* adults emerged in most corn checked in Cimarron and Texas Counties. Light numbers of *D. undecimpunctata howardi* (southern corn rootworm) seen in Texas, Cimarron, and Beaver Counties. (Okla. Coop. Sur.). KANSAS - Some severe root damage by *Diabrotica* spp. seen in untreated corn in Nemaha and Sedgwick Counties. Severe silk feeding by *D. virgifera* adults resulted in very poor pollination in field in Sedgwick County. Adults ranged 1-11 per plant in silking corn in Doniphan County, 1-5 per plant in Brown and Nemaha Counties. (Bell). MISSOURI - *D. virgifera* larval damage observed in Pettis County; lodging averaged 2 percent. Adults averaged 5 per plant. (Thomas). *D. virgifera* adults collected in Cole, Franklin, Gasconade, and Osage Counties. These are new county records. (Munson).

NEBRASKA - *D. virgifera* and *D. longicornis* (northern corn rootworm) caused light damage to about 30 percent of fields in corn for 3 or more years in Dawson County. Counts heaviest for past 5 years. Adult emergence slower than usual. Averaged 2-3 adults per plant in heaviest infested fields; increase continued. (Pruess). *Diabrotica* spp. adults ranged 1-4 per plant in most fields checked in Lancaster County. Beetles ranged 2-15 per plant with 2-6 per silk in Seward County field. (Berogan). SOUTH DAKOTA - *Diabrotica* spp. damaged treated and untreated corn over infested area. Larval development well advanced; some adults emerged. (Kantack).

ILLINOIS - *Diabrotica* spp. becoming numerous as emergence continues. (Ins. Bull.). IOWA - Adults emerging, silk feeding has necessitated treatment in pollinating corn in southwest area. (Iowa Ins. Sur.). OHIO - *D. longicornis* adults emerged in Hancock, Wayne, Sandusky, Wyandot, Morrow, Darke, and Warren Counties. Corn silks in pollinated fields should be checked closely for clipping. (Musick, Fox). MARYLAND - First *D. longicornis* adults of season feeding on corn silks in Harford and Kent Counties; noneconomic. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW JERSEY - Moth catches increased sharply; represents beginning of second flight. Egg masses found on young sweet corn plantings. Some hatch will occur before August 1, but major hatch expected after this date. (Ins.-Dis. Newsltr.). DELAWARE - Adults increased in blacklight traps in Sussex County; ranged 13-31 per night. Egg masses on field corn in central Sussex County averaged 13 per 100 plants;

fresh masses on peppers in most areas. Pupation of first generation in corn averaged 70 percent. (Burbutis, Kelsey). MARYLAND - Ostrinia nubilalis egg laying increased rapidly in Kent, Queen Annes, Talbot, Wicomico, and Worcester Counties. Ranged 10-15 egg masses per 100 plants; ranged 2-5 per 100 plants in Prince Georges and Montgomery Counties. Pupation 80 percent on Eastern Shore, 50 percent in central counties. (U. Md., Ent. Dept.).

OHIO - Percent infestation of field corn by late O. nubilalis larvae and pupae by county (50-100 plants per county): Fayette 24, Darke 14, Highland 12, Auglaize 10, Brown 8, Clinton 4. Infestation 20 percent in Clinton County sweet corn. (Fox).

ILLINOIS - Second-generation moths laying eggs in southern area. Moth emergence underway in central area, egg laying just begun. Moth emergence just beginning in northern area. Egg laying will peak in 10 days in central area, about 14 days in northern area. Egg laying will continue about 14-21 days. (Ins. Bull.).

INDIANA - No infestations observed in southwest district; single infested field seen in south-central district with 4 percent infestation; 2 infested fields with 8 percent infestation seen in southeast district. Total of 23 fields checked. Mortality appears to have been heavy in these districts and in other fields examined. (Meyer).

IOWA - O. nubilalis moths emerging. Larvae averaged 2,500 per acre in 32 study fields in Boone County. If present weather trends continue, about 50 percent of larvae expected to pupate and contribute to second brood. (Brindley). NEBRASKA - First brood damaged 8-40 percent of plants in fields checked in Seward and Lancaster Counties. (Berogan). SOUTH DAKOTA - In infested fields near Centerville, Turner County, 95 percent of larvae in last instar; averaged 1.5 per stalk. Pupation begun; some adults emerged. Infested 80 percent of stalks in fields checked near Howard, Miner County; larvae just entering stalks. Many small larvae present. Conditions similar in southeast Jerauld County. Averaged 2 larvae per stalk in Miner County; ranged 3-4 per stalk in Jerauld County, with about 100 percent of stalks infested. (Kantack).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Heavy in sorghum in Wayne and Telfair Counties. (Deal, McKinnon, July 22). ALABAMA - Larvae damaged several fields of grain sorghum in Houston County, fields replanted. (Roney).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - TEXAS - Increased in corn in Castro and Parmer Counties, some treatments applied. (Clymer).

FALL ARMYWORM (Spodoptera frugiperda) - MARYLAND - First larvae of season damaged 6 percent of 20-acre stand of late planted corn in Carroll County. (U. Md., Ent. Dept.).

CONCHUELA (Chlorochroa ligata) - TEXAS - Infested grain sorghum in Taylor, Jones, and Knox Counties in Rolling Plains; ranged 2-3 adults per head in heavily infested fields. (Boring).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Damaging numbers noted in grain sorghum in Jones, Knox, and Baylor Counties in Rolling Plains. Producers in area should inspect grain sorghum as it begins to bloom to determine need for controls. (Boring).

MISSISSIPPI - Contarinia sorghicola continued to develop on Johnson grass with some movement into sorghum noted. Emergence from Johnson grass in Oktibbeha County from June 26 through July 24 showed average of 27 midges per head with up to 150 from single heads. (Ross).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Light to heavy in grain sorghum fields in Knox County. Heaviest infestations in fields sprayed several times to control other pests. Light in several northern Panhandle counties; activity remains moderate in Trans-Pecos area near El Paso. No activity detected in Pecos and Reeves Counties. (Clymer et al.). Infested corn in Castro County in High Plains area. No damaging populations found. (Clymer). OKLAHOMA - Moderate on lower 1-3 leaves in 1 of 5 cornfields checked in Texas County and 1 of 2 fields in Cimarron County. Light on lower leaves of scattered plants in Beaver County field. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - SOUTH CAROLINA - Larvae light in Hampton, Barnwell, Calhoun, and Saluda Counties; most feeding on Coastal Bermuda grass. First report of season. (Thomas). GEORGIA - Destroyed foliage of Coastal Bermuda grass hayfields in Burke and Greene Counties. Very heavy in field of young sorghum in Wilcox County. (French). MISSISSIPPI - First damaging infestations reported in 70 acres of hybrid grasses grown for pasture and hay in Amite County and in 75 acres in Leake County. (Robinson).

SAGEBRUSH DEFOLIATOR (Aroga websteri) - NEVADA - Severely damaged big sagebrush (Artemisia tridentata) in Long Valley area, Washoe County; some damaged areas ranged 750-1,000 acres. (Heise).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - UTAH - Damage to lawns more general and common throughout Salt Lake County. Damage continued to spread in Davis County. (Knowlton, Burningham).

WHITE GRUBS (Phyllophaga spp.) - NORTH DAKOTA - Damaged range grass in Sheyenne National Grasslands, Richland County. Populations of 10-12 grubs per square foot completely consumed roots of native grasses. (Mulkern).

AN ARMORED SCALE (Chortinaspis subchortina) - FLORIDA - Collected on centipede grass (Eremochloa ophiuroides) at Pensacola, Escambia County, July 12 by D. Mullins. Determined by G.W. Dekle. This is a new State record. (Fla. Coop. Sur.).

GRASSHOPPERS - KENTUCKY - Adults and nymphs averaged 79 per 100 sweeps in roadside grasses and pastures in Warren and Barren Counties. (Barnett).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Adults ranged up to 350 per 100 sweeps of alfalfa at Ithaca, Tompkins County, July 14-24. Microctonus aethiops (a braconid), a parasite of H. postica adults, being released at selected sites over State. (N.Y. Wkly. Rpt., July 24). KANSAS - Adults per 10 sweeps of alfalfa ranged as follows in 5 fields per county: Cowley, 1-5; Chautauqua, 0-6;

Montgomery, 0-4; Labette, 0-3; Neosho, 0-4; Crawford, 1-4; Wilson, 0-1. (Bell). COLORADO - Larvae of Hypera postica ranged 0-40 per 100 sweeps of alfalfa in Pueblo, Crowley, Otero, Bent, and Prowers Counties. (Schweissing).

PEA LEAF WEEVIL (Sitona lineata) - WASHINGTON - Adult counts and damage on alfalfa continued heavy at various eastern localities. Damage ranged moderate to severe in 40 acres of alfalfa in Franklin County. (Hokansen et al.).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Ranged 200-300 per sweep on 400 acres of seed alfalfa in Reese River, Lander County. (Hilbig). Averaged 300 per sweep on 250 acres of alfalfa hay at Orovada, Humboldt County. (Martinelli et al.). COLORADO - Ranged 0-400 per 100 sweeps of alfalfa in Pueblo, Crowley, Otero, Bent, and Prowers Counties. (Schweissing).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - MASSACHUSETTS - Leaflet infestation 21+ percent in untreated 4-week-old alfalfa planting in Hampshire County; 4 percent in treated block. (Jensen).

ARMYWORMS - WASHINGTON - Spodoptera praefica (western yellow-striped armyworm) larvae averaged 1 per sweep on lentils west of Colfax, Whitman County; ranged 2-3 per sweep on lambsquarters in weedy southwest corner of field. Mamestra configurata (bertha armyworm) showed preference for lambsquarters in alfalfa seed field north of Pasco, Franklin County. (Johansen, Baird).

GRASSHOPPERS - KENTUCKY - Average adult and nymphal counts, mostly Concephalus spp., per 100 sweeps of forage by county: Trimble 335, Warren 1,200, Metcalfe 225. (Barnett).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Populations and damage unchanged. Newly emerged adults will begin heavy egg laying next 7 days in Dorchester, Wicomico, and Talbot Counties. Most infestations below economic levels to date. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae heavy, destroyed most of soybean plants in sandy area of field in southwest Houston County. Larvae occurred throughout field. (Roney).

SPIDER MITES (Tetranychus spp.) - MISSOURI - Moderate to heavy in central and west-central areas. Infestations heavy enough to warrant control recommendations. (Thomas).

COTTON

BOLLWORMS (Heliothis spp.) - NORTH CAROLINA - Economic larval damage reported from less than 2 percent of 250 cotton fields surveyed in Scotland County area. Very few eggs observed to date in Northampton County area. (Bradley). SOUTH CAROLINA - Larval infestations in Florence area ranged 1-4 percent in treated plots, 1-2 percent in untreated plots. Infestations increased rapidly but moth activity continued light. (Taft et al., July 26). GEORGIA - Egg laying still heavy in southern areas, up to 200 eggs and 22

small larvae per 100 terminals. (Womack). Counts per 100 terminals by county: Crisp, 6-42 eggs and 4-63 larvae; Wilcox, 6-48 eggs. (Hudson, Nix). ALABAMA - Occurred statewide; not serious except in isolated fields. (McQueen). MISSISSIPPI - Eggs and small larvae increased over State; counts heaviest in fields near corn. (Robinson). LOUISIANA - Damaged squares found in 27 of 52 plots checked in Madison Parish; infestation ranged 1-10 (averaged 4.4) percent in infested plots. Damaged squares found in all of 8 fields checked; ranged 1-4 (averaged 2.5) percent. In Tensas Parish, damaged squares found in all of 6 fields checked; ranged 1-5 (averaged 3) percent. (Cleveland et al.). TEXAS - In 9 treated fields in McLennan and Falls Counties, *H. zea* eggs averaged 3.8 and larvae 2.5 per 100 terminals. Eggs averaged 2.7 and larvae 1.8 per 100 terminals in 15 untreated fields. Percent damaged squares averaged 15.5 (maximum 58.2) percent in 9 treated fields and 5.9 (maximum 21.5) percent in 14 untreated fields. Of 341 larvae collected on cotton, 218 determined as *H. virescens*. Most early planted fields past stage where bollworms can cause damage, but many late fields being damaged. (Cowan et al.). Counts increased in fields in Erath County; estimated at about 20,000 per acre at Tarleton Experiment Station. Leaf loss at this location not extensive, treatment not required. (Hoelscher).

OKLAHOMA - *H. zea* percent damaged squares ranged 2-15 in Muskogee County, 6-18 in Wagoner County, 5-20 in Bryan County. Averaged 15 percent in Marshall County. Eggs light in these areas. In Jackson, Harmon, Kiowa, and Greer Counties larvae ranged 1-4 per 100 terminals and eggs 0-7 per 100 terminals in most fields. Damage ranged 1-2 percent in Tillman County, averaged 1 percent in Grady County. Eggs and larvae very light in Caddo and Washita Counties. (Okla. Coop. Sur.).

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - In Florence area, adults ranged 0-311 per acre in treated plots, 0-2,168 per acre in untreated plots. Larval infestations ranged 1-2 percent in treated plots, 11-15 percent in untreated plots. Infestations increased in most fields; however, no indications of migration. (Taft et al., July 26). GEORGIA - Infestations increased throughout State; up to 60 percent punctured squares in southern areas where adequate controls not applied. (Womack). Punctured squares 1-11 percent in Crisp County and 1-9 percent in Wilcox County. (Womack). ALABAMA - Infestations remain heavy throughout south and central areas; square infestations ranged 10-70 percent. Infestations in proportion to control efforts. Many fields in northern area, including mountain area, with 10-30 percent square damage. Limited controls in extreme northern section, including mountain and Tennessee Valley areas. (McQueen).

MISSISSIPPI - *A. grandis* punctured squares increased due to first-generation emergence. Percent punctured squares by county: Rankin, 11 in 207 fields; Simpson, 25 in 4 fields totaling 115 acres; Forrest 18.6; Lawrence 3.3; Noxubee, 5 in 500 acres; Chickasaw, 40 in 225 acres; Bolivar, 9 in 4 fields; De Soto, 2 in 2,200 acres; Issaquena 0-3 in 2,000 acres; Leflore, 0.5 in 88 fields. (Robinson). LOUISIANA - Punctured squares found in 51 of 52 plots checked in Madison Parish; infestations ranged 1-22 (averaged 7.7) percent in infested plots. Punctured squares found in all 8 fields checked; ranged 1-29 (averaged 8.1) percent. Punctured squares found in 2 fields checked in areas that received diapause control

treatments in Tensas Parish in fall of 1971; infestation 8 percent in each field. Punctured squares found in all of 4 fields checked in untreated areas of Tensas Parish; ranged 4-21 (averaged 10) percent. (Cleveland et al.). TEXAS - Percent punctured squares averaged 8 (maximum 27.2) in 9 treated fields in McLennan and Falls Counties; averaged 10.5 (maximum 87) in 14 untreated fields. (Cowan et al.). OKLAHOMA - Anthonomus grandis infestations ranged 0-43 percent in Jackson, Greer, and Harmon Counties; averaged 5 percent or less in most fields. Ranged 1-8 percent in Kiowa County, 1-2 percent in Tillman County. Averaged 18 percent in Washita and Caddo Counties and 4 percent in Grady County. Ranged 10-20 percent in Marshall County; moderate in Bryan County. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Eggs increased on cotton in Dona Ana County. Beneficial insects may prevent larvae from becoming problem. (N.M. Coop. Rpt.).

TOBACCO

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Increased slowly in Charles, Prince Georges, and St. Marys counties. Light on 2-5 plants per 50 plants examined. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma saucia) - WISCONSIN - Larvae, about full grown, taken from tobacco seed bed in Dane County; probably third generation. Adults emerging, will oviposit into November, larvae will overwinter. (Wis. Ins. Sur.).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - MINNESOTA - Infested area north of Sabin, Clay County. At least 2 sugar beet fields totally destroyed. Two other fields nearby less extensively damaged. Control excellent in one sugar beet field; untreated check strips severely damaged. (Minn. Pest Rpt.).

MISCELLANEOUS FIELD CROPS

SUNFLOWER BLOSSOM MIDGE (Contarinia schulzi) - MINNESOTA - Infestations found in southern Clay County in Barnesville area; ranged up to 60 percent in central Clay County. High counts in marginal rows usually decreased after 50 or more rows inward. In early infested fields, larvae maturing and disappearing from blossom heads. All sizes found. About 1,600 larvae found on flower bud 2.5 inches in diameter during laboratory check. Deformed blossom heads found on few plants on outside edges of fields. Larvae found in late plants 3 feet in height and developing flower buds. Little known of life cycle; uncertain of effect on later sunflower plantings. (Minn. Pest Rpt.).

SUNFLOWER MOTH (Homoeosoma electellum) - NEBRASKA - Infested 2-45 percent of heads in 4 sunflower fields in Platte County. Larvae ranged 1-25 (averaged 3) per infested head. (Keith et al.).

CARROT BEETLE (Bothynus gibbosus) - TEXAS - Destroyed up to 75 percent of sunflower plants in experimental plots at Munday Vegetable Research Station. (Boring).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - OREGON - Heavy, damaged mint and hops in Grants Pass area, Josephine County. Damage spotty and at scattered localities in mintfields and hop-yards. (Larson, Berry).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Very heavy on potatoes near Lumberton, Burlington County, and Deerfield Street, Cumberland County. (Ins.-Dis. Newsltr.). MICHIGAN - Increased on potatoes. Controls should be applied on 7 to 10-day schedule. (Newman). COLORADO - Built up rapidly in number of potato fields; ranged 30-50 per leaf in Otero County, 1-20 per leaf in Weld County. (Schweissing, Urano). CALIFORNIA - Potato growers at Tulelake, Siskiyou County, experienced difficulties with controls on potatoes. Repeat applications not controlling populations. This area is primarily certified seed potatoes. M. persicae becoming major pest on wide range of hosts. (Cal. Coop. Rpt.). OREGON - Migration continued heavy in Newell Heights, Chalk Butte, Mitchell Butte, and Adrian areas of Malheur County. Moved into potato fields in Newell Heights region from several adjacent severely infested sugar beet fields. (Henninger). WASHINGTON - Yellow-pan trap counts in potato area around Othello, Adams County, 2-3 times higher than those near Moses Lake, Grant County, week ending July 19. (Harwood et al.).

BEANS AND PEAS

COWPEA CURCULIO (Chalcodermus aeneus) - SOUTH CAROLINA - Heavy in most peas across State. Damage economic in fields where controls not applied. (Thomas). GEORGIA - Adults severely damaged beans in Spalding County. (Tippins, July 22).

DETECTION

New State Record - An ARMORED SCALE (Chortinaspis subchortina) - FLORIDA - Escambia County. (p. 498).

New County and Parish Records - A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) OKLAHOMA - Beaver (p. 505). A THRIPS (Scirtothrips inermis) CALIFORNIA - San Diego (p. 503). MIMOSA WEBWORM (Homadaula anisocentra) OHIO - Summit (p. 503). WESTERN CORN ROOTWORM (Diabrotica virgifera) MISSOURI - Cole, Franklin, Gasconade, Osage (p. 496). WHITEFRINGED BEETLES (Graphognathus spp.) LOUISIANA - Vernon (p. 507).

DECIDUOUS FRUITS AND NUTS

PEAR RUST MITE (Epitrimerus pyri) - OREGON - Approached outbreak levels in some pear orchards in Medford area, Jackson County. Buildup probably due to lax control programs. Cold weather earlier this spring severely reduced amount of fruit; some growers not applying needed controls. (Berry). CALIFORNIA - E. pyri and Phytoptus pyri (pearleaf blister mite) unusually heavy in many pear growing areas; some damage will occur. Normally only periodical problem in foothill areas. (Cal. Coop. Rpt.).

PEARSLUG (Caliroa cerasi) - UTAH - Damage heavy to untreated cherry and pear orchards throughout Box Elder, Cache, Davis, Utah, Salt Lake, and Weber Counties. Damage most severe on cherries. (Davis).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Webs heavy on many pecan trees in Dona Ana and Otero Counties. (N.M. Coop. Rpt.).

TEXAS - Damaged pecans in Tom Green, Nolan, Taylor, Jones, and Runnels Counties in Rolling Plains. Heavy on pecan trees in Madison County. (Boring, Williamson).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Moderate infestations damaged pecan foliage in Nolan and Taylor Counties. (Boring).

CITRUS

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Heavy in citrus nursery at Peoria, Maricopa County. Increased in citrus groves not previously treated at Yuma, Yuma County. (Ariz. Coop. Sur.).

ORNAMENTALS

A THRIPS (Scirtothrips inermis) - CALIFORNIA - Infested Liquidambar styraciflua (sweetgum) trees in Vista, San Diego County. This is a new county record for this thrips reported for first time in North America in CEIR 22(30):483. Survey continued in southern counties. (Cal. Coop. Rpt.).

MIMOSA WEBWORM (Homadaula anisocentra) - OHIO - Larvae light on about 100 honeylocust trees in nursery in Summit County. This is a new county record. (Kelley).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MAINE - Damage very heavy on spruce in many locations. Moths numerous and laying eggs in areas where damage heavy. Damage light to medium in Dennistown area, Somerset County. Feeding light in other western and central areas. (Gall). NEW HAMPSHIRE - Several hundred moths taken on windows of building in Durham, Strafford County, July 24 by W.J. Morse. In blacklight trap at Lee, 178 collected July 23. (Blickle).

AN OLETHREUTID MOTH (Rhyacionia bushnelli) - NORTH DAKOTA - Larvae damaged native stands of ponderosa pine in Burning Coal Vein area, Slope County. Present in roadside plantings of ponderosa pine near Dickinson, Stark County. (McKnight, July 20). SOUTH DAKOTA - Larvae severely damaged ponderosa pines in roadside planting at

Redfield, Spink County. (McKnight).

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - WASHINGTON - Widespread on Douglas-fir in central area; increase evident on infested acreage. Especially heavy in Okanogan and Chelan Counties. Infestations scattered in eastern part of State. Polyhedral virus evident in Okanogan County. (McComb et al.).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Heavy on cedars in Wilbarger, Hall, Taylor, Wichita, and Baylor Counties in Rolling Plains. Also heavy on ornamentals in Potter County. (Boring, Clymer).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Reaching epidemic proportions on statewide basis. Thirty of the 67 counties in State found infested as result of aerial survey. Survey not yet complete. (Moody et al.).

REDHEADED PINE SAWFLY (Neodiprion lecontei) - ALABAMA - Maturing larvae damaged young pines in Lee and Coffee Counties. Controls applied. (Casaday, Wegener).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 3,852 confirmed cases reported in continental U.S. during period July 16-22 as follows: Texas 3,717; New Mexico 42; Arizona 78; California 1; Oklahoma 14. Heaviest infestations during period were in 5 south-central counties in Texas as follows: Gonzales 150, Atascosa 114, Wilson 111, Gillespie 110, Kinney 103. Single case reported in Panola County, Texas, 3 miles from Texas-Louisiana State line. Total of 1,207 cases confirmed in Mexico. Number of sterile flies released this period in U.S. totaled 177,218,000 as follows: Texas 150,068,000; New Mexico 5,526,000; Arizona 18,264,000; California 600,000; Oklahoma 400,000; Louisiana 920,000; Arkansas 1,440,000. Total of 1,916,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - GEORGIA - Heavy on pastured cattle in northern area. (Nolan). MISSISSIPPI - Averaged 15 per face on 200 cattle in Monroe County. Some isolated cattle had up to 200 on face and body. (Combs). KENTUCKY - Adults averaged 21 per animal on Holstein, Hereford, Charolais, and Black Angus cattle in Scott County. (Barnett).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Moderate annoyance to cattle in all areas. Severe nuisance to vacationers in Price County. About 9 flies per leg seen on dairy cattle at Dane County fair. (Wis. Ins. Sur.). CALIFORNIA - Continued nuisance in many locations over State. (Cal. Coop. Rpt.)

HORN FLY (Haematobia irritans) - MISSISSIPPI - Counts per head by county: Leake 150; Chickasaw 100+; Amite 150+; and Simpson 200+. (Locke et al.). OKLAHOMA - Ranged 100-150 per head on cattle in Payne County; averaged 300 per head in Cimarron County. Heavy in Okfuskee, Hughes, Garvin, Jefferson, and McCurtain Counties; moderate in Cleveland County; light in Kingfisher County. (Okla. Coop. Sur.). TEXAS - Ranged 50-1,000 per animal on cattle in Crockett, Brewster, Pecos, Culberson, and Ward Counties. (Neeb). GEORIGIA - Annoyed cattle throughout State. (Nolan).

MOSQUITOES - WISCONSIN - Increased due to heavy rains. Severe biting occurred in some areas of Racine and Kenosha Counties, particularly near marshes. Aedes vexans seems major biter in these counties. Biting increased in Price County July 20. Heaviest populations of season noted in Trempealeau County. Moderate annoyance to cattle reported from Polk, Chippewa, and Rock Counties. Problem expected for 3 or more weeks. (Wis. Ins. Sur.). MAINE - Aedes spp. present in many areas but counts declined. Culex pipiens pipiens and Anopheles spp. increased. Saltmarsh species troublesome in several locations along coast. (Gall).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy on cattle and dogs in McCurtain County. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - OHIO - Removed from skull near hairline of 4-year-old girl from Brown County. Contracted tick paralysis; removal improved condition within 24 hours. As of July 8, 13 cases of Rocky Mountain spotted fever reported including 3 fatalities. (Ohio Dept. Health).

BENEFICIAL INSECTS

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - OKLAHOMA - Reared from puncturevine seed in Beaver County. This is a new county record. (Okla. Coop. Sur.).

A WEEVIL (Rhinocyllus conicus) - WEST VIRGINIA - Released 3,700 adults at 3 sites in Monroe County pasture fields heavily infested with curled thistle. (Hacker).

A CINNABAR MOTH (Tyria jacobaeae) - WASHINGTON - Larvae infested tansy ragwort (Senecio jacobaea) in area about 0.5 mile in diameter near Amboy, Clark County, where originally released in 1966. (Shanks).

A BRACONID (Lysiphlebus testaceipes) - OKLAHOMA - Parasitism of Schizaphis graminum (greenbug) on sorghum ranged 5-10 percent in most fields in Beaver County, 1-3 percent in Texas and Cimarron Counties. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Survey showed infestation at Springville, Tulare County, increased; now involves several properties. Infestation in Exeter treated, survey continues. (Cal. Coop. Rpt.).

GRASS BUGS (Labops spp.) - UTAH - L. hirtus damaged grasses at high elevations in Duck Creek area of Kane County and in Fish Lake and Koosharem areas of Sevier County. Labops sp. caused severe damage in Spanish Fork area, Utah County, and especially in Diamond Fork area. Field in Salina Canyon area burned to control heavy infestation. Labops sp. damaged grasses on Grindstone Flat in Beaver County. Egg laying underway in infested areas. (Haws).

GRASSHOPPERS - NORTH DAKOTA - Adults mostly noneconomic in Dickey, Sargent, and Ransom Counties except for few scattered light infestations in parts of Dickey and Sargent Counties and few

economic infestations in eastern Ransom County. (Grasser). SOUTH DAKOTA - Heavy locally west of Junction City, Union County; averaged 50 per square yard. (Kantack). KANSAS - Pruned silks down to ear tips of 2 border rows in Doniphan County cornfield; ranged 8-10 per square yard in grass bordering field. (Bell). UTAH - Increased in foothill and some range areas; adults moved from range and uncultivated land into alfalfa and other cultivated crops. Serious, with little control effort being made. Melanoplus sanguinipes dominant; M. bivittatus and M. packardii locally damaging. (Knowlton). NEVADA - M. sanguinipes, fourth instar nymphs to adults, infested 1,000+ acres of 6 to 8-inch alfalfa in Diamond Valley, Eureka County. Counts not available but damage evident. (Ayers). CALIFORNIA - Moved from adjacent rangeland and damaged new vineyards in Shenandoah Valley, Amador County. (Cal. Coop. Rpt.). OREGON - Control programs for rangeland grasshoppers, primarily Melanoplus spp., completed. Total of 826,848 acres treated in six-county northeastern area. (Goeden et al.).

MORMON CRICKET (Anabrus simplex) - MONTANA - Averaged 10 per square yard in 40 to 80-acre area north of Ovando, Powell County. (Pratt, July 21).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - Pupation general. Adults statewide, many late pupae parasitized or diseased, deformed adults emerged in Washington County. (Relli et al.).

JAPANESE BEETLE (Popillia japonica) - TENNESSEE - Adult taken in trap at truck stop in Wilson County July 21. This is first specimen taken in county and is considered to be an interception until evidence of infestation is found. (PP). VIRGINIA - Moderate on corn silks in Nottoway County; scarce in fields checked in Dinwiddie, Sussex, Prince George, Isle of Wight, Southampton, and Nansemond Counties. Continued spotty but generally lighter than past several years. (Allen). WEST VIRGINIA - Adults infested sweet corn in Kanawha Valley area. Several patches with 100 percent infestations, 3-18 adults per ear. Silk destroyed on 10 percent of ears. (Cole, Hacker). MARYLAND - Above normal statewide but remained light to moderate. Heaviest damage to date in Queen Annes, Wicomico, and Kent Counties where 100 acres of corn sprayed to protect silks. (U. Md., Ent. Dept.). PENNSYLVANIA - Large numbers taken in traps in Centre County. Total of 41,510 taken in one trap July 1-24 and 14,381 taken in 16 traps July 21-25. (Gesell, Adams). Adults abundant on wheat in Lycoming County July 17. (Weidner). RHODE ISLAND - Adults numerous in many areas of Kent, Providence, and Washington Counties July 14-17. Adults fed on deciduous nursery stock in certain areas of Providence County. (Relli, King).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Infested about 25 percent of bolls in cotton field at Aguila, Maricopa County; 300 acres surrounding this field showed 5-10 percent boll infestation. Highest infested boll counts found in Graham County cotton field; ranged 8-12 percent. Scattered infestations of second-generation larvae throughout Safford, Thatcher, and Pima area. Controls applied at Wellton and Roll Valley areas, Yuma County. (Ariz. Coop. Sur.).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - New infestations found in San Jose, Santa Clara County. Treatment made to hold known infested properties in check. Survey continued negative in Kings and Fresno Counties. Treatment scheduled. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - LOUISIANA - Adults collected July 27 in Vernon Parish by L.L. Sandoz determined as G. perigrinus by R.E. Warner. This is a new parish record. (PP).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey continued in San Diego, San Diego County. Adult activity increased, egg laying underway. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Corn - CORN EARWORM (Heliothis zea) heavy in 0.25 acre of corn at Waimanalo, Oahu; about 85 percent of mature ears with one or more larvae. (Kumashiro, Otsuka).

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) larvae light on Hilo grass (Paspalum conjugatum) at Hilo, Hawaii; defoliation moderate to heavy and spotty, with up to 10 larvae per square foot. Pupae trace, less than one per square foot; adults moderate. Larvae moderate in Hilo grass lawn at Papaikou, defoliation moderate to heavy, spotty; up to 30 small larvae per square foot; pupae nil. (Matayoshi).

General Vegetables - BEET ARMYWORM (Spodoptera exigua) larvae light in yard and community plantings of green onions at Kaumakani, Kauai. Larvae trace in one acre of same crop at Pearl City, Oahu; less than 5 percent of leaves infested. Egg clusters heavy, up to 7 clusters noted on single plant; mostly 1-2 per plant. Moderate number of adults of a hymenopteron observed ovipositing on egg clusters. (Sugawa, Kawamura).

Fruits and Nuts - MELON FLY (Dacus cucurbitae) heavy in yard planting of watermelon at Hilo, Hawaii; about 90 percent of fruits affected. (Matayoshi).

General Pests - Nymphs and adults of a PLATASPID BUG (Coptosoma xanthogramma) heavy on terminals of 30 roadside coral (Erythrina sp.) trees at Kipahulu, Maui. Trace on various leguminous crops in community garden at Kaumakani, Kauai. (Ah Sam, Sugawa).

Man and Animals - Total of 234 Aedes vexans nocturnus and 1,335 Culex pipiens quinquefasciatus taken in light traps operated on Oahu during June. A. vexans nocturnus ranged 0-46 per night at Kahaluu. C. pipiens quinquefasciatus ranged 0-165 per night per trap at Kawailoa. (Mosq. Control Br., State Dept. of Health).

Beneficial Insects - BRACONIDS (Opius phaseoli and O. importatus) heavily parasitized Melanagromyza phaseoli (bean fly) infesting cowpea and snap bean petioles on Kauai; parasitism ranged 67-100 (averaged 91) percent. M. phaseoli infesting cowpea petioles collected at Koloa Mill 20 percent parasitized by Halticoptera patellana (a pteromalid wasp). (Sugawa).

LIGHT TRAP COLLECTIONS

State	Locality	Date	Temp.	Precipitation	Wind	Moon	Phase	Phase of Moon	Trap	Crops																	
										Apple	Buckwheat	Burgundy	Burgundy	Corn	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry
FLORIDA	Gainesville	7/21-27	BL								4			1				4			1						
IOWA	Beaconsfield	7/14-20	BL											14							945						
	Dubuque	7/14-20	BL											4							383						
	Sutherland	7/14-20	BL											32							571						
KANSAS	Hiawatha	7/25	BL											12							140						
	Manhattan	7/25, 27	BL											3							20						
	Scandia	7/25	BL											16							48						
MICHIGAN	Adrian	7/10-25	BL																								
	Maybee	7/15-21	BL																								
	Sheby	7/16-23	BL																								
MINNESOTA	Crookston	7/19-25	BL																								
	Fergus Falls	7/19-25	BL																								
	Shakopee	7/19-25	BL																								
MISSISSIPPI (County)	Sharkey	7/22-27	BL																								
	Washington	7/21-27	2BL																								
MISSOURI (County)	Pemiscot	7/21-27	BL																								
NEBRASKA	Concord	7/14-20	BL																								
	Lincoln	7/19-27	BL																								
	North Platte	7/19-27	BL																								
NEW JERSEY	Plainsboro	7/20-26	BL																								
	Seabrook	7/20-26	BL																								
	Vineyard	7/20-26	BL																								

LIGHT TRAP COLLECTIONS

State	County	Location	Date	Trap	Species	Count	Notes
NORTH DAKOTA	Bismarck		7/19, 20, 23	BL	Rixia auxillata	13	
			7/20, 24	BL	Rixia auxillata	13	
			7/23-26	BL	Rixia auxillata	7	
				BL	Rixia auxillata		
OHIO	Wooster		7/21-27	BL	Rixia auxillata	117	
				BL	Rixia auxillata		
OREGON	(County)		7/17-26	BL	Rixia auxillata	2	
			7/18-26	BL	Rixia auxillata	5	
			7/17-26	BL	Rixia auxillata	1	
				BL	Rixia auxillata		
PENNSYLVANIA	(District)		7/19-25	BL	Rixia auxillata	6	
			7/19-25	BL	Rixia auxillata	29	
			7/19-25	BL	Rixia auxillata	7	
				BL	Rixia auxillata		
SOUTH DAKOTA	(County)		7/18-24	BL	Rixia auxillata	23	
				BL	Rixia auxillata		
TENNESSEE	(County)		7/24-28	BL	Rixia auxillata	5	
			7/24-28	BL	Rixia auxillata	12	
			7/24-28	BL	Rixia auxillata	5	
			7/24-28	BL	Rixia auxillata		
				BL	Rixia auxillata		
TEXAS	Waco		7/21-27	BL	Rixia auxillata	18	
				BL	Rixia auxillata		
VIRGINIA	Montgomery		7/20-26	BL	Rixia auxillata	2	
			7/16-24	BL	Rixia auxillata		
			7/19-24	BL	Rixia auxillata		
				BL	Rixia auxillata		
WISCONSIN	Hartford		7/18-24	BL	Rixia auxillata	5	
			7/19-24	BL	Rixia auxillata		
			7/20-23	BL	Rixia auxillata		
				BL	Rixia auxillata		

Estimates of Damage by the European Corn Borer
To Grain Corn in the United States in 1971

Compiled by the Economic Insect Survey and Detection Staff,
PPQ, APHIS

The loss to grain corn attributed to the European corn borer (*Ostrinia nubilalis*) in 1971 is estimated to be approximately 305,545,000 bushels in 15 corn-producing States. In these States the loss was 6.12 percent of the production. This loss is approximately 5.51 percent of the total national crop estimated at 5,540,253,000 bushels. 1/ The value of the loss, based on the season average prices received by farmers for corn 2/, is \$319,777,000. These loss estimates are only for the States shown in Table 1, and are based on the counties or districts surveyed during the fall of 1971 within these States. 3/

Table 1 is a composite of State and Federal estimates. These estimates were prepared by using production data 1/, and prices received 2/, released by the Statistical Reporting Service. The basis for the loss estimates was determined by the survey of European corn borer populations during the fall of 1971. 3/ The index of 3 percent loss per borer per plant was used to compute the loss in bushels.

Estimated losses to grain corn for the past 20 years in States where the fall abundance survey was conducted are as follows:

1971	305,545,000	Bushels	\$319,777,000
1970	195,885,000	"	250,178,000
1969	163,501,000	"	182,509,000
1968	154,554,000	"	161,287,000
1967	59,661,000	"	63,837,000
1966	121,236,000	"	155,876,000
1965	54,318,100	"	59,374,160
1964	87,116,000	"	97,478,000
1963	120,647,000	"	127,838,000
1962	88,245,000	"	93,695,000
1961	65,044,000	"	68,998,000
1960	102,991,000	"	96,085,000
1959	67,763,000	"	71,979,000
1958	100,699,000	"	98,434,000
1957	180,897,000	"	158,841,000
1956	97,971,000	"	119,535,000
1955	155,355,000	"	182,579,000
1954	191,614,000	"	261,415,000
1953	90,000,000	"	125,466,000
1952	53,270,000	"	77,205,000

1/ Crop Production, 1971 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, January 14, 1972.

2/ Crop Values, Season Average Prices Received by Farmers and Value of Production 1970 and 1971 - by States, Crop Reporting Board, Statistical Reporting Service, USDA, January 14, 1972.

3/ Cooperative Economic Insect Report 22(5):22-28, 1972.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1971

State	Districts Included 1/	Total State Production	Estimated Data			
			Value per Bushel	Value of Production	Loss of Crop	
	Number	1,000 Bu.	Dollars	\$1,000	1,000 Bu.	\$1,000
Delaware	1	10,800	1.18	12,744	1,299	1,533
Illinois	9	1,042,950	1.06	1,105,527	38,712	41,035
Indiana	12	534,373	1.01	539,717	17,619	17,796
Iowa	12	1,180,140	1.03	1,215,544	138,861	143,026
Kansas	6	120,612	1.11	133,879	1,489	1,653
Kentucky	1	94,402	1.09	102,898	70	76
Maryland	3	36,000	1.17	42,120	1,022	1,196
Michigan	5	115,600	1.00	115,600	3,688	3,688
Minnesota	7	475,175	0.98	465,672	17,944	17,585
Missouri	8	272,096	1.09	296,585	11,761	12,820
Nebraska	5	455,260	1.10	500,786	52,297	57,527
North Dakota	1	9,976	1.01	10,976	364	368
Ohio	5	313,814	1.04	326,367	7,199	7,487
South Dakota	6	123,234	1.04	128,163	9,794	10,186
Wisconsin	9	203,603	1.11	225,999	3,425	3,802
Totals		4,988,035		5,221,677	305,545	319,777

1/ Cooperative Economic Insect Report 22(5):22-28, 1972.

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(31):510-511, 1972

KHAPRA BEETLE
(Trogoderma granarium Everts)

Selected References
1970

Copies of this bibliography are available from Economic Insect Survey and Detection Staff.

- Agarwal, H. C. 1970. Sterol requirements of beetle Trogoderma. J. Insect Physiol. 16(10):2023-2026.
- Ikan, R., Stanić, V., Cohen, E., and Shulov, A. 1970. The function of fatty acids in the diapause of the khapra beetle Trogoderma granarium Everts. Compar. Biochem. Physiol. 37(12): 205-214.
- Levinson, H. Z. and Bar Ilan, A. R. 1970. Behavior of khapra beetle Trogoderma granarium towards assembling scent released by female. Experientia 26(8):846-847.
- Levinson, H. Z. and Bar Ilan, A. R. 1970. Lack of an intraspecific attractant in male Trogoderma granarium. Riv. di Parassitol. 31(1):70-72.
- Levinson, H. Z. and Bar Ilan, A. R. 1970. Olfactory and tactile behaviour of the khapra beetle, Trogoderma granarium, with special reference to its assembling scent. J. Insect Physiol. 16(4):561-572.
- Punj, G. K. 1970. Effect of nutrition on susceptibility of larvae of Trogoderma granarium Everts (Coleoptera, Dermestidae) to certain fumigants. J. Stored Prod. Res. 6(2):181-185.
- Punj, G. K. and Verma, A. N. 1970. Susceptibility to certain fumigants of male and female pupae of Trogoderma granarium Everts (Coleoptera, Dermestidae). J. Stored Prod. Res. 6(3): 263-267.
- Sadiq, H. and Matloob, H. 1970. Effect of vacuum on stored-grain insect pest (Trogoderma khapra Arr.) infesting wheat. Agr. Pakistan 21(1):33-36.
- Sehgal, S. S., Agarwal, H. C., and Pillai, M. K. K. 1970. Sterilizing effect of a dietary surplus of biotin in Trogoderma granarium Everts. Cur. Sci. 39(24):551-552.
- Stanić, V., Zlotkin, E., and Shulov, A. 1970. Localization of pheromone excretion in the female of Trogoderma granarium (Dermestidae). Ent. Expt. et Appl. 13(3):342-351.
- Vick, K. W., Burkholder, W. E., and Gorman, J. E. 1970. Interspecific response to sex pheromones of Trogoderma species (Coleoptera: Dermestidae). Ent. Soc. Amer. Ann. 63(2):379-381.

Yinon, U. 1970. Electrophysiological responses to light in compound eyes of some stored-product insects. Ent. Expt. et Appl. 13(3):359-361.

Yinon, U. and Shulov, A. 1970. The dispersion of Trogoderma granarium in a temperature gradient and comparison with other stored product beetles. Ent. Expt. et Appl. 13(1): 107-121. Ger. Sum.

Prepared by Economic Insect
Survey and Detection Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(31):512-513, 1972

WEATHER OF THE WEEK ENDING JULY 31

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Early in the week a front meandered from Utah across the central Rocky Mountains, the central Great Plains, the Ohio River Valley, and the Appalachians to southern New England. Waves developed along the front. Some of the waves became Lows which produced showers and thunderstorms. Other thunderstorms were scattered randomly over the West and the South. Showers at Tucson, Arizona, left 0.62 inch of rain late Monday July 24. This is approximately the weekly normal for Tucson. Vigorous thunderstorms caused torrential downpours in South Dakota and Nebraska late Tuesday and early Wednesday. Up to about 7.50 inches of rain drenched a small area south of Aberdeen, South Dakota, in 3 hours Wednesday forenoon. Three to 5 inches caused local flash flooding in southeastern Nebraska also Wednesday forenoon. Parts of Hastings, Nebraska, were under 2 to 3 feet of water and streets and highways at Pleasanton, Nebraska, were flooded. Pierce, Nebraska, was swamped by 3.50 inches of rain in a 2-hour period. By Thursday the front extended from Utah to the Virginia coast. Most of the thunderstorm activity occurred along the front and in sultry air that covered the Deep South. Up to 6 inches caused flash flooding in central Minnesota. A predawn thunderstorm swept through Russell, Kansas, Friday, producing wind gusts exceeding 50 m.p.h. and an inch of rain. Three inches of rain in western Tennessee swelled creeks and small rivers to overflowing. Fair weather prevailed over most of the area north of the front. Weekly totals ranged widely over the East. Little rain fell west of the Rocky Mountains. California, Oregon, parts of nearby States, and much of Texas received no rain.

TEMPERATURE: A cold front brought relief to the Northeast early in the week after almost 2 weeks of humid, 90-degree weather. Rochester, New York, registered 88 degrees Monday afternoon but only 72 degrees Wednesday. Sultry weather continued over the Southeast. Bowling Green, Kentucky, recorded 96 degrees Wednesday afternoon. The Far Southwest remained hot. Needles and Thermal, California, registered 113 degrees and 112 degrees respectively Wednesday afternoon. A warming trend occurred over the western Great Plains. The temperature reached 90 degrees at Havre, Montana, 96 degrees at Worland, Wyoming, and 97 degrees at Russell, Kansas, Wednesday afternoon. Hot, summer weather also prevailed over the central Great Plains with temperatures in the 90's over most of Kansas and Missouri and reaching 100 degrees in Oklahoma and spots in Arkansas. Cool temperatures were the rule from eastern North Dakota to northern New England. Afternoon temperatures in that area were mostly in the 60's and 70's. After midweek, the front became stationary from Utah to the middle Atlantic coast. The Southeast continued hot but the North was comfortably cool. Weekly mean temperatures from the central Great Plains to the Great Lakes were mostly 3 to 8 degrees cooler than normal. The South and Far West averaged slightly warmer than normal.



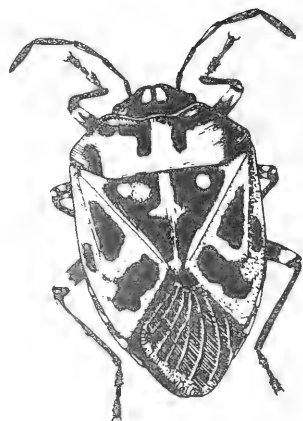
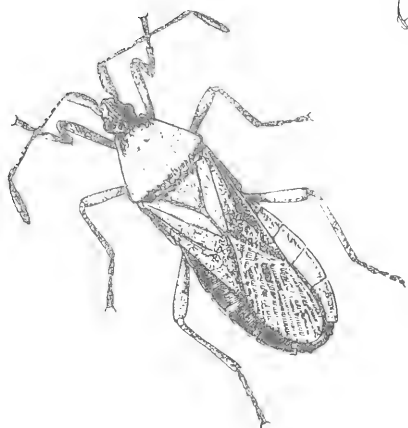
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



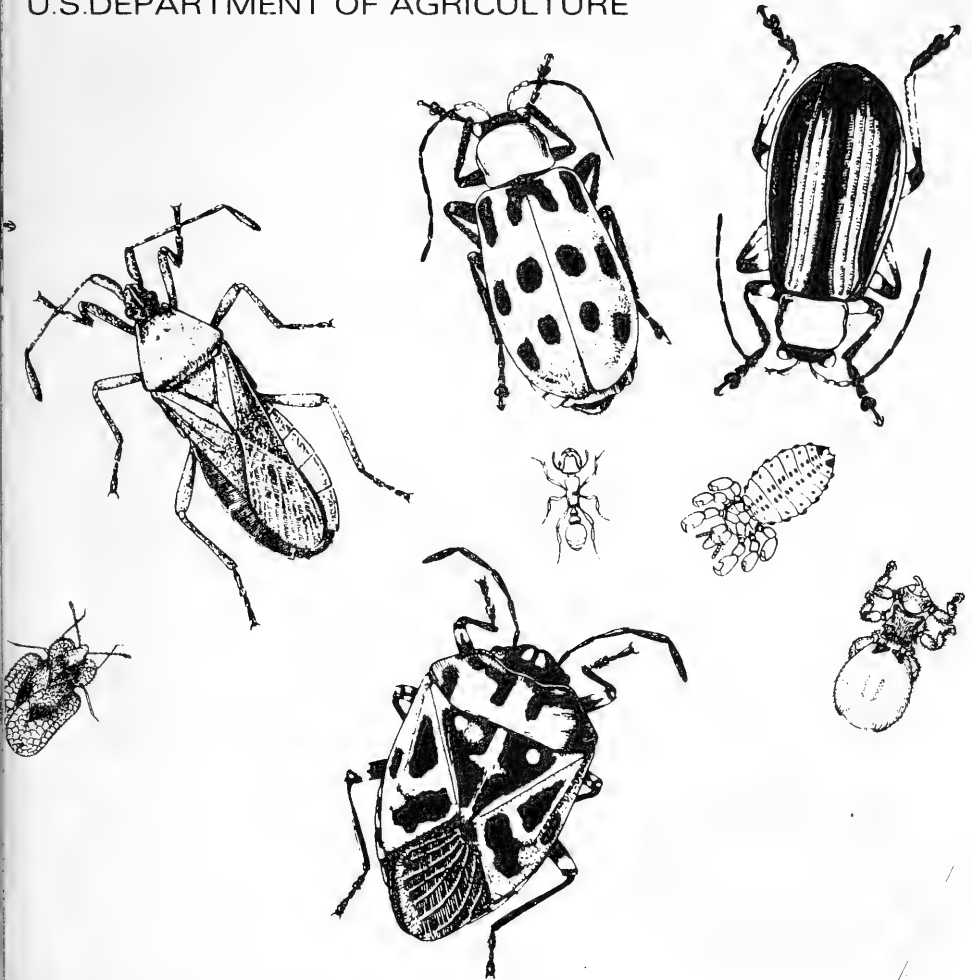
0004 SMINLISMIA122 33017 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



5B
823
C 77
Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM damaged Bermuda grass in Alabama, Tennessee, and Arkansas; heavy on corn and oats in northeast Wisconsin, corn and small grain in Michigan. CORN LEAF APHID moderate to heavy on sorghum in southwest Oklahoma, heavy on corn in several Eastern States. GREENBUG infestations reduced by parasites and predators in many areas of central U.S.; greenbug still economic in some areas. POTATO LEAFHOPPER heavy on alfalfa in Maryland, economic on hay throughout northern Ohio. (pp. 517-518).

PEA APHID heavy on alfalfa in east-central Idaho. (p. 521).

VARIEGATED CUTWORM outbreak reported on commercial potatoes in eastern Wisconsin; damaged sugar beets in Michigan, tobacco in North Carolina. (p. 523).

EUROPEAN RED MITE increase explosive in southern and central Ohio orchards. TWOSPOTTED SPIDER MITE heavy on apples and pears on Western Slope in Colorado. (p. 525).

MOUNTAIN PINE BEETLE heavy in ponderosa pine on Roosevelt National Forest in Colorado. (p. 526).

GRASSHOPPERS serious on eastern rangeland areas of Washington, and on dryland alfalfa hay and rangeland grasses in panhandle area of Idaho. (p. 529).

Detection

An ICHNEUMON WASP reported for first time in Ohio. (p. 528).

For new county records see page 534.

Reports in this issue are for week ending August 4 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	517
Insects Affecting	
Corn, Sorghum, Sugarcane....	519
Turf, Pastures, Rangeland...	520
Forage Legumes.....	521
Soybeans.....	521
Peanuts.....	521
Cotton.....	522
Tobacco.....	523
Sugar Beets.....	523
Miscellaneous Field Crops..	523
Potatoes, Tomatoes, Peppers.....	523
Beans and Peas.....	524
General Vegetables.....	524
Deciduous Fruits and Nuts..	525
Citrus.....	525
Forest and Shade Trees....	526
Man and Animals.....	527
Beneficial Insects.....	528
Federal and State Plant Protection Programs.....	529
Hawaii Insect Report.....	531
Corrections.....	531
Light Trap Collections.....	532
Detection.....	534

WEATHER OF THE WEEK ENDING AUGUST 7

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Widespread showers and thunderstorms occurred early in the week from the western gulf coast to the middle and southern Atlantic seaboard due to a front that stretched from eastern Texas to the middle Atlantic coast. Another front stretched from the Great Lakes to the central Great Plains, thence northwestward to British Columbia. It produced some heavy thunderstorms in the central Great Plains. One thunderstorm uprooted trees and damaged farm buildings in the Lost Nation, Iowa, vicinity about 35 miles north-northwest of Davenport. Heavy rains, in some places exceeding 4 inches, swelled streams and rivers in parts of Nebraska, Iowa, and Wisconsin to near bankfull and some places a foot or so above. Afternoon and evening thundershowers continued through midweek. Flash flooding occurred in the Dubuque, Iowa, area early Wednesday. Waters reached waist deep in homes near Little Maquoketa River north of Dubuque. Colorado and Montana were lashed by heavy thunderstorms accompanied by hail and high winds. Wednesday, just before midnight, severe thunderstorms swept through Kansas City, Missouri. Heavy thunderstorms late Thursday flooded streets in Carbondale and Murphysboro, Illinois. Carbondale received 3.50 inches in 1 hour. Many localities in southern Illinois were drenched by heavy rains in the 24 hours ending noon Friday. Five inches of rain fell in 4 hours at Morehead, Kentucky, in eastern Iowa, and northwestern Illinois Saturday night. Vigorous thunderstorms continued over the central part of the Nation Saturday and Sunday. Hail as large as golf balls fell in the Sioux Falls, South Dakota, vicinity early Sunday and in the afternoon hail as large as walnuts fell at Sheffield, Illinois. A tornado twisted off tops of trees on the outskirts of Moline, Illinois. Weather of the week continued on page 534.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - ALABAMA - Damaged several grain sorghum fields in Geneva County. Increased number of infestations on Coastal Bermuda grass reported in Houston, Blount, Crenshaw, Cullman, Geneva, Covington, and Lee Counties. Larvae destroyed 4-acre field of Coastal Bermuda grass in Cullman County. (Roney et al.). TENNESSEE - Destroyed 4-acre field of Coastal Bermuda grass in Fayette County. (Locke). ARKANSAS - Heavily damaged Coastal Bermuda grass in Jefferson County; treated July 23. (Wall). NEBRASKA - Occasional larvae noted in corn ear tips in fields with heavy growth of grassy weeds in Dundy County. (Keith, O'Dea, July 27). Moths decreased at light traps at Aurora, Concord, Plymouth, and Lincoln. (Berogan). WISCONSIN - Larvae heavy on corn and oats in northeastern counties. In Door County, 90 percent of corn plants infested in one field; larvae ranged 5-8 per square foot in one field of oats. Heavy in Oconto County cornfield. Damage severe to corn in Marinette County. (Wis. Ins. Sur.).

MICHIGAN - P. unipuncta severely damaged corn and small grains in about 4,000 acres in Menominee and Delta Counties and in scattered fields in Chippewa and Luce County. Reports of 27 larvae per stalk noted in severely infested area. (Bowers et al.). MAINE - Reported from all parts of State, primarily from south-central and central areas. Ranged up to 10 per square foot in grass next to corn; decreased to zero 20 feet into corn except in spots. (Gall).

CORN EARWORM (Heliothis zea) - NEW JERSEY - Moths increased in blacklight traps; 3-day spray schedule needed on sweet corn in most central and southern counties. (Ins.-Dis. Newsltr.). VIRGINIA - Moth collections very light in blacklight traps in Accomack and Northampton Counties; only 2 taken this period. (Hofmaster). KENTUCKY - Damaged whorls of late corn in Green and Pulaski Counties. (Barnett, Gregory). KANSAS - Percent infested ears in one field per county: Harper 100, Kingman 100, Sedgwick 50, Harvey 40, Pawnee 10, Pratt 10, Stafford 80-90 in 2 fields. (Bell). OKLAHOMA - Ranged 1-2 per head in grain sorghum field checked in Marshall County. (Okla. Coop. Sur.). ARIZONA - Averaged one larva per corn ear in Aztec area of Yuma County. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - MONTANA - Ranged up to several hundred per plant on late-planted barley in Roosevelt and Richland Counties week ending July 28. (Pratt). NEBRASKA - Counts ranged 3-4 colonies of 25-30 aphids in 50-100 percent of plants in 15 Scotts Bluff County cornfields. (Hagen). OKLAHOMA - Continued moderate to heavy on sorghum in southwest area. (Okla. Coop. Sur.). WISCONSIN - Heavy in some corn; present on silks in some heavily infested fields. More than 500 per plant found on 90 percent of plants in sweet corn planting in northern Dane County. (Wis. Ins. Sur.). INDIANA - Infested 23-36 percent of corn grown for grain in 5 of six northern districts. Of these, 1.5-4.3 percent severely infested (500+ aphids per stalk). Corn ranged from midwhorl stage to silks turning brown; mostly green silk. (Meyer).

VIRGINIA - Heavy populations of R. maidis in many fields of field corn in Nottoway, Nansemond, Isle of Wight, Sussex, Dinwiddie, Prince George, and Southampton Counties declined due to crop maturity, and parasites and predators. (Allen). MARYLAND - Sudden buildups required treatment of over 500 acres of field corn on Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Heavy in some

large fields of field corn in Sussex County. (Burbutis, Kelsey).
NEW YORK - Heavy in some sweet corn in Hudson Valley. (N.Y. Wkly. Rpt., July 28). MAINE - Generally absent in late corn. Ranged up to 300 per plant in 2 fields in tassel stage. (Gall).

GREENBUG (Schizaphis graminum) - IDAHO - Honeydew heavy in 20 acres of wheat at Lorinzo, Jefferson County. Grain in soft dough stage. Infestation limited to leaves, no treatment anticipated. (Gooch). NORTH DAKOTA - Infestation of 3,000 aphids per 100 sweeps in untreated wheat field in Ransom County collapsed to 20 per 100 sweeps. Lady beetle adults and larvae averaged 300 per 100 sweeps. (Brandvik). NEBRASKA - Declined below economic levels due to increased parasitism and hard, driving rains in southeast, east, central, south, and southwest districts. (Roselle et al.). Some economic infestations still reported from Custer County. (Staples et al.). KANSAS - Some economic infestations and treatment of sorghum reported in some southwest counties. Lysiphlebus testaceipes (a braconid) exerting some control in area. Surveys in west-central and northwest districts revealed significant infestations and light parasitic wasp activity in one Rawlins County field and one Thomas County field. S. graminum averaged less than 50 per plant in other fields checked. Averaged less than 50 per sorghum plant in 3 fields checked in each of Cheyenne, Sherman, Greeley, Wichita, Wallace, Logan, Gove, and Lane Counties. S. graminum generally light and decreased due to parasitism by L. testaceipes in Ellis, Rush, and Barton Counties. S. graminum very light and decreased in 10 south-central counties; averaged less than 25 per sorghum plant in these counties. (Bell).

OKLAHOMA - S. graminum light to heavy in sorghum in Marshall County. Continued light in Cimarron County. (Okla. Coop. Sur.). TEXAS - Light in grain sorghum in Wilbarger County in Rolling Plains; light to moderate in Tom Green County. Moderate in Knox and Jones Counties. Heavy in Motley County with much damage to 2 lower leaves noted; some producers applied controls. (Boring). Activity in grain sorghum should peak next 7 days in South Plains. Increased activity by parasitic wasps noted throughout area. On High Plains, greenbug present in most counties surrounding Potter County. (Boring et al.). ARKANSAS - Increased slightly in north-west area; however, predators and parasites holding infestations below economic level. (Boyer). IOWA - Light on 5-foot forage sorghum in Jasper County; less than 20 per plant. Damage potential light. (Iowa Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Adults and nymphs ranged 10-40 per sweep on several hundred acres of alfalfa in Howard and Carroll Counties. Yellowing noticeable at several locations statewide. (U. Md., Ent. Dept.). NORTH CAROLINA - Damage to peanuts heavier in Gates County area than previous years. Yellowing occurred in fields with light sandy soils. Lighter than usual for time of year in other peanut-growing areas. (Campbell). OHIO - Adults and nymphs at economic levels in hay throughout northern half of State. Counts in 2-3 fields by county: In alfalfa - Henry 1.5 per sweep, Hancock 2 per sweep, Williams 3.5 per sweep, Huron 2 per sweep. In mixed clover and timothy - Ashland 2 per sweep, Crawford 1 per sweep, Preble 42 per 50 sweeps. (Fox). WISCONSIN - Counts continued erratic in alfalfa; ranged 30-40 per sweep in some fields, 3-4 per sweep in other fields. Counts high in soybeans, but may be due to stage of growth of plants at time of migration. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Controls applied on seed alfalfa in Dixie Valley of Churchill and Pershing Counties gave good control on 900 acres reported infested in CEIR 22(31):495. (Stitt). Ranged 10-15 per sweep on 500-600 acres of alfalfa hay near Battle Mountain, Lander County. Infestations heavier but appear on decline. (Marvel, Rowe). Infested 2,000 acres of seed alfalfa in Reese River, Lander County. Degree of infestation not reported but controls applied. (Hepworth, Stitt). MISSOURI - Ranged 2-18 per sweep in southwest area forage. Most counts very low. (Munson). ARKANSAS - Increased slightly in north-west area; ranged 200-300 per 100 sweeps. (Boyer).

TOBACCO (Heliothis virescens) - VIRGINIA - Larvae light on tobacco in Appomattox County. (Eagan).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - NEW YORK - D. longicornis (northern corn rootworm) adults emerged. Teneral adults observed on field corn at Mandana, Onondaga County, July 28. Late sweet corn near field corn should be protected as first silks emerge to avoid silk destruction and pollination problems. (N.Y. Wkly. Rpt.). NEW JERSEY - First D. longicornis adults noted in Salem County July 21. Adults totaled 25 per 60 ears in field near Stewartville July 28. Pupae easily found in soil near stalk bases, adults numerous on silks in Hunterdon and Warren Counties August 2. (Ins.-Dis. Newsltr.). MICHIGAN - D. virgifera (western corn rootworm) adults collected in Eckford Township, Calhoun County, July 24, by D.R. Rowe. Also noted in nearby fields. This is a new county record. (Sauer). INDIANA - D. virgifera adults taken near Benton, Elkhart County, and North Liberty, St. Joseph County. These are new county records. Also taken from Kosciusko County field known infested in 1970, but not reported in 1971. (Meyer). ILLINOIS - D. virgifera collected from field corn 8 miles north of Litchfield, Montgomery County, July 28 by T. Cooley. This is a new county record. (Ill. Ins. Rpt.).

MISSOURI - D. virgifera ranged 0.5-3.5 adults per plant in some irrigated cornfields in Lincoln County. Collected by G.W. Thomas. This is a new county record. (Munson). NEBRASKA - Diabrotica spp. populations generally heavier statewide; some scattered light to moderate lodging reported. (Roselle et al.). One Platte County field had 30-40 percent lodging with severe damage to brace roots. (Kantor). Beetle emergence generally light in Dundey County; ranged 0-6 per plant in 8 fields. (Keith, O'Dea, July 27). UTAH - D. virgifera damaged field and sweet corn in Box Elder, Cache, Davis, Weber, and Morgan Counties. Some lodging at time of irrigation or due to wind where infestation heavy. Adults ranged up to 20 per cornstalk at some locations. Spread has been rapid since first reported in State in 1970. Box Elder, Cache, Davis, and Morgan are new county records. (Roberts, Knowlton). Heavy in Box Elder County. (Lindsay).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MAINE - Continued very light; infestation less than one percent. Second-generation larvae found in 2 cornfields in southern area. (Gall). NEW YORK - Second-generation moths appeared in blacklight trap at Geneva, Ontario County, July 15; none collected July 21-28, but pupae heavy in area. Peak adult activity should occur in area about August 12. (N.Y. Wkly. Rpt.). DELAWARE - Adults still increasing in blacklight

traps in Sussex County; averaged 31 per night in 5 traps. Egg masses increased on corn and peppers in most areas. (Burbutis, Kelsey). OHIO - Second-generation moths taken in blacklight traps August 1; this is 7 days later than in 1971. Peak moth activity should occur about August 21-30. (Rings). IOWA - Larvae infesting 12-24 percent of plants in Story County fields; 6-12 forms per 100 plants. Adult flight light. Second brood potential light. (Iowa Ins. Sur.).

MINNESOTA - First generation Ostrinia nubilalis pupation underway. Few early moths taken in blacklight traps. Larval development indicates second-generation will peak in about 14 days. Moth emergence and egg laying may extend for several weeks. Second-generation population should be low this year. (Minn. Pest Rpt.). SOUTH DAKOTA - Averaged 3.8 per stalk in cornfield northwest of Mitchell, Davison County. Field treated with insecticide not recommended for aerial spraying for borer control. Most larvae in last instar; some pupation noted. (Kantack). NEBRASKA - Second-brood moth emergence increased at Plymouth and Clay Center, but very light at Lincoln, Aurora, North Platte, and Concord. (Berogan et al.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - NEBRASKA - Two early planted cornfields in Dundy County had 0-5 percent of ear tips infested with second to third instar larvae. In 6 late-planted fields, egg masses ranged 0-2 and second instar, feeding on tassels plants; most larvae first and second instar, feeding on tassels. Controls suggested for 2 of these fields. (Keith, O'Dea, July 27).

CONCHUELA (Chlorochroa ligata) - TEXAS - Caused some damage to late grain sorghum in south-central counties. Some damage reported to grain sorghum in Rolling Plains in Runnels, Knox, Tom Green, Jones, Haskell, and Fisher Counties. Controls applied when infestations averaged 2+ per head of sorghum in milk, soft dough, or dough stages. Conchuela appeared in grain sorghum in several South Plains counties near Lubbock County. (Cole et al.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Infestations continued to be reported throughout State. Heavy in late sorghum in south-central area. Also heavy in late-planted sorghum in north-central area about Denton County. Reported as far north as Baylor and Knox Counties in Rolling Plains. (Cole et al.). MISSISSIPPI - Averaged 5 midges per head in grain sorghum field in Oktibbeha County. (Ross).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Infested grain sorghum in Sherman, Castro, Parmer, Swisher, Oldham, and Deaf Smith Counties in Panhandle; no damaging populations reported to date. Activity moderate to heavy on grain sorghum in El Paso County. (Clymer, Neeb). NEBRASKA - Small colonies observed in 15 cornfields surveyed in Scotts Bluff County. Held in check by cool, wet conditions, but expected to increase if weather becomes dry. (Hagen).

TURF, PASTURES, RANGELAND

BLUEGRASS BILLBUG (Sphenophorus parvulus) - IDAHO - Infested lawns in Twin Falls, Twin Falls County, and in Payette, Payette County. Infestations apparently spreading. (Youtz, Gardner).

WHITE GRUBS (Phyllophaga spp.) - NORTH DAKOTA - Damaged scattered areas in 1,300-acre rangeland area in Richland County. (Brandvik).

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Continued heavy in 100 acres of millet and hybrid pastures in Leake County. (Robinson).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - IDAHO - Heavy in 60,000 acres of alfalfa in Jefferson County. Honeydew becoming problem in many fields. Predators very light. (Gooch). In 25 sweeps of untreated second-crop alfalfa hay at Kimberly, Twin Falls County, 693 aphids collected; 8,010 collected in plots treated for alfalfa weevil. Treatment had been made to first-growth alfalfa July 21. (Carpenter).

LYGUS BUGS (Lygus spp.) - ARIZONA - Continued heavy in alfalfa in Yuma County. (Ariz. Coop. Sur.).

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Severly damaged spring planted white clover in peas in Nez Perce County. Treatment of clover after pea harvest essential to maintain clover stand for 1973 seed production. (Storey, July 26).

ALFALFA WEEVIL (Hypera postica) - IDAHO - Larval counts per 25 sweeps, 50 in untreated second-crop alfalfa and 2 in treated plots at Kimberly, Twin Falls County. Treatments had been made to first-growth alfalfa hay July 21. (Carpenter).

GRASSHOPPERS - WISCONSIN - Hatch incomplete in forage fields; nymphal stages prolonged. Few Melanoplus femurrubrum adults appeared in some sandier soiled areas. Melanoplus differentialis comprised 50+ percent of population in many southeast area fields. Grasshoppers ranged 1-20 (averaged 7) per sweep in La Crosse and Vernon County area. Averaged 9 per sweep in Jefferson County except for 25 per sweep in northwest part of county. Counts ranged 10-40 per sweep in Racine, Kenosha, Waukesha, and eastern Walworth Counties. (Wis. Ins. Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - New first-generation adults laying eggs on soybeans in Wicomico County. Treatments made on several Eastern Shore fields with 25+ percent damage. (U. Md., Ent. Dept.).

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - This and S. exigua (beet armyworm) light to heavy on soybeans in Crisp and Sumter Counties. (Garner et al.).

A JAPANESE WEEVIL (Calomycterus setarius) - IOWA - Collected on soybeans in Chickasaw County July 20 and in Winneshiek County August 2. These are new county records. (Iowa Ins. Sur.).

PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Increased on peanuts throughout Blacklands area near Stephenville, Erath County. Top soil in area dry, conditions favorable for increase. Percent infestation as follows: Morgan 5, DeLeon (east) 30-35, DeLeon (west) 51, Gorman (north) 70, Eastland County 5-25,

Cross Plains 1-30, Dublin 5-30, Tarleton Experiment Station 4. None detected in peanuts surveyed in Fannin County. (Hoelscher, Turney).

GRANULATE CUTWORM (Feltia subterranea) - GEORGIA - Ranged very light to heavy across peanut belt. (French).

COTTON

BOLLWORMS (Heliothis spp.) - TENNESSEE - Continued below control levels over western area. (Locke). GEORGIA - Counts per 100 terminals by county: Crisp, 3-121 eggs, 0-8 larvae; Wilcox, 29-155 eggs, 6-13 larvae. (Nix, Hudson). MISSISSIPPI - Damaged squares and bolls increased due to recent moth flight; however, most fields under control. Percent infestation by section: Delta 2, hill 3, southern 5. (Robinson). LOUISIANA - Larvae and damage at low levels in Grant, Catahoula, and Tensas Parishes. Small larvae found in few fields in Cheneyville area. Eggs being laid on squares, blooms, and throughout plants. (Tynes, Aug. 1). Damaged squares found in 45 of 48 plots in Madison Parish; infestation ranged 1-10 (averaged 3.2) percent in 44 plots. Damaged squares found in 6 of 11 fields checked; ranged 1-10 (averaged 3.1) percent in infested fields. In Tensas Parish, damaged squares ranged 1-2 (averaged 1.5) percent in 4 of 6 fields checked. (Cleveland et al.). OKLAHOMA - Percent damaged squares by H. zea ranged 1-6 percent in Muskogee County, 1-7 in Wagoner County, and 0-4 in southwest and west-central areas. Averaged 15 percent in Marshall County. Larvae per 100 terminals ranged 0-5 in southwest area, 0-12 in Bryan County. High numbers of beneficial insects keeping bollworms very light in Grady County. (Okla. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Square counts ranged 1-57 percent in older cotton in western area. Some short distance migration occurred. Second-generation weevils should emerge about August 10. Conditions favorable for weevil buildup. (Locke). GEORGIA - Percent punctured squares ranged 1-4 in Wilcox County, 2-13 in Crisp County. (Hudson, Nix). ALABAMA - Still heavy, 10-70 percent square infestation, throughout south and central areas. Infestations in proportion to controls. In many fields in northern area, including mountain area, square damage ranged 10-60 percent. Controls applied in extreme northern area, including mountain and Tennessee Valley areas. Weather favorable; infestations heavier than for several years. (McQueen). MISSISSIPPI - Punctured squares generally unchanged over State, but increased in few areas. Average percent punctured squares by section: Delta 3, Hill 10, southern 5. (Robinson).

LOUISIANA - A. grandis damaged square counts increased sharply; will continue to increase. (Tynes, Aug. 1). In Madison Parish, percent punctured squares ranged 1-14 (averaged 5) percent in 44 of 48 plots; ranged 2-9 (averaged 9.3) in 11 fields examined. In Tensas Parish, percent punctured squares averaged 1 in one field and 4 in 1 field of 2 field checked that had received diapause control treatment in fall of 1971. Infestations ranged 1-10 (averaged 5) in 4 untreated fields. (Cleveland et al.). OKLAHOMA - Infestation ranged 0-12 percent in Kiowa, Jackson, Harmon, Greer, and Tillman Counties. Second-generation adult emergence low. Infestation ranged up to 24 percent in Washita and Caddo Counties, 25-30 percent in Grady County, 2-10 percent in Muskogee County, 4-40 percent in Wagoner County, 2-34 percent in Bryan County, averaged 10 percent in Marshall County. (Okla. Coop. Sur.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - MISSISSIPPI - Infestations increased in scattered areas of delta area. Infestations reported from Madison, Sunflower and Sharkey Counties. (Robinson).

TOBACCO

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Economic infestations appearing on more advanced untreated tobacco in Charles and St. Marys Counties. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Adults increased on tobacco in Appomattox County; ranged 1-2 per plant. (Eagan).

VARIEGATED CUTWORM (Peridroma saucia) - NORTH CAROLINA - Damaged at least 2 tobacco fields in Wake County; up to 10 larvae per square foot under trash on the ground. In Wilson County, spots with 2-5 larvae per plant noted in 8 of 10 fields surveyed. Damage confined to lower half of stalk. (Lynn).

SUGAR BEETS

VARIEGATED CUTWORM (Peridroma saucia) - MICHIGAN - Damaged sugar-beets in Arenac, Bay, and Tuscola Counties and scattered fields in Saginaw County. Appearance of larvae unusual this time of season; growers urged to check for possible second generation. (Ruppel).

MISCELLANEOUS FIELD CROPS

SUNFLOWER BLOSSOM MIDGE (Contarinia schulzi) - MINNESOTA - Surveys in Red River Valley indicate damage not as serious as first believed; damage much less than in 1971. Very little loss of flowers at present; only in field margins where losses averaged 10 percent or less in first 10-15 rows. Larvae maturing and dropping off earlier plantings. Infestations on late sunflower plantings still found but all light and should remain so. (Minn. Pest Rpt.).

SUNFLOWER MOTH (Homoeosoma electellum) - IOWA - Larvae infested 100 percent of sunflower heads 3 inches in diameter or larger in Polk County field. Larvae ranged up to 11 per head. Damage potential severe. (Iowa Ins. Sur.).

POTATOES, TOMATOES, PEPPERS

VARIEGATED CUTWORM (Peridroma saucia) - WISCONSIN - Outbreak condition exists in eastern part of State. Larvae averaged 1+ per plant on commercial potatoes in Kenosha County. Serious in gardens in Dane County; up to 3 larvae per plant. Reported feeding on ripening tomatoes. Serious in Waushara and Portage Counties. Pupation began in southeastern area; about 80 percent parasitized in area, primarily by tachina flies. (Wis. Ins. Sur.). MAINE - Larvae of this species, Spodoptera frugiperda (fall armyworm), and few Pseudaletia unipuncta (armyworm) present in many potato fields. Damage to date minimal. Treatments made due to large numbers of P. saucia prevented much damage. (Gall).

GREEN PEACH APHID (Myzus persicae) - NEVADA - Ranged 2-3 colonies per leaflet on 100 acres of potatoes in Mason and Smith Valleys, Lyon County. Plants severely yellowed and withered. Controls planned. (Lauderdale). DELAWARE - Ranged 66-156 per 100 leaves on peppers in Sussex County. (Burbutis, Kelsey).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - Damage to potatoes decreasing. Many first-generation larvae pupating. (Gall).

BEANS AND PEAS

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - IDAHO - Damaging larval populations spotty in several thousand acres of lentils and peas in extreme west-central Latah County; treatments made to heavier populations of 5+ larvae per square yard. (Storey, Portman, July 26).

COWPEA CURCULIO (Chalcodermus aeneus) - GEORGIA - Heavy on untreated peas in Spalding County; damaged beans and peas in Floyd County; damage very light on pole beans in Clarke County. (Dupree et al.).

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Summer adults began emerging July 25 in Latah County. (Tekleab). Young adults congregating in maturing lentil fields; damage mainly to leaves. (Futter, Portman, July 27).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEBRASKA - Larvae ranged 10-15 per plant with 20-50 percent of plants infested in 30 bean fields in Scotts Bluff County. Controls applied to several fields. (Hagen). GEORGIA - Infestations on lima beans in Spalding County most severe of season. (Dupree).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) - OREGON - Adult averages ranged 21-25 per 50 sweeps, with up to 48 per 50 sweeps, in snap bean plantings near Cornelius, Washington County, July 10-24. Controls good. (Collins).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - IDAHO - Infestation general in maturing fields of commercial seed peas ready for harvest in Latah County. Field peas in northern part of State usually not infested by this pest. (Portman).

GENERAL VEGETABLES

MELON APHID (Aphis gossypii) - MARYLAND - Building up and becoming problem in several watermelon fields in Caroline and Wicomico Counties. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Heavy on garden radishes and turnips in Fort Collins area, Larimer County; most serious ever noted in area with some crops completely destroyed. (Thatcher).

ASPARAGUS BEETLE (Crioceris asparagi) - OHIO - All stages on asparagus checked in Knox County; adults ranged 6-10 per plant. Eggs and larvae very numerous, pose potential threat to crop. Damage to date light. Determined by E.H. Smith. (Fox).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - COLORADO - Second-brood moths present in all fruit areas on Western Slope; ranged 20-50 per pheromone trap per week in Mesa County orchards. (Bulla).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - COLORADO - Increased in pheromone and bait traps on Western Slope, but counts still low. (Bulla).

APPLE-AND-THORN SKELETONIZER (Anthophila pariana) - OREGON - Heavy again throughout much of northwestern area; several larval generations severely skeletonized leaves of untreated apple, hawthorne, and to a lesser extent, cherry. Locally heavy damage seen in Salem area, Marion County, and in Eugene area, Lane County. (Penrose, Linker).

SHOTHOLE BORER (Scolytus rugulosus) - CALIFORNIA - Adults emerged from cherry trees at Gridley, Butte County, and from apricot trees in West Sacramento, Sacramento County. More prevalent on deciduous fruit trees this season than usual. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - NEVADA - Collected from plum fruit at Las Vegas, Clark County, July 5 by D.F. Zoller. Determined by R.C. Bechtel. This is a new county record. (Bechtel).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Continued to increase explosively in orchards in southern and central areas. (Holdsworth). Increased rapidly in northern area orchards. (Hall).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - Heavy in apple and pear orchards on Western Slope; ranged 20-100 per leaf. Leaf bronzing evident. (Bulla).

BLACK PECAN APHID (Tinocallis caryaefoliae) - TEXAS - Increased on pecans across State. Moderate to heavy in Brazos and Burleson Counties; averaged 5 per leaflet on some trees. Heavy on isolated trees in Pecos County; ranged 150-200 per 25 pecan leaves. Built up in North Central area near Denton and in Blacklands area near Stephenville, Erath County. (Van Cleave et al.).

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Heavy first-generation damage occurred over most of eastern two-thirds of State, especially on pecan, walnut, hickory, and persimmon. (Okla. Coop. Bur.). TEXAS - Heavy, damaged pecans in Denton County area. (Turney).

CITRUS

Insect Situation in Florida - End of July - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 84 (norm 70) percent of groves; economic in 66 (norm 51) percent. Population continued to increase and nearing summer peak. Much above average and very high on leaves and fruit. Although many groves will show decrease late in August, numerous groves will continue to develop or maintain infestations into September. All districts high: South, west, central, north, east. TEXAS CITRUS MITE (Eutetranychus banksi) infested 68 (norm 66) percent of groves; economic in 48 (norm 42) percent. Summer peak population occurred early July, about 14 days

later and slightly higher than average. Decrease to low level expected by September. Highest districts west, central, and east. CITRUS RED MITE (Panonychus citri) infested 35 (norm 63) percent of groves; economic in 10 (norm 35) percent. Population peaked early July at lowest summer level in 21 years of record. Will continue in low range. Highest district south. BLACK SCALE (Saissetia oleae) infested 96 (norm 80) percent of groves; economic in 88 (norm 61) percent. Population peaked at normal time in early July, but at highest level in 21 years of record. Gradual decrease expected. All districts high: Central, east, south, west, and north. AN ARMORED SCALE (Unaspis citri) infested 36 percent of groves; economic in 23 percent. Population increased and higher than any prior month. Little change expected. GLOVER SCALE (Lepidosaphes gloverii) infested 78 (norm 77) percent of groves; economic in 6 (norm 22) percent. Population of scale lower than normal and infestations lighter. Little change expected from present moderate level. Highest district west. PURPLE SCALE (L. beckii) infested 70 (norm 68) percent of groves; economic in 2 (norm 6) percent. Population near normal and low to moderate. Little change expected. YELLOW SCALE (Aonidiella citrina) infested 34 (norm 60) percent of groves; none economic (norm 9 percent). CHAFF SCALE (Parlatoria pergandii) infested 42 (norm 52) percent of groves; none economic (norm 9 percent). These scales below normal, occur only as light infestations. GREEN SCALE (Coccus viridis) infested 30 (norm 7) percent of groves; economic in 12 (norm 1) percent. More widespread and abundant than in any prior month in 21 years of record. WHITEFLIES infested 83 (norm 61) percent of groves; economic in 34 (norm 25) percent. Population remains above normal and in high range despite expected decrease in August. Highest districts east and central. MEALYBUGS infested 68 (norm 69) percent of groves; economic in 13 (norm 2) percent. Population below normal, in moderate range, and decreasing. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

FOREST AND SHADE TREES

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) - COLORADO - Heavy in ponderosa pine on Roosevelt National Forest. Infestation increased 5 to 6-fold over that of 1971 and is in serious epidemic status. (Thatcher).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Mostly pupae in northern Pine County; adults emerging. High percentage of pupae parasitized or diseased. Very few egg masses found as of August 2. (Minn. Pest Rpt.).

ELM LEAF BEETLE (Pyrrhalta luteola) - IOWA - Collected in Dubuque County July 28 for a new county record. (Iowa Ins. Sur.).

MISSOURI - Pupation and emergence of second generation underway in southern areas. Many Chinese elms defoliated. (Munson).

OKLAHOMA - Third-generation larvae emerged on Siberian elms in Pontotoc County, defoliation nearing 100 percent in many areas. Second-generation larvae, pupae, and adults common in Payne County. (Okla. Coop. Sur.). TEXAS - Heavy in north-central area counties near Denton, in Rolling Plains in Motley, Baylor, and Kent Counties, and in counties near Amarillo, Potter County. (Turney et al.).

SADDLED PROMINENT (Heterocampa guttivitta) - MAINE - Larval populations collapsed in most deciduous areas where heavy earlier in season. Now appears defoliation will be light or nonexistent in most locations but with heavy defoliation on understory trees. (Gall).

A NOTODONTID MOTH (Symmerista canicosta) - MICHIGAN - Oviposition complete. Most egg masses parasitized. Heavy mortality in first and second instars. Defoliation obvious in areas with heavy populations. (Eiber, Sauer).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Continued to damage cedars throughout Rolling Plains area. Damage heavy in Motley; moderate in Hall, Baylor, and Wilbarger Counties; moderate to heavy in Knox County. (Boring).

MIMOSA WEBWORM (Homadula anisocentra) - OKLAHOMA - Scattered heavy damage to mimosa reported from Payne, Oklahoma, and Bryan Counties. Bryan is a new county record. (Okla. Coop. Sur.).

A PLANT BUG (Tropidosteptes pacificus) - OREGON - Late instar nymphs economic on 12,000 ash (Fraxinus oregona) trees in large field nursery in eastern Multnomah County. Feeding damage to lower leaves apparent, controls applied. (Nicoliason).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 3,841 confirmed cases reported in continental U.S. during period July 23-29 as follows: Texas 3,684, New Mexico 47, Arizona 93, California 2, Oklahoma 15. The 5 most heavily infested Texas counties were: Gonzales 150, Atascosa 114, Gillespie 110, Kinney 103, De Witt 97. Total of 996 cases confirmed in Mexico. Number of sterile flies released this period in U.S. totaled 184,596,000 as follows: Texas 152,406,000; New Mexico 6,310,000; Arizona 17,570,000; California 650,000; Oklahoma 1,600,000; Louisiana 4,500,000; Arkansas 1,560,000. Total of 1,140,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MARYLAND - Annoyance to cattle high; adults ranged 30-100 per head in Howard, Carroll, and Prince Georges Counties. (U. Md., Ent. Dept.). KENTUCKY - Adults averaged 12.7 per animal on 20-month-old Hereford bulls in Caldwell County. (Gregory). ILLINOIS - Averaged 24 per head on several herds in Ogle County. (Ill. Ins. Rpt.). IOWA - Ranged 40-70 per head on untreated beef cattle in Polk County. (Iowa Ins. Sur.). NEBRASKA - Ranged 10-15 per face on untreated and about 8 per face on treated range herds in Keith, Arthur, Logan, McPherson, and Lincoln Counties. (Campbell, McEvoy). SOUTH DAKOTA - Populations fluctuated; ranged 50-150 (averaged 35) per face on cows July 22 and 7-15 (averaged 10) per face July 29. On calves, ranged 2-30 (averaged 7) on July 22 and 2-7 (averaged 4) per face on July 29. (DeFosse). NORTH DAKOTA - In sandhills area of Richland County, ranged 13-50 (averaged 29) per face on calves and 7-22 (averaged 12) per face on cows in same herd. Ranged up to 5 (averaged 1) per face on buffalo on Sullys Hill Game Preserve in Benson County. (Brandvik).

HORN FLY (Haematobia irritans) - MARYLAND - Adults ranged 30-50 per animal on beef cattle in Frederick and Howard Counties. (U. Md., Ent. Dept.). OHIO - Counts heaviest in western area; ranged 50-350+ per head on Hereford cattle in Darke County, up to 40+ in Preble County. (Fox). MISSISSIPPI - Ranged 175-200 per animal on 375 cattle in Montgomery County. (Robinson). ILLINOIS - Averaged 110 per animal on several herds in Ogle County. (Ill. Ins. Rpt.). OKLAHOMA - Ranged 100-125 per head on cows and averaged 1,500 per head on bulls in Payne County. Heavy in Pontotoc County, moderate to heavy in Bryan County, light to moderate in Roger Mills County. (Okla. Coop. Sur.). NEBRASKA - Averaged 500+ per animal on untreated range herds in Keith, Arthur, Logan, McPherson, and Lincoln Counties. (Campbell, McEvoy). NORTH DAKOTA - Ranged up to 300 (averaged 150) per buffalo on Sullys Hill Game Preserve in Benson County. (Brandvik). SOUTH DAKOTA - Counts per side on cows ranged 75-900 (averaged 550) July 22 and 200-600 (averaged 500) on July 29. Counts per side on bulls ranged 1,200-1,500 on July 22 and July 29. (DelFosse).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Adults ranged 10-30 per animal on beef cattle in Frederick and Howard Counties. (U. Md., Ent. Dept.). ILLINOIS - Averaged 22 per animal on several herds in Ogle County This is increase from 4 per head during mid-July. (Ill. Ins. Rpt.). NEBRASKA - Ranged 20-25 per leg on untreated feedlot animals in Lincoln County. (Campbell, McEvoy).

MOSQUITOES - OHIO - Very heavy in northeast area due to high temperatures and humidity last period, particularly in Ashland and Summit Counties; up to 400 per trap per night. Aedes sticticus, A. stimulans, A. triseriatus, A. trivittatus, A. vexans, and Culex spp. dominant. Less than 50 per trap per night taken in Knox County. A. sollicitans and A. trivittatus increased in Lake and Ashland Counties, respectively. (Ohio Dept. Health). MINNESOTA - As predicted, light trap catches of A. vexans increased sharply July 30. Emergence complete as of August 2. Flooded areas north of Minneapolis and Saint Paul can expect high nuisance for next 14-21 days. Recent cool evenings restricted adult mosquito activity somewhat. (Minn. Pest Rpt.). UTAH - Annoying in several areas of Summit, Duchesne, Wasatch, and Uintah Counties. (Knowlton et al.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy on dogs in Pontotoc and Pushmataha Counties; heavy on cattle in Pontotoc County, moderate on cattle in Pushmataha County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

AN ICHNEUMON WASP (Bathyplectes stenostigma) - OHIO - This larval parasite of Hypera postica (alfalfa weevil) recovered June 12 at release site near Wooster, Wayne County, by J.K. Flessel. Determined by J.K. Flessel. Confirmed by R.J. Dysart. This is a new State record. B. stenostigma originally released at this site June 25, 1968, and May 22, 1970. (Flessel).

A EULOPHID WASP (Tetrastichus julis) - MICHIGAN - Recovered for new county records as follows: Alcona June 16 by M. McGuire; Alpena June 15 by A. Nickels; Genesee June 7 by A. Johnson; Ionia June 8 by D. Patrick; Isabella June 7 by L. Webb; Jackson June 10 by H. Spink; Kalamazoo June 12 by R. Bailey; Lake June 8 by

Dostal; Lapeer June 5 by L. Dorr; Oakland June 7 by W. Muller; Ogemaw June 10 by R. Kaarre; Saginaw June 9 by R. Vasold; Shiawassee June 15 by R. Austin. All determined by F.W. Stehr. Originally released in these counties in 1971 as parasites of Dulema melanopus (cereal leaf beetle) larvae: June 9 in Alcona, Benessee, Ionia, Isabella, Jackson, Lake, Lapeer, Oakland, Ogemaw, and Saginaw; June 10 in Alpena and Shiawassee; June 17 in Kalama-zoo. For recoveries, O. melanopus larvae were collected and reared to full growth; if present, I. julis emerged. (Sauer).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GIANT AFRICAN SNAIL (Achatina fulica) - FLORIDA - Adults taken at 5 locations in Opa Locka, Dade County, July 14 by G.S. Spencer and E. Holder and at 3 canal bank locations close to above properties in Opa Locka July 17. (Spencer et al.).

GRASS BUGS (Labops spp.) - UTAH - Caused much damage to planted range grasses in Browns Park area of Daggett County. Damaged range grasses over Uintah Mountains north of Vernal, Uintah County; and at Wolf Creek Pass, Duchesne County. (Haws, Partridge).

GRASSHOPPERS - UTAH - Mostly nymphs ranged 3-5 per sweep in meadow areas at Locomotive Springs, Box Elder County; problem throughout county. Melanoplus sanguinipes ranged 2-7 per sweep in scattered range areas of Box Elder County and 1-4 per sweep at Wolf Creek Pass, Duchesne County. (Knowlton, Lindsay). NEVADA - New county records as follows: Ageneotettix deorum at North Twin River, Nye County, July 1, 1971, by R.C. Bechtel and P.C. Martinelli. Amphitornus coloradus ornatus at Virginia City, Storey County, August 3, 1971; Chorthippus curtippennis at Sweetwater, Lyon County, August 26, 1971; Melanoplus cinereus cinereus at Carson City, Ormsby County, August 8, 1971, and at Lagomarsino Canyon, Storey County, July 13, 1972; Mermeria bivittatus maculipennis one mile north of Beatty, Nye County, August 12, 1971; Spharagemon collare at Yerington, Lyon County, August 2, 1972; Trimerotropis latifasciata 5 miles north of Walker Lake, Mineral County, August 25, 1971, and I. strenua at Carson City, Ormsby County, August 19, 1971, all by G.M. Nishida. All determined by R.C. Bechtel. (Bechtel). WASHINGTON - Adults and late instars, mostly M. sanguinipes, M. bivittatus, Aulocara elliotti, and Oedaleonotus enigma economic throughout eastern rangeland areas. Moved from untreated desert rangeland to cropland. Crop damage reported in most counties. In some areas repeated treatments necessary. Private control programs conducted in Whitman and Adams Counties on estimated 20,000 acres of range and crop lands. At Fruitvale, Yakima County, nymphs and adults averaged 3 per sweep in alfalfa seed field July 28. (Gregorich).

IDAHO - Grasshoppers ranged 12-18 per square yard over 100 acres of rangeland on Fort Hall Indian Reservation in Bingham County July 21. (Kunkel). Ranged 10-50 per square yard on 1,000 acres of alfalfa, grain, and rangeland in Stack Rock area near Boise, Ada County, July 24; crop damage ranged 10-90 percent. (Peterson). M. sanguinipes seriously stripped 8,000-10,000 acres of dryland alfalfa hay and rangeland grasses in Whitebird area of Idaho County. Population 15 percent late instar nymphs, 85 percent adults. Egg development evident in females. (Mink, Portman).

MONTANA - M. bivittatus, M. sanguinipes, and M. packardii ranged 40-50 per square yard along roadsides for 10+ miles east of Froid, Roosevelt County, week ending July 28. (Pratt). MINNESOTA - M. femurrubrum nymphs more noticeable. Ranged 45-54 per square yard in grassy alfalfa field in Steele County; only economic infestation reported. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - SOUTH CAROLINA - Male adult taken in sex-lure trap in oak tree in mobile home park at North Charleston, Charleston County, July 17. Determined by V.H. Owens. Confirmed by E.L. Todd. This is first specimen taken in county and is considered a regulatory incident until evidence of infestation is found. (PP). FLORIDA - Two mummified larvae, 2 dead adults, 1 dead pupa, and several egg masses intercepted on objects inside horse trailer at Inverness, Citrus County, recently arrived from infested area. (Fla. Coop. Sur.). TENNESSEE - Adult collected in camp ground at Regean Forge, Sevier County, July 27 by S. Johnson and R. Applegate, and adult collected in camp ground at Cosby, Cocke county, July 29 by S. Johnson et al. Determined by V.H. Owens. Confirmed by E.L. Todd. Until further survey and scouting is completed to verify the nature of these situations, they will be considered as regulatory incidents. (PP).

JAPANESE BEETLE (Popillia japonica) - NEW JERSEY - Damaged corn silks in scattered Warren County fields. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Adults heavy on various hosts in Cranton, Lackawanna County, by July 20; often caused complete defoliation (Lawrence); also in Snyder, Union, Montour, and Northumberland Counties, and at Farmington, Fayette County (Rusnock, Maust). Total of 5,483 adults taken in 16 bait traps at location in Centre County July 26 through August 3. (Adams). MARYLAND - Adults above normal in most sections, but declining. Favorable weather for grub development probable reason for heavy statewide populations. (U. Md., Ent. Dept.). VIRGINIA - Remained very light in most areas. (Allen). TENNESSEE - Adult collected in motel parking lot at Cookeville, Putnam County, by J.F. Williams July 31. Determined by V.H. Owens. Confirmed by J.M. Kingsolver. This is first specimen taken in county and is considered to be an interception until evidence of infestation is found. (PP).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Trap inspection continued negative in San Joaquin Valley. Total of 5,141,250 sterile moths released this period. Total of 19,665,750 released this season. (Cal. Coop. Rpt.).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Survey revealed infested 8-acre vineyard at San Jose, Santa Clara County. Treatment and survey continued. Hot weather caused much damage to crops; grapes in some counties severely damaged, drying on vines. This complicates inspection. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Adults heavy on peanut foliage in 16-acre field near Marl Community; also widespread and heavy in field north of Webb, Houston County. Controls recommended. (McQueen).

HAWAII INSECT REPORT

orn - CORN EARWORM (Heliothis zea) severe in 4 acres of sweet corn at Waimanalo, Oahu; 100 percent of mature ears with eggs and/or early larvae on silks or in ear tips. CORN LEAF APHID (Utopalosisiphum maidis) light on leaves in same planting; about 5 percent of aphids parasitized by Lysiphlebus testaceipes (a braconid). (Kawamura).

General Vegetables - Larval mines of LEAFMINER FLIES (Liriomyza spp.) generally light in 5,000-square-foot planting of cucumber seedlings at Waimanalo, Oahu; moderate on older 1-2 leaves. Larval mines moderate in 0.25 acre of green onion at Makawao, Maui; Acrolepia assectella (leek moth) light and Tetranychus annabarinus (carmine spider mite) light in this planting. (Miyahira). BEAN FLY (Melanagromyza phaseoli) larvae severe in petioles and stems in small yard planting of snap beans at Pearl City, Oahu; 100 percent of seedlings affected. Heavy in two yard plantings of snap beans at Kahului and Haliimaile, Maui; killed 5-100 percent of seedlings. Bean fly activity about nil in most other yard plantings at Kahului, Waikapu, and Puunene. Heavily infested long bean petioles collected in late June at Wailuku, Maui, and on Kauai; 44 and 56 percent parasitized by Opisus spp. (braconids), respectively. (Ah Sam et al.). GREEN STINK BUG (Nezara viridula) egg cluster collected from lightly infested acre planting of eggplant at Waianae, Oahu, during mid-July 100 percent parasitized by Trissolcus basalis (a scelionid wasp). (Kawamura).

Forest and Shade Trees - CUBAN LAUREL THRIPS (Gynaikothrips ficorum) nymphs and eggs light in fluted terminal leaves of 30 Chinese banyan (Ficus retusa) trees at Punchbowl, Oahu; adults scarce. A predator, Montandoniola moraguesi (an anthocorid bug) nil. On all trees, G. ficorum appears in initial stages and may account for absence of this very effective predator. GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) nymphs and adults moderate on about 10 percent of Pinus sp. saplings at Kula, Maui. Chemical control recommended. (Ah Sam, Miyahira).

Beneficial Insects - LANTANA LEAF BEETLE (Octotoma scabripennis) nymphs and adults heavy in wasteland lantana at Hookena, Kona, Hawaii; 600 adults collected in one hour. (Yoshioka). Adults of CYCOMYZID FLIES (Sepedon sauteri and S. macropus) light to moderate on 2 acres of taro at Waimanalo, Oahu. (Otsuka).

CORRECTIONS

EIR 22(29):466 and 22(30):486 - SOYBEAN CYST NEMATODE (Heterodera glycines) - Both notes should read: Determined by V.H. Owens. Confirmed by A.M. Golden. (PP).

EIR 22(30):480 - MISCELLANEOUS FIELD CROPS - A FLEA BEETLE (Longitarsus waterhousei) - OREGON - " ... Adults averaged 472 per sweep ... " should read "Adults averaged 47.2 per sweep ..." (Penrose).

EIR 22(30):481 - GENERAL VEGETABLES - OHIO - " ... in Wayne County." should read " ... in Washington County."

EIR 22(31):493 - ARMYWORM (Pseudaletia unipuncta) - OHIO - " ... County, June 14-20." should read " ... July 14-20." (PP).

LIGHT TRAP COLLECTIONS

Locality	Trap	Type of Insect	Temperature, °F.	Humidity, %	Wind, m.p.h.	Direction of Wind	Time of Day	Phase of Moon	Phase of Sun	Phase of Stars	Phase of Planets	Phase of Moon	Phase of Sun	Phase of Stars	Phase of Moon	Phase of Sun	Phase of Stars	Phase of Moon	Phase of Sun	Phase of Stars	Phase of Moon	Phase of Sun	Phase of Stars	
NORTH DAKOTA Bismarck 7/27, 30, 8/1 Bottineau 7/26, 31, 8/2 Fargo 7/29-31, 8/2-3	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						
OHIO Wooster 7/28-8/3	BL	Blacklight																						
PENNSYLVANIA (District) Central 7/27-8/2 Southeast 7/27-8/2 Southwest 7/27-8/2	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						
SOUTH DAKOTA (County) Brookings 7/25-31	BL	Blacklight																						
	BL	Blacklight																						
TENNESSEE (County) Dyer 7/31-8/2 Franklin 7/31-8/4 Madison 7/31-8/2	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						
VIRGINIA Montgomery 6/27-7/2 Petersburg 6/25 Warsaw 6/25-7/1	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						
WISCONSIN Hartford 7/25-31 Lancaster 7/25-31 Mazomanie 7/24-8/1	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						
	BL	Blacklight																						

DETECTION

New State Records - AN ICHNEUMON WASP (Bathyplectes stenostigma) OHIO - Wayne County. (p. 498).

New County Records - ELM LEAF BEETLE (Pyrrhalta luteola) IOWA - Dubuque (p. 526). A EULOPHID WASP (Tetrastichus julis) MICHIGAN - Alcona, Alpena, Genesee, Ionia, Isabella, Jackson, Kalamazoo, Lake, Lapeer, Oakland, Ogemaw, Saginaw, Shiawasee (pp. 528-529). GRASSHOPPERS - NEVADA - Ageneotettix deorum, Nye; Amphitornus coloradus ornatus, Storey; Chorthippus curtipennis, Lyon; Melanoplus cineris cineris, Ormsby, Storey; Mermeria bivittatus maculipennis, Nye; Spharagemon collare, Lyon; Trimerotropis latifasciata Mineral; T. strenua, Ormsby (p. 529). A JAPANESE WEEVIL (Calomycterus setarius) IOWA - Chickasaw, Winneshiek (p. 521). MIMOSA WEBWORM (Homadaula anisocentra) OKLAHOMA - Bryan (p. 527). SAN JOSE SCALE (Quadraspidiotus perniciosus) NEVADA - Clark (p. 525). WESTERN CORN ROOTWORM (Diabrotica virgifera) MICHIGAN - Calhoun. INDIANA - Elkhart, St. Joseph. UTAH - Box Elder, Cache, Davis, Morgan. ILLINOIS - Montgomery. MISSOURI - Lincoln (p. 519).

Weather of the week continued from page 516.

TEMPERATURE: A cold front stretched from the middle Atlantic coast to eastern Texas on Monday July 31, producing minimums in the 60's and 70's over the Deep South. This front dissipated but another front moved into the Nation from Canada. About midweek, it extended from New Mexico to New England. A warming trend occurred south of new front. Afternoon temperatures reached the 90's over much of the South. Wichita, Kansas, and Gage, Oklahoma, registered 100 degrees Wednesday when the mercury at Wichita Falls, Texas, climbed to 101 degrees. A cooling trend north of the front held afternoon temperatures in the 60's and 70's and dropped early morning temperatures into the 40's and 50's. Grand Forks, North Dakota, recorded 33 degrees Thursday morning. The Northwest warmed. Yakima, Washington, registered 90 degrees or higher on several days. Blythe, California, in the Southwest, recorded 120 degrees Monday and Tuesday afternoons but only 110 degrees on Thursday. The weekend brought warmer afternoons to the Great Plains and cooler mornings to the Northeast. Chadron, Nebraska, registered only 63 degrees Thursday afternoon but 94 degrees Saturday. Lemon, South Dakota, recorded 60 degrees Thursday, 89 Saturday. Early morning temperatures at Buffalo, New York, on Thursday and Saturday were 70 degrees and 45 degrees, respectively. Minimums were common in the Deep South over the weekend. Temperatures averaged above normal west of the Rocky Mountains, over the Florida Peninsula, and along the southern Atlantic coast, and below normal over most of the rest of the Nation. Most of the northern and central Great Plains and northern prairies averaged 6 to 10 degrees warmer than normal.



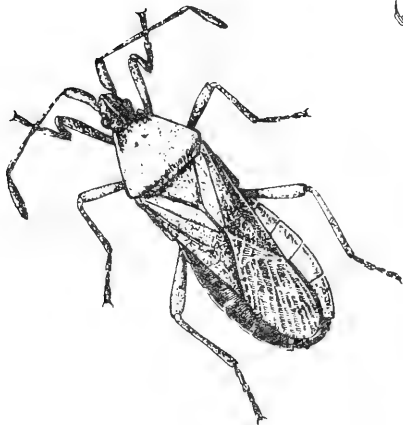
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101

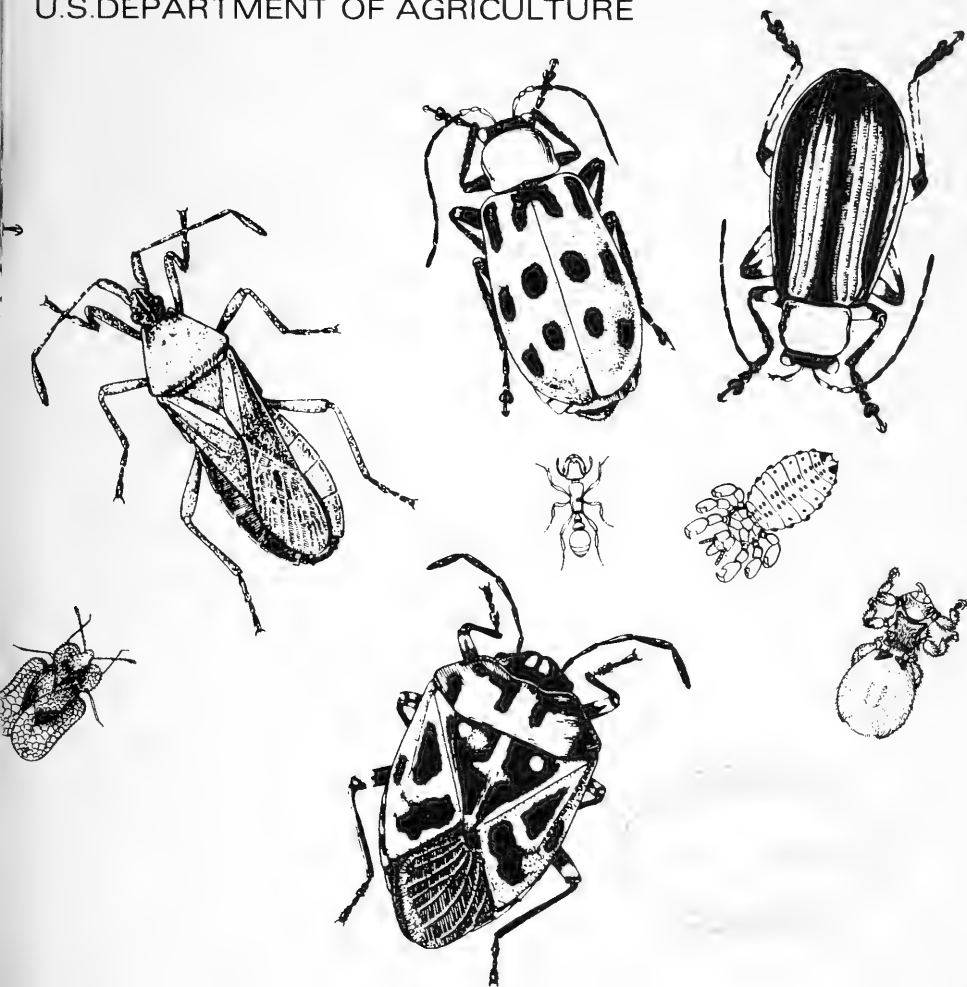


0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

CORN LEAF APHID heavy on grain crops in several Eastern and Central States. POTATO LEAFHOPPER heavy on alfalfa and beans in Wisconsin; economic on hay in southeastern Ohio. (p. 537).

Second-brood EUROPEAN CORN BORER moth emergence and egg laying underway in southern Illinois, but heavy second brood not expected in State. Pupation and moth emergence slowed by cool weather in Minnesota, moth activity increased in central New York. (p. 538). BANKS GRASS MITE increased on corn in Arkansas Valley of Colorado. (p. 539).

LESSER CORNSTALK BORER heavy and damaging several crops in south-east Alabama. (pp. 539, 540, 542).

ALFALFA WEEVIL damage to alfalfa worst in 12 years in northern Utah this season. (pp. 539-540).

BOLL WEEVIL increased in Florence area of South Carolina, remains heavy in southern and central Alabama. BOLLWORM activity increased in cotton in several Southern States. (pp. 541-542).

Detection

A SAWFLY reported for first time in West Virginia. (p. 544).

For new county records see page 550.

Reports in this issue are for week ending August 11 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	537
Insects Affecting	
Corn, Sorghum, Sugarcane.....	538
Small Grains.....	539
Turf, Pastures, Rangeland.....	539
Forage Legumes.....	539
Soybeans.....	540
Peanuts.....	541
Cotton.....	541
Potatoes, Tomatoes, Peppers.....	542
Beans and Peas.....	542
Cole Crops.....	542
Deciduous Fruits and Nuts.....	544
Ornamentals.....	544
Forest and Shade Trees.....	544
Man and Animals.....	545
Hawaii Insect Report.....	543
Beneficial Insects.....	546
Federal and State Plant Protection Programs.....	546
Light Trap Collections.....	548
Detection.....	550
Weather of the Week.....	550

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-AUGUST TO MID-SEPTEMBER 1972

The National Weather Service's 30-day outlook for mid-August to mid-September is for temperatures to average below seasonal normals over New England, Texas and most of the Southeast. Above normal averages are expected in northern and central portion of both the Intermountain Region and the Plains as well as the upper Mississippi Valley and the upper Great Lakes. In unspecified areas near normal temperatures are in prospect. Rainfall is expected to exceed normal over the south Atlantic Coast States, Texas, the central and southern Intermountain Region, and the north Pacific Coast. Subnormal totals are called for over northern and central portions of both the Plains and the Mississippi Valley. Elsewhere 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 National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price \$5.00 a year.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - VIRGINIA - Larval counts in field corn remain low in Coastal Plain area; infestation averaged 24.5, ranged 0-68, percent in 9 counties surveyed north of James River and east of City of Richmond. Heaviest in Middlesex and Lancaster Counties, about same as in 1971. (Allen). Infested 80 percent of ears in untreated sweet corn at Painter, Accomack County. Adult emergence should increase and peak in Accomack and Northampton Counties in late August. (Hofmaster). TENNESSEE - Infested 10-15 percent of corn ears in fields of Lincoln and Franklin Counties. (Cagle). ILLINOIS - Second-generation increased on sweet corn in Madison and St. Clair Counties. Single adult taken in light trap in Champaign County. (Ill. Ins. Rpt.). OKLAHOMA - Averaged 1 per head in 25 percent of heads in 2 grain sorghum fields in Muskogee County. Heavy in forage sorghum in Bryan County. (Okla. Coop. Sur.). COLORADO - Light to moderate on corn in Mesa and Delta Counties. (Bulla).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Heavy in sorghum in Jackson, Tillman, and Pottawatomie Counties. (Okla. Coop. Sur.). NORTH DAKOTA - Heavy, 100+ per plant, on late seeded barley (tillering stage) in Cass County. Controls applied. (Brandvik). WISCONSIN - Heavy in whorls of untasseled corn in central and northern counties. Very light in well tasseled plants in western counties. Few colonies in western area on undersides of leaves. Lady beetles numerous in infested fields in all areas. (Wis. Ins. Sur.). ILLINOIS - Heavy and damaged late corn in south-east district. Heavy rains apparently aided in reducing some heavy infestations in central district. (Ill. Ins. Rpt.). PENNSYLVANIA - Heavy on sweet and field corn throughout State. (Adams). MARYLAND - Heavy on 700+ acres of field and sweet corn on Eastern Shore. (U. Md., Ent. Dept.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged 200-300 per plant in scattered sorghum fields in Tillman County. Still light on corn in Texas County. (Okla. Coop. Sur.). COLORADO - Populations appear under control in most sorghum checked in Arkansas Valley; however, in few instances, damage severe to lower 5 or 6 leaves; averaged 1,000+ per plant. In few fields of 6 to 18-inch, late-planted sorghum, whole plants severely damaged. (Schweissing). ARIZONA - Built up on milo in Stewart District, Kansas Settlement, and Elfrida areas of Cochise County. (Kozloski).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Averaged 5 per sweep in alfalfa in Wood, Marathon, Lincoln, and Marquette Counties. Some fields in Wood County showed yellowing symptoms; this condition masked in most cases elsewhere. Counts on beans in Outagamie County remained high, ranged 1-5 per leaf. Very light on beans in central part of State. (Wis. Ins. Sur.). OHIO - Heaviest infestation to date reported from Miami County; adults and nymphs averaged 15 per sweep in 25 acres of alfalfa. Yellowing evident, controls applied. Economic in southeastern area hay fields; however, population increase in most counties negligible compared with surveys 21 days ago. Adult and nymphal counts by county: On alfalfa - Washington 2 per sweep; Pike, 2.5 per sweep; Meigs, 1 per sweep; Ross, 1.5 per sweep. On mixed clover and timothy - Meigs, 23 per 50 sweeps; Fairfield, 2-3 per sweep. Adults and nymphs ranged 2-3 per plant on carrots in Fairfield County. Very heavy populations damaged navy beans in Henry County. (Kroetz, Fox). PENNSYLVANIA - Continued to increase on alfalfa and potatoes throughout State. (Adams).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increased in alfalfa on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light to moderate, averaged 150 per 25 sweeps, in alfalfa at Los Padillas and Parajito, Bernalillo County. (Heninger). OKLAHOMA - Counts per 10 sweeps of alfalfa by county: Muskogee 2,000, Le Flore 350, Tulsa 30, Sequoyah 25. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - MARYLAND - D. longicornis (northern corn rootworm) adults ranged 1-4 per silk in 100 acres of field corn in Carroll and Frederick Counties. (U. Md., Ent. Dept.). MICHIGAN - D. virgifera (western corn rootworm) adults collected and determined by R.F. Ruppel. Specimens taken from 5 fields of field corn in Vevay Township, Ingham County, for a new county record. D. longicornis adults found in one-third of fields checked in Ingham, Jackson, Lenawee, Monroe, and Washtenaw Counties; common in about half of infested fields. (Sauer). ILLINOIS - Survey completed in 370 fields to determine adult populations of D. longicornis and D. virgifera. Generally, populations heavier than in 1971. Number of Diabrotica spp. adults per 100 plants in 1972 compared with 1971 (in parentheses) by district: Northwest 98 (64), northeast 36 (106), west 109 (64), central 111 (55), east 73 (55), southwest 5 (0), southeast 8 (0). Populations heaviest in west and central districts. Heaviest counts in Champaign County (east district) with 338 beetles per 100 plants and in Woodford County (central district) with 245 beetles per 100 plants. D. virgifera found in Montgomery County for a new county record. (Ill. Ins. Rpt.).

MISSOURI - D. virgifera light on corn in east-central area. Adults collected in St. Charles, St. Louis, and Warren Counties. These are new county records. (Munson). MINNESOTA - Diabrotica spp. adults ranged 5-15 per plant in occasional field in southern half of State. Some controls applied to insure good pollination. (Minn. Pest Rpt.). SOUTH DAKOTA - Averaged 6 D. virgifera forms per plant in untreated areas of field of late-planted corn south of Canton, Lincoln County. Larvae 20 percent, pupae 60 percent, teneral adults 20 percent in 8-inch cube of soil and roots. (Jones). MONTANA - Adults of D. virgifera light on silks of all corn in Billings area, Yellowstone County. No silk damage seen; corn pollinated before adults appeared. (Pratt, Aug. 4).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW YORK - Moth activity increased in central area. Growers with corn entering midwhorl stage should apply protective treatments. (N.Y. Wkly. Rpt., Aug. 7). DELAWARE - Adults in blacklight traps averaged 24 per night for 5 locations in Sussex County. (Burbutis, Kelsey). ILLINOIS - Second-brood moth emergence, egg laying, and egg hatch underway in southern third of State. Moth emergence just begun in central area, will begin in northern area in about 7 days. Late-developing first-brood larvae still present in all sections. First-generation survey on field corn revealed low borer population; heavy second generation not expected in State. (Ill. Ins. Rpt.). MINNESOTA - Cool weather slowed pupation and moth emergence. No egg masses found. (Minn. Pest Rpt.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae, heavy and widespread, damaged grain sorghum fields in Houston County. Damaged 50+ percent of 8 to 12-inch high grain sorghum stalks in a Henry County field. (Roney et al.).

FALL ARMYWORM (Spodoptera frugiperda) - MARYLAND - Infestations ranged 5-17 percent in several hundred acres of late-planted corn statewide. (U. Md., Ent. Dept.).

CONCHUELA (Chlorochroa ligata) - OKLAHOMA - Ranged up to 2 per head in grain sorghum in soft dough stage in Tipton area, Tillman County. (Okla. Coop. Sur.).

CHINCH BUG (Blissus leucopterus leucopterus) - OHIO - Heavy populations damaged Putnam County corn. Very unusual for this pest to seriously affect corn so late in season. (Blair).

GRASSHOPPERS - MARYLAND - Melanoplus spp. nymphs caused local damage to several hundred acres of field corn in Frederick, Carroll, and Howard Counties. (U. Md., Ent. Dept.).

BANKS GRASS MITE (Oligonychus pratensis) - COLORADO - Increased on corn in Pueblo, Crowley, Otero, and Bent Counties. Populations ranged from light on lower leaves with little damage, to heavy through middle leaves (some mites as high as twelfth existing leaf) with "burning" on lower leaves. Most populations light to moderate through middle leaves with little "burning." Predatory mites, beetles, and bugs numerous in many fields. (Schweissing). NEVADA - Heavy on corn and required treatment in Fallon area, Churchill County. (Hilbig).

SMALL GRAINS

HESSIAN FLY (Mayetiola destructor) - ILLINOIS - Light in wheat stubble again this year; averaged 4 puparia per 100 tillers throughout area surveyed in southern half of State. (Ill. Ins. Rpt.).

TURF, PASTURES, RANGELAND

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae destroyed first year plants of Bahia grass seeded on 8-acre field in Geneva County. About 80 percent of grass stand lost and unless controls applied, remaining plants will die. (Carroll et al.).

FORAGE LEGUMES

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Apparent in most areas in second-crop alfalfa, although damage not as extensive as on first cutting. (MacCollom). MASSACHUSETTS - Larvae mined 13 percent of leaves in untreated, mature alfalfa stand in Berkshire County. (Capinera, Aug. 4). PENNSYLVANIA - Many pinholes found on leaflets in 3 alfalfa fields in Northampton and Bucks Counties. Determined by K. Valley. (Kim).

ALFALFA WEEVIL (Hypera postica) - NEW MEXICO - Counts per 25 sweeps in alfalfa at Los Padillas and Parajito, Bernalillo County: Adults 2-5, larvae 4-22. Damage light to moderate. (Heninger). UTAH - Damage to alfalfa this season worst in 12 years in northern counties, especially in Cache and Box Elder

Counties. Adults now leaving fields. (Davis). WISCONSIN - Larvae and adults still seen in northern Oconto and southern Marinette Counties. Ranged 5-10 per 10 sweeps in nearly all alfalfa fields in area. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - COLORADO - Ranged 0-1,000 per 100 sweeps in Arkansas Valley alfalfa; problem only in alfalfa being grown for seed. (Schweissing).

PEA APHID (Acyrtosiphon pisum) - UTAH - Heavy to damaging in many alfalfa fields in Box Elder County. (Lindsay).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - New adults building up and depositing eggs in several soybean fields on lower Eastern Shore. To date very few fields show foliage injury over 25 percent. (U. Md., Ent. Dept.). VIRGINIA - Below economic levels in all fields surveyed in New Kent, Henrico, King William, Middlesex, Lancaster, Richmond, Westmoreland, Essex, and King and Queen Counties. Present adult levels in some fields may result in damaging larval populations. (Allen). SOUTH CAROLINA - Beetles ranged 3-20 per row foot, caused 25 percent damage to 50 acres of soybeans in Dillon County. (Moody).

BEAN LEAF BEETLE (Cerotoma trifurcata) - OKLAHOMA - Light in 6 of 17 soybean fields checked in Tulsa, Wagoner, Muskogee, Sequoyah, and Le Flore Counties. Ranged up to 1 per linear foot in one Muskogee County field. (Okla. Coop. Sur.).

A CERAMBYCID BEETLE (Dectes texanus texanus) - NORTH CAROLINA - Adults on soybeans over most of Washington, Tyrrell, Beaufort, and Hyde Counties. Up to 1 per row foot noted in Hyde County. Egg laying in weeds and soybeans underway. Fields with heaviest adult populations should be harvested first. To date, early harvest only means of controlling loss. (Richardson, Hunt).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - OHIO - Populations increased rapidly in central area soybeans. About 10 percent of foliage in Vinton County covered with mites. Situation potentially dangerous; sustained dry weather could cause population "explosions" and heavy damage. (Blair, Eisely).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larval feeding heavy and widespread on soybeans in Houston County. Young plants in 20-acre Covington County field damaged. (Roney et al.).

PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larval damage very heavy in 50 percent of fields examined in southeast area. Larvae destroyed average of 9 peanuts for each 30 under some vines in Geneva County field. Although surveys difficult, larvae observed in all fields examined. Damage heavy and widespread in Houston County peanut fields. (Reynolds et al.). OKLAHOMA - Heavy in peanut field in Marshall County. (Okla. Coop. Sur.).

GRANULATE CUTWORM (*Feltia subterranea*) - FLORIDA - Severe on 20 acres of runner type peanuts at Blountstown, Calhoun County. Collected by J. Wyrick. Determined by J.R. Strayer. (Fla. Coop. Sur.). ALABAMA - Six of 25 fields examined in Covington, Geneva, and Henry Counties with damaging infestations of 2-15 larvae per 2 row feet. Larval increase expected soon in southeast area. (McQueen).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - TENNESSEE - Second generation emerged, counts range 4-95 percent punctured squares in regularly weevil infested western area. Local migration to late cotton noted; long range migration expected by August 15. Some fields mature enough they are no longer attractive to migrating weevils. Watch late rank cotton very closely. Conditions ideal for population increase. Controls needed in all late cotton in regularly weevil infested area. (Locke). Punctured squares ranged 5-40 percent in central area. (Cagle). SOUTH CAROLINA - Infestations increased gradually in Florence area; movement should be apparent by mid-August. Adults ranged 0-817 per acre in treated plots, 0-535 per acre in untreated plots. Larval infestations ranged 1-4 percent in treated plots, 6-34 percent in untreated plots. (Taft et al., Aug. 2).

ALABAMA - *A. grandis* infestations still heavy in southern and central areas; generally 10-70 percent square damage. Infestations in proportion to controls. Square damage ranged 10-60 percent in most fields in northern area. Controls applied in extreme northern area. (McQueen). MISSISSIPPI - Punctured squares decreased over State with "hot spots" in hill section; as high as 60 percent in southern area. Average percent punctured squares by section: Delta 3, hill 7, south 7. (Robinson). LOUISIANA - Damaged squares increased. Growers should maintain 5-day schedule in fields already under treatment. (Tynes, Aug. 8). TEXAS - Punctured squares averaged 5.2 (maximum 11.4) percent in 5 treated fields in McLennan and Falls Counties. Averaged 11 (maximum 26.5) percent in 6 untreated fields. (Cowan et al., Aug. 3). OKLAHOMA - Percent infestations ranged as follows: 45-50 in several dryland cotton fields in Blair area, Jackson County; 0-15 in other areas of Jackson, Tillman, Harmon, and Greer Counties; 0-65 in Caddo and Washita Counties; 5-15 in Garvin County; 8-12 in Marshall County. (Okla. Coop. Sur.).

BOLLWORMS (*Heliothis* spp.) - TENNESSEE - Increased, egg and larval counts ranged 0-4 per 100 terminals in western area. Eggs out-number larvae. Infestations still below control levels. (Locke). SOUTH CAROLINA - Moth activity and oviposition greatly increased in Florence area. Up to 30 percent damaged squares reported. Larval infestations ranged 1-6 percent in treated plots, 1-5 percent in untreated plots. In 3 light traps in Florence area, 105 *H. zea* and 4 *H. virescens* adults taken. (Taft et al., Aug. 2). MISSISSIPPI - Moth flight heavy in all sections. (Robinson). LOUISIANA - Egg counts increased in some fields in central Red River Valley. Increased egg laying expected in most fields. (Tynes, Aug. 8). TEXAS - In 5 treated fields in McLennan and Falls Counties, eggs averaged 5.9 (maximum 14.3) and larvae 3.5 (maximum 9.2) per 100 terminals. In 6 untreated fields, eggs averaged 7.4 (maximum 11) and larvae 4.1 (maximum 10.8) per 100 terminals. Injured squares averaged 6.9 (maximum 17.8) percent

in 5 treated fields. Injured bolls averaged 3.9 (maximum 7.2) percent in 5 treated fields, 7.2 (maximum 14.5) percent in 6 untreated fields. Of 199 larvae collected on cotton, 151 determined as H. virescens. (Cowan et al., Aug. 3). OKLAHOMA - Egg counts increased in Jackson, Tillman, Harmon, and Greer Counties. Larvae ranged 0-9 per 100 terminals and damaged square counts 0-6 percent. Damaged squares ranged 0-55 percent in Caddo and Washita Counties with higher numbers in treated fields. Damage ranged 10-15 percent in Marshall County. (Okla. Coop. Sur.).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - OKLAHOMA - Averaged 190 per 100 sweeps in late planted irrigated fields in Caddo and Washita Counties. (Okla. Coop. Sur.).

CONCHUELA (Chlorochroa ligata) - OKLAHOMA - Moderate numbers caused some damage to squares and young bolls in Tipton area, Tillman County. (Okla. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - OREGON - Counts, mostly apterae, ranged up to 2 per bottom leaf near borders and 1 per 10 bottom leaves in open areas of 45-acre potato field near Wilsonville, Washington County. Field treated 3 times past 15-20 days; control fair. (Collins). Counts again high in Mitchell Butte and Newell Heights area potato fields in Malheur County August 3-4; decreased sharply August 7-8. Counts in most traps in area ranged 0-2. (Henninger).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - OHIO - Late instar larvae ranged 2-23 per potato plant in Meigs County; caused moderate damage to stems and foliage. Larvae less abundant on potatoes in Jackson County, averaged 3 per plant. (Fox).

POTATO FLEA BEETLE (Epitrix cucumeris) - MICHIGAN - Late emerging adults heavy in nonsystemic treated potato fields in Montcalm County. (Cress).

BEANS AND PEAS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae heavy and damaging in 3,000 acres of commercial table peas in Geneva County. Fields ranged from mature to 2-leaf stage. Plants in 2 fields of 2-leaf stage up to 8-leaf stage had 2-15 dead plants per 20 row feet; many live plants damaged and will be killed or seriously injured prior to production. (Reynolds et al.).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - OHIO - Early and late larvae per head of cabbage by county: Meigs - ranged 0-10, averaged 7; Jackson - ranged 0-6, averaged 4; Fairfield - ranged 3-4. Some heads stunted in Meigs County. (Fox). MARYLAND - Economic populations damaged broccoli and other cole crops in Wicomico County. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma saucia) - WISCONSIN - Larvae about all pupated in southern Dane County, still active in some fields in Langlade County where many larvae only half grown. Some nearly full grown larvae seen feeding in heads of cabbage in Outagamie County along margin adjacent to area in which weeds had been disced. (Wis. Ins. Sur.).

DIAMONDBACK MOTH (Plutella xylostella) - SOUTH CAROLINA - Larvae caused moderate to heavy damage to collards in Greenwood County. (Thomas).

HAWAII INSECT REPORT

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) heavy in 5-acre pasture of Kikuyu grass at Kapahi, Kauai; averaged 23 larvae per square foot. On Maui, trace infestation in pastures of Kikuyu grass at Kipahulu. Light spotty damage with less than one larva per square foot in infested spots. Moderate number of eggs recovered; approximately 50 percent parasitized by Trichogramma semifumatum (a minute egg parasite). H. licarsisalis light in same host situation at Hana; averaged 1.25 larvae per square foot. Effects of previous infestation remain heavy in spots. (Sugawa, Ah Sam).

General Vegetables - TOMATO PINWORM (Keiferia lycopersicella) heavy in 0.75 acre of eggplant at Pearl City, Oahu; 85-90 percent of leaves in this old planting damaged or infested; many leaves with 4 or more larvae. Heavy in adjacent 0.1 acre of tomato seedlings; plants closest to eggplants most adversely affected. Larval mines of LEAFMINER FLIES (Liriomyza spp.) moderate to heavy in small acreages of long beans, club gourd (Lagenaria vulgaris), togan (Benincasa hispida) and seequa (Luffa acutangula) at Pearl City, Oahu. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) eggs and nymphs heavy in 0.5 acre of long beans; adults moderate in 0.25 acre of seequa. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) light to moderate on 50+ coconut trees at Keehi Lagoon Park, Oahu. Generally light in small planting of banana at Pearl City; about 10 percent of leaves (mostly old) with moderate to large colonies. Larvae and adults of Telsimia nitida (a lady beetle) light and moderate respectively, in each situation. (Kumashiro, Kawamura).

Ornamentals - SPIREA APHID (Aphis spiraecola) collected from Anthurium sp. flowers and stems in 1-acre greenhouse at Waimanalo, Oahu, by K. Kawamura June 6 and 30. Populations light and spotty on both dates. Determined by L.M. Russell. (Kawamura).

Man and Animals - Mosquito collections during July from 58 light traps on Oahu totaled 150 Aedes vexans nocturnus and 1,466 Culex pipiens quinquefasciatus. Aedes catches ranged 0-121 at Kahaluu. Culex catches ranged 0-753 at Waipahu. (Mosquito Control Branch, State Dept. of Health).

DECIDUOUS FRUITS AND NUTS

WALNUT HUSK FLY (Rhagoletis completa) - OREGON - Increased in Farmington View area, Washington County. Counts per trap increased from 79 last week of July to 250 first week of August. (Larson).

PEAR PSYLLA (Psylla pyricola) - UTAH - Infested pears at Providence, Cache County. This is a new county record. Now known to occur in Weber, Box Elder, Davis, Salt Lake, and Cache Counties. (Davis, Wadley). WASHINGTON - Adults, mostly females, in flight at Yakima, Yakima County. (Landis).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - Heavy in Mesa County and parts of Delta and Montrose Counties. Mites ranged 50-100 per leaf in heavier infestations turning foliage brown where controls not applied. Heavy infestations mostly in apple orchards, few in pear orchards. (Bulla).

ORNAMENTALS

A SPIDER MITE (Petrobia harti) - PENNSYLVANIA - Adults collected from juniper (Juniperus chinensis sargentii) near Allentown, Lehigh County, by L.L. Signarovitz. Determined by R. Lehman. This is a new county record. No collection date available. (Kim).

FOREST AND SHADE TREES

AN OLETHREUTID MOTH (Rhyacionia bushnelli) - NORTH DAKOTA - Larvae damaged planted stands of ponderosa pine on Lake Ilo Wildlife Refuge, Dunn County. (Brandvik).

A SAWFLY (Caliroa lineata) - WEST VIRGINIA - Larvae caused 20 percent defoliation of 2 white oaks at Fayetteville, Fayette County. Specimens collected by J.M. Atkins June 27, 1972, determined by A.R. Miller. This is a new State record. (Hacker).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - NORTH DAKOTA - Eggs hatched in Killdeer Mountain area, Dunn County. Up to 70 first and second instar larvae on oak and birch leaves. Light skeletonizing seen; some mortality. (Brandvik). MISSOURI - Pupation began, high populations expected. (Kearby).

MIMOSA WEBWORM (Homadaula anisocentra) - TENNESSEE - Caused much damage to mimosa in western part of State. (Locke).

ELM LEAF BEETLE (Pyrrhalta luteola) - MISSISSIPPI - Moderate defoliation of elm trees occurred statewide. (Robinson). TENNESSEE - Heavy on elms in western area. (Locke). KENTUCKY - Moderate on elms in Jefferson County. (Barnett, Hedger). UTAH - Damage moderate to severe on elms at Brigham City and several other Box Elder County communities. Trees skeletonized in some Salt Lake, Emery, Cache, and Weber County localities. (Lindsay et al.).

LOCUST LEAFMINER (Xenochalepus dorsalis) - WEST VIRGINIA - Caused 70-80 percent damage to foliage of most black locust in Jackson County. (Cole, Hacker). TENNESSEE - Heavy in western area. (Locke).

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - MISSOURI - Reports numerous from central, east-central, and southeast Ozark areas.

Lighter than 1971 but wider area infested. Adults collected in Boone County by W.S. Craig. This is a new county record. (Munson).

POPLAR-AND-WILLOW BORER (Cryptorhynchus lapathi) - IDAHO - Larvae destroyed willow clumps used for shade around trailer-home lot at Dike Lake near Soda Springs, Caribou County. (Alldaffer).

SYCAMORE LACE BUG (Corythucha ciliata) - OKLAHOMA - Infestations moderate to heavy on sycamore trees in Tulsa, Muskogee, and Cherokee Counties. Heavy in Oklahoma County. (Okla. Coop. Sur.).

WALKINGSTICK (Diapheromera femorata) - MISSOURI - Heavy in Ashland area of Boone County and in Vichy area of Maries County. These areas defoliated by this insect in 1971. (Kearby).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 3,666 confirmed cases reported in continental U.S. during period July 30 through August 5 as follows: Texas 3,516; New Mexico 65; Arizona 64; California 1; Oklahoma 20. Heaviest infestations during period were in Texas as follows: Uvalde 114, De Witt 102, Gillespie 95, Gonzales 91, Val Verde 86. Single case reported from Bowie County, Texas. Total of 935 cases confirmed in Mexico. Screwworm is the heaviest in northern Mexico since case incidence information was started there in 1962. Number of sterile flies released this period in U.S. totaled 184,548,000 as follows: Texas 160,208,000; New Mexico 3,760,000; Arizona 19,330,000; California 750,000; Arkansas 500,000. Total of 25,300,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - WISCONSIN - Heavier than usual build-up on dairy cattle in Richland County. Light to moderate in Chippewa and Columbia Counties. (Wis. Ins. Sur.). KENTUCKY - Average per animal on various breeds of cattle by county: Clark 10.9, Bourbon 12.8, Fayette 11.4, and Jefferson 15.0. (Barnett). MISSISSIPPI - Ranged 10-15 per face on untreated cattle in Monroe County. (Combs).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 250 per head on cows and 1,500 per head on bulls in Payne County. Ranged moderate to heavy in Garvin County and moderate in Pawnee and Hughes Counties. (Okla. Coop. Sur.). OHIO - Heaviest, 200+ per side, on Hereford and Holstein cattle in Pickaway, Ross, and Perry Counties. Lighter, 0-4 on 10 head examined, on Charolais cattle in Morgan County. (Fox). MISSISSIPPI - Ranged 100-150 per head on cattle in Leake, Oktibbeha, and Jefferson Davis Counties. (Robinson). FLORIDA - Counts per head averaged 131 on untreated dairy cows and 392 on untreated beef cattle near Gainesville, Alachua County. (Fla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 3 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - VERMONT - Annoying in areas adjacent to marshes and uncut meadows. (MacCollom). NEVADA - Aedes dorsalis, A. nigromaculis, and Culex tarsalis adults heavy in southern Washoe County. (Alcorn et al.).

AMERICAN DOG TICK (Dermacentor variabilis) - VERMONT - Female removed from dog at Perkinsville, Windsor County. First specimen seen in 7 years. Records of this tick are scarce in State. (MacCollom, Aug. 9).

BENEFICIAL INSECTS

A PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) - FLORIDA - Larvae and pupae collected from puncturevine at Lake Worth, Palm Beach County, July 31 by W.H. Pierce. This is a new county record. (Fla. Coop. Sur.). First reported from State in CEIR 22(23):337. (PP).

LADY BEETLES - IDAHO - Larvae and adults increased several fold as result of aphid population explosion on filberts, celery, tomatoes, and corn in Moscow area, Latah County. (Portman).

MELYRID BEETLES (Collops spp.) - OKLAHOMA - Counts of 5,000-10,000 per acre common in cotton in Jackson and Tillman Counties. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - WASHINGTON - Ranged 15-150 per square yard in Spokane County. (Kelsey). OREGON - Rangeland species, mainly Camnula pellucida, infested range areas of upper Klamath Marsh, Klamath County, during June and July; counts increased to 100 per square yard in spots. Controls applied on 6,000 acres second week of July gave satisfactory results. (Wilcox). Adults and nymphs, mostly Melanoplus sanguinipes, averaged 40 per 100 sweeps in 22-acre clover field and up to 25 per 50 sweeps in 30-acre potato field in Washington County. (Collins). NEVADA - Ageneotettix deorum collected 2 miles north of Virginia City, Storey County, August 3 by G.M. Nishida. Determined by R.C. Bechtel. This is a new county record. (Bechtel). UTAH - Grasshoppers heavier than in recent years in Box Elder County; damage light to moderate in many localities. (Lindsay). Moving into alfalfa and gardens in Utah County; damage increased. (Horne). Heavy on rangelands in Skull Valley, Tooele County. (Davis).

IDAHO - Grasshopper controls completed July 31 on total of 1,242,705 acres in 8 areas. (Pollard). MONTANA - M. sanguinipes, Amphitornus coloradus, M. dawsoni, and other species ranged 15-20 per square yard on 1,200 acres of range at Russian Flats in Belt Mountains of Meagher County. (Pratt, Aug. 4). NEW MEXICO - Caused problems on rangelands and croplands adjacent to rangeland in Chaves and Eddy Counties week ending August 4. Currently, no economic infestations found in Dona Ana, Luna, Grant, or Hidalgo Counties. (Hare). NORTH DAKOTA - Adults noneconomic in Traill, Walsh, and Benson Counties. Light in south-central and northern Richland County; some economic infestations in northern part of county. Light and economic infestations scattered throughout eastern half of Cass County. Few light infestations in north-central Grand Forks County. Mostly noneconomic, few light scattered infestations in southern and western Burleigh County. Light and economic infestations present in southwest Emmons County. (Brandvik, Grasser). MINNESOTA - Infestation of second instar nymphs to adults of M. femurrubrum averaged 27 per square yard in Olmstead County field. Roadside counts along State Highway 25 in Sibley County, ranged up to 81 per square yard. Counts heaviest where white clover present. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - Egg laying general in Washington, Kent, and Providence Counties July 28 through August 4. Males numerous. Many diseased and/or parasitized pupae; unspecified parasitic larvae emerged and pupated from P. dispar pupae held in laboratory. (Relli, Field). NORTH CAROLINA - Three adult males taken in sexlure traps, 1 each in Orange, Davie, and Dare Counties. Determined by V.H. Owens. Confirmed by E.L. Todd. Until further survey and scouting is completed to verify the nature of these situations, they will be considered as regulatory incidents. (PP).

JAPANESE BEETLE (Popillia japonica) - MASSACHUSETTS - Feeding on vegetables and ornamentals at several locations over State. (Blyth, Aug. 4). RHODE ISLAND - Adults active over State. Populations heavier than in 1971. (King, D'Andrea). Troublesome in Providence, Kent, and Washington Counties during period July 28 through August 4. (Relli et al.). MARYLAND - Adults feeding on fresh silks caused poor pollination of several hundred acres of late maturing corn in Frederick and Montgomery Counties. Populations declined rapidly in most areas. (U. Md., Ent. Dept.). TENNESSEE - Adult trapped in Grundy County near Mounteagle by L.H. Parker August 3. Determined by V.H. Owens. Confirmed by J.M. Kingsolver. This is first specimen taken in county and is considered to be an interception until evidence of infestation is found. (PP). MICHIGAN - Increased over 1971 catches at Wayne County location. Adults numbered 18 July 6, 72 July 12, and 70 July 17. (Sauer).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - First non-sterile moth of season taken August 3 in trap 5 miles southeast of Cawelo, Kern County. No additional forms found. Summer storms occurred at same time of year in area as in past years. (Cal. Coop. Rpt.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Medium to heavy scattered infestations found in northwest Chaves County and in several northeastern counties. (N.M. Coop. Rpt., Aug. 4).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - New infested area detected between 2 known infested areas at San Jose, Santa Clara County. Infestation now totals about 35 square miles. Treatment followed survey. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Adults feeding on leaves in all peanut fields and all soybean fields examined in Covington, Geneva, and Henry Counties. Ranged 1-5 adults per 6 feet of row in heavier infestations. (Reynolds et al.).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey and parasite releases continued in San Diego, San Diego County. Thousands of adults emerged in one square mile of heavily infested area due to current hot weather. Available parasites moved into this area. (Cal. Coop. Rpt.).

DETECTION

New State Record - A SAWFLY (Caliroa lineata) - WEST VIRGINIA - Fayette County. (p. 544).

New County Records - ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) MISSOURI - Boone (pp. 544-545). A GRASSHOPPER (Ageneotettix deorum) NEVADA - Storey (p. 546). PEAR PSYLLA (Psylla pyricola) UTAH - Cache (p. 544). A PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) FLORIDA - Palm Beach (p. 546). A SPIDER MITE (Petrobia harti) PENNSYLVANIA - Lehigh (p. 544). WESTERN CORN ROOTWORM (Diabrotica virgifera) MICHIGAN - Ingham. ILLINOIS - Montgomery. MISSOURI - St. Charles, St. Louis, Warren (p. 538).

WEATHER OF THE WEEK ENDING AUGUST 14

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Widespread thunderstorms, some locally heavy, occurred over the eastern half of the United States in connection with frontal systems that swept eastward from the western Great Plains to the Atlantic Ocean. Thunderstorms also occurred from the southern Great Plains to the Atlantic seaboard in warm humid air that lay over the Southland. Showers occurred on several days but amounts were uneven ranging from traces to 2 inches or more over the East. Many western areas received no rain. Others received up to 0.25 inch.

TEMPERATURE: Weekly mean temperatures averaged above normal over the Far Northwest, the Great Basin, the northern and central Rocky Mountains, the western edge of the northern Great Plains, and along the gulf coast. Elsewhere weekly mean temperatures were cooler than normal. Storm systems sweeping across the northern part of the Nation cooled the eastern two-thirds of the Nation. Minimum temperatures dropped to the 40's over the northern Great Plains and to the 50's over the central Great Plains early in the week. By midweek, the Northeast was registering early morning temperatures in the 40's and 50's; at Bradford, Pennsylvania, 34 degrees Friday morning. The West was warm to hot most of the week. Temperatures reached 100 degrees or higher each afternoon in the southwestern deserts. Furnace Creek, California, registered 121 degrees Tuesday afternoon. The soil temperature at Furnace Creek was 194 degrees. The Far Northwest was hot early in the week. The Dalles, Oregon, recorded 110 degrees Monday and Pendleton, Oregon, registered 111 degrees Tuesday. Cooler air moved into the Northwest late in the week when afternoon temperatures in Washington and Oregon ranged from the 60's along the coast to the 70's and 80's at inland stations. The 90-degree heat moved eastward across the North. For instance, Wednesday afternoon when Glasgow, Montana, recorded 98 degrees, the maximum at Fargo, North Dakota, was 75 degrees. By Sunday afternoon, 90-degree heat had reached Fargo. Autumnlike weather prevailed over the Northeast until the weekend approached. Maximum temperatures over the Northeast were generally in the 60's and 70's until Sunday when some spots warmed to the 80's. Boston, Massachusetts, recorded 87 degrees Sunday afternoon. Near normal temperatures prevailed over the Southeast with little day to day change.



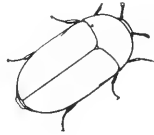
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



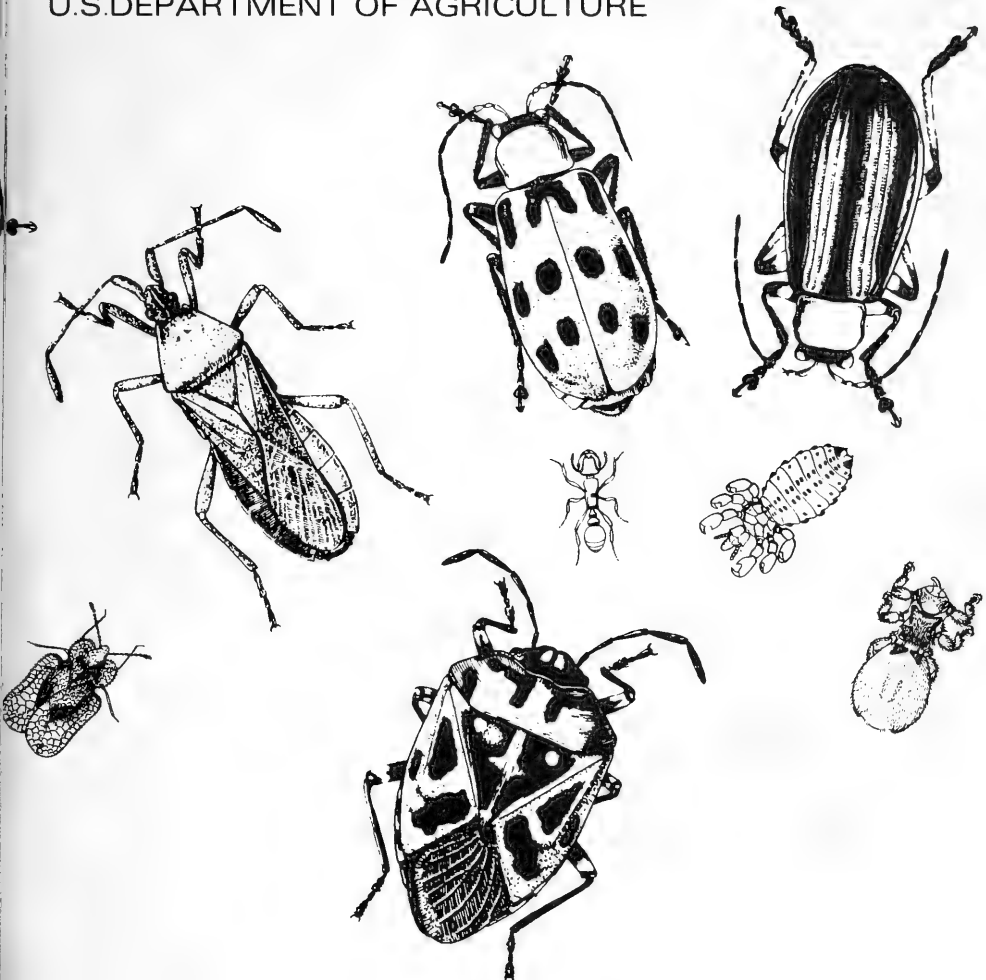
0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by

PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

CORN EARWORM problem on sweet corn in some Eastern and Central States. Parasitism of GREENBUG increased in several Midwestern States. SPOTTED ALFALFA APHID serious threat to alfalfa in Arkansas Valley of Colorado. (pp. 554-555).

WESTERN CORN ROOTWORM generally heavier on corn in Nebraska than past several years. (p. 556).

BOLL WEEVIL and BOLLWORMS increased in several cotton-producing States. (pp. 558-560).

VARIEGATED CUTWORM threat to potatoes in central Maine. (p. 560).
BEAN APHID built up on beans throughout Michigan. (p. 561).
ORIENTAL FRUIT MOTH increased on peaches in southwestern Oregon.
FALL WEBWORM damaged pecans in Rolling Plains and Southeast areas of Texas. (p. 562).

DOUGLAS FIR TUSSOCK MOTH serious on firs over 130,000 acres in northeast Oregon; extends into southeast Washington. VARIABLE OAKLEAF CATERPILLAR expected to be heavy over much of Ozark region of Missouri this season. (pp. 562, 563).

Detection

- A REDUVIID BUG reported for the first time in Hawaii. This is a new United States report, but is not known to occur in the continental U.S. (p. 567).

For new county records see page 561.

Special Reports

Distribution of Spotted Alfalfa Aphid. Map. (p. 570).

Reports in this issue are for the week ending August 18 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	553
Insects Affecting	
Corn, Sorghum, Sugarcane.....	555
Turf, Pastures, Rangeland.....	557
Forage Legumes.....	557
Soybeans.....	558
Peanuts.....	558
Cotton.....	558
Tobacco.....	560
Miscellaneous Field Crops.....	560
Potatoes, Tomatoes, Peppers.....	560
Beans and Peas.....	561
Deciduous Fruits and Nuts.....	562
Ornamentals.....	562
Forest and Shade Trees.....	562
Man and Animals.....	563
Detection.....	561
Corrections.....	561
Beneficial Insects.....	564
Federal and State Plant Protection Programs.....	565
Hawaii Insect Report.....	567
Light Trap Collections.....	568
Distribution of Spotted Alfalfa Aphid. Map.....	570

WEATHER OF THE WEEK ENDING AUGUST 21

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Thundershowers spotted warm humid areas in the South. These areas extended from the southern Great Plains to the middle and southern Atlantic coast. In general, these showers were mostly light. Other thundershowers, some locally heavy, occurred in connection with fronts. These were over the northern Great Plains and eastward to the Great Lakes. A tornado near Chrisholm in northeastern Minnesota Wednesday injured 1 person, destroyed a barn, killed a horse, and leveled trees. Several tornadoes touched down in Ohio Thursday afternoon. One of the storms destroyed several dwellings in northeastern Ohio. Another unroofed some barns and broke windows a few miles north of Mansfield. A tornado took off tops of some trees at Green Bottom, West Virginia, Thursday afternoon. Severe thunderstorms hit Wisconsin and Michigan late Friday and early Saturday. Other thunderstorms struck Minnesota Sunday. Areas in the Rochester vicinity received hail with heavy showers. Hail as large as golf balls and water measured 3 feet in depth at Plainview. Heavy thunderstorm activity also occurred in spots in the South. A thunderstorm accompanied by winds gusting to 60 m.p.h. dumped almost an inch of rain in an hour at Atlanta, Georgia, Sunday. Other thunderstorms occurred in the Pacific Northwest, the Rocky Mountains, and from the Ohio River Valley to southern New England. Weather of the week continued on page 566.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - MAINE - Continued problem on corn; mostly light or noneconomic, with one field severely damaged. Late corn or corn not yet tasseling most likely to be damaged. Infestations heaviest in western and central areas. Larvae severely defoliated 14 acres of grass hayland near Belfast, Waldo County. Damage light to moderate in nearby grass field. In 14-acre field, about 70 percent of larvae dead; no treatment had been made in this field. Mortality due to disease. (Gall, Aug. 11). NEBRASKA - Light on irrigated corn in Dawson County. Present in most fields, but damage not economic; near full grown. (Campbell et al., Aug. 11). KANSAS - Caused 25 percent foliar loss in Stevens County cornfield; larvae, mostly fourth instar, averaged 2.5 per plant, mostly behind sheaths of lower leaves. Most damage to leaves on lower halves of plants. Many pupated, some parasitized by tachina flies and wasps. Similar situation reported in Stafford County cornfield; percent parasitism high. *P. unipuncta* light in corn in Grant and Seward Counties. No treatment reported, period August 7-11. Current blacklight trap collections indicate significant moth flights in Finney and Republic Counties. (Bell). NEW MEXICO - Damaging irrigated pasture at Ocate, Mora County. (J. Durkin). ALABAMA - This species and *Spodoptera frugiperda* (fall armyworm) heavy in localized Coastal Bermuda grass fields in Macon, Talladega, and Chambers Counties. (Bowling et al.). GEORGIA - Light on millet in Meriwether County. (Godowns).

CORN EARWORM (*Heliothis zea*) - NEW JERSEY - Moths and eggs found on sweet corn for first time this season in Martinsville area of Somerset County. (Ins.-Dis. Newsltr.). MARYLAND - Ear infestations ranged 4-50 percent in sweet corn for processing in Caroline County. Generally increased in ears in all sections. (U. Md., Ent. Dept.). VIRGINIA - Light in corn in mountain counties of Augusta, Rockingham, Rockbridge, Botetourt, Roanoke, and Montgomery. Based on 10 fields sampled, 2 percent of ears infested. Infestation less than for this area in 1971 and less than current infestation in Coastal Plain area. (Allen). GEORGIA - Ranged 1-10 per row foot across peanut belt. (French). ARKANSAS - Increased but reached treatment level in very few soybean fields. Larvae in 19 of 25 fields in Desha, Lincoln, and Jefferson Counties; infestation above treatment level in 2 fields. Highest count 3.4 per row foot. Lighter in Grand Prairie area. Only few fields infested in northeast and east-central areas. Next 21 days critical for infestations in soybeans. (Boyer).

MISSOURI - Light, (mainly first and second-instar larvae) 3-14 per 100 heads, in compact headed varieties of sorghum in southwest area. Plants with 1-9 percent whorl feeding seen in late planted fields. (Craig). MINNESOTA - *H. zea* larvae infested corn throughout southwest, west-central, and central districts; 10+ percent of ears infested in 75 percent of fields in southwest district. Infestations spotty in central district; ranged up to 20 percent. Heaviest in west-central district where 50 percent of ears infested. Larvae problem to growers of canning or market sweet corn. (Minn. Pest Rpt.). NEBRASKA - Generally light statewide in field and sweet corn. Infested ears averaged less than 1 out of 10 in 13 fields of field corn checked in Lancaster, Seward, Butler, Merrick, and Howard Counties. (Berogan). KANSAS - Infested 95 percent of late corn ears in Linn County. Larvae usually absent but occasionally very light in sorghum heads in southeast district.

None found in soybeans. Averaged 2 larvae per 10 sweeps in 10-inch alfalfa in Elk County. (Bell). OKLAHOMA - Heliothis zea moderate in grain sorghum in Kay County. (Okla. Coop. Sur.). NEW MEXICO - Heavy on corn at Santa Fe, Santa Fe County; larvae in 80 percent of ears. (N.M. Coop. Rpt.). UTAH - Infestations of sweet corn ears ranged 0-3 percent in Cache and Box Elder Counties, 0-5 percent in Weber County. (Knowlton). CALIFORNIA - Larvae, mostly first and second instar, increased in sweet and field corn. Larvae in alfalfa in Kern County. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - MAINE - Continued to increase on corn; severe in 7 fields. Fungus very apparent; counts showed 90 percent of aphids dead in fields infested earlier. (Gall). NEW HAMPSHIRE - Built up on tassels of sweet corn. (Bowman, Aug. 17). MARYLAND - Heavy populations on corn declining due to parasitism and predation. (U. Md., Ent. Dept.). VIRGINIA - Infestations in corn in mountain counties of Augusta, Rockingham, Roanoke, and Botetourt under control; probably due to predators. (Allen). KANSAS - Some grain and forage sorghum treated for heavy whorl infestations near Walnut, Butler County. Surveys in area revealed some moderate to heavy whorl infestations in late planted sorghum, but infestations declining rapidly as crop reaches boot stage. (Bell). ARIZONA - Increased in Yuma County grain sorghum. (McHenry).

GREENBUG (Schizaphis graminum) - NEBRASKA - Ranged 150-300 per lower leaf in 4 sorghum fields in Red Willow and Frontier Counties; indicates slight increase. Parasitism increased; 1-20 percent of aphids mummified. (Campbell, Aug. 9). KANSAS - Decreased in sorghum generally in southwest district where parasitism by Lysiphlebus testaceipes (a braconid) continued to increase. Few economic S. graminum infestations in southwest district. Parasitism increased in west-central and northwest districts. (Bell, Aug. 11). Currently very light or nonexistent in sorghum throughout State. Ranged zero to maximum of 12 live aphids per plant in sorghum surveyed in west-central and northwest districts; parasitism by L. testaceipes ranged 70-100 percent. In southeast district, up to 30 S. graminum per sorghum plant found in Butler County; none or trace infestations seen on sorghum in Elk, Cherokee, Crawford, and Bourbon Counties. (Bell).

ARKANSAS - No S. graminum found in most northeast and east-central area sorghum; very low counts in Independence County. Rains and high humidity important in reducing infestations that were very heavy in some areas 28 days ago. (Boyer, Aug. 11). OKLAHOMA - Heavy in sorghum in Caddo and Washita Counties; heavy parasitism reported. Predators and parasites reduced numbers to light in Beaver County sorghum during the past 14 days. (Okla. Coop. Sur.). TEXAS - Heaviest on sorghum in scattered fields in Knox, Hardeman, and Jones Counties. Light in Martin and Midland Counties, moderate to heavy in Pecos and Reeves Counties, all in Trans-Pecos area. Decreasing in most sorghum in South and High Plains. In most fields in Lubbock area, braconid parasites all but eliminated greenbug infestations. Greenbug generally declined on High Plains due to parasites. S. graminum lighter over area than for past several years. Beneficial species aided in keeping infestations under control. (Boring et al., Aug. 11). NEW MEXICO - Populations remain medium to heavy on all stages of sorghum in Curry and Roosevelt Counties. (N.M. Coop. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - OHIO - Adults and nymphs ranged 0.5-3 per sweep in hay fields in Preble, Clark, Fayette, Butler, and Union Counties and in mixed clover and timothy in Clermont, Montgomery, and Fayette Counties. Yellowing of hay evident in Clark, Fayette, and Union Counties. (Fox). INDIANA - Economic, about 50 per sweep, in one central district alfalfa field. Alfalfa mostly newly cut or short regrowth, ranged up to 20 inches. (Meyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Some significant infestations found in alfalfa in Sedgwick and Reno Counties; heaviest infestations caused very little leaf shedding. Hippodamia convergens (convergent lady beetle) usually heavy in heavier infested fields; appear to be exerting much control. T. maculata ranged 200-2,500 per 10 sweeps in 5 fields of 8 to 12-inch alfalfa in Sedgwick County, 150-1,500 per 10 sweeps in 3 fields of 5 to 10-inch alfalfa in Reno County. (Bell). COLORADO - Increased in most areas of Arkansas Valley; ranged 0-3,000 per 100 sweeps. Serious threat to new stands of alfalfa already planted or those to be planted. (Schweissing). NEVADA - Ranged 40-50 per sweep in seed alfalfa. Heavy buildup of predators, 5-6 per plant and 20-30 per sweep, in Dixie Valley, Pershing County. (Lauderdale).

TOBACCO HORNWORM (Manduca sexta) - OHIO - Damage light on less than 10 percent of tobacco plants checked in Preble and Butler Counties. Damage ranged light to moderate on 60 percent of plants checked in Brown County. (Fox).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - Stalk and ear infestations increased steadily in field and sweet corn on Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Adults in blacklight traps averaged 9 per night at 5 locations in Sussex County. (Burbutis, Kelsey). NEW HAMPSHIRE - First brood pupated. Some moths in flight. (Bowman, Aug. 17). MICHIGAN - Adult activity increased generally. When comparing this second generation emergence to past years, it appears to be right on time. (Sauer). WISCONSIN - Blacklight trap catches indicate heavy moth activity in some areas, no significant increases in other areas. Egg masses exceed one per 10 plants in few fields of sweet corn in Waushara and Green Counties. Some treatment underway August 15 in Columbia, Green Lake, and Waushara Counties. Large acreages of sweet corn sprayed in Ozaukee and Sheboygan Counties. (Wis. Ins. Sur.). IOWA - Second-brood adult emergence peaked. Flight much lighter than in 1971. Egg masses found on 10 percent of plants; infestation of 30 percent of plants expected. Larval hatch and survival high. Light damage by second brood expected. (Iowa Ins. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Reduced stands of late-planted sorghum across southern area. (French, Aug. 11).

SORGHUM WEBWORM (Celama sorghiella) - KENTUCKY - Averaged one per sorghum head in Todd County. (Barnett, Raney). MISSOURI - Ranged 1-5 larvae per head in early planted, compact headed varieties of sorghum. (Craig).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - KANSAS - Most larvae in corn in west-central and northwest districts in late instars and have entered ears. Percent plants infested, 3 fields per county: Scott 0-20, Wichita 16-60, Greeley 0-100, Wallace 4-24, Thomas 0-12, Sherman 12-32. Generally, economic infestations more prevalent this year than in 1971. (Bell).

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Increased on sorghum in Trans-Pecos and Panhandle areas. Damage ranged light to moderate in isolated sorghum in Pecos County. (Neeb et al., Aug. 11).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - MISSOURI - Light in southwest area. Adults seen in Oregon County. This is a new county record. (Craig). NEBRASKA - Adults of this corn pest ranged 2-9 per plant in 12 cornfields in Red Willow, Frontier, and Lincoln Counties. Pollination complete in most fields, silk feeding light. (Campbell, Aug. 9). Adults averaged 2 per corn plant in 65 fields in Dawson County; 19 fields lodged. Population heavier than in 1971. (Pruess, Mayo, Aug. 11). Current infestations ranged 0-20 per plant in 13 cornfields in Lancaster, Seward, Butler, Merrick, and Howard Counties and 0-8 per plant in 9 fields in southern areas. Populations generally heavier in 1972 than last several years. (Keith, Berogan). SOUTH DAKOTA - Present in 200-acre cornfield near Oral, Fall River County. Averaged 1 adult per stalk in portions of field; averaged 4 adults per stalk in more heavily infested areas of field. (Jones). MICHIGAN - Adults taken from field corn at Schoolcraft Township, Kalamazoo County, August 14 by R.B. Bailey. Determined by D.K. Young. This is a new county record. (Sauer).

INDIANA - D. virgifera adults taken in Benton County August 4 by R. Elliott and in Pulaski County August 8 by P. Lehker on corn grown for grain. These are new county records. Benton County is southernmost record of this pest in State. Surveys indicate counts up to 2 per plant in western Kosciusko County where pest not taken in 1971 and at only one site in 1970. (Turpin, Aug. 11). Specimen taken in Miami County by P. Lehker on August 16, 1972. This is a new county record. (Lehker).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - INDIANA - Twenty-five plants in each of 47 cornfields checked for this species. Adults averaged 0.65 (ranged 0-86) per 25 plants in 16 fields in west-central district; averaged 0.29 (ranged 0-30) per 25 stalks in 18 fields in central district; averaged 0.53 (ranged 0-82) per stalk in 13 fields in east-central district. (Meyer). NEW JERSEY - Adults ranged 8-10 per plant on field corn in Hunterdon and Warren Counties where corn followed corn. (Ins.-Dis. Newsltr.).

CONCHUELA (Chlorochroa ligata) - TEXAS - Still infested sorghum in Knox, Haskell, McCulloch, and Tom Green Counties in Rolling Plains. Heavy, ranged 4-5 per head in several fields; ranged 30-60 per head in many heads where heavy populations concentrated in areas of field. Present in scattered fields over South Plains; heaviest in Crosby County. Damaging in some fields near Plainview and Tulia in southern High Plains. (Boring et al., Aug. 11).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Infested sorghum in Knox, McCulloch, Tom Green, and Jones Counties; 1-2 midges per head in blooming sorghum. Light in Hall County. Midge emergence continued light on South Plains. (Boring et al., Aug. 11).

ARKANSAS - Contarinia sorghicola increase continued, but most sorghum blooming and past damage. (Boyer, Aug. 11). TENNESSEE - Damaged late sorghum in western area. (Locke).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Light on grain sorghum in Midland County. Activity moderate to heavy in El Paso County. Still infesting sorghum in several counties around Potter County. (Neeb, Clymer, Aug. 11). OKLAHOMA - Heavy on sorghum in Caddo County. (Okla. Coop. Sur.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - Light to moderate on corn on Western Slope; occurred mostly on lower leaves. (Bulla).

TURF, PASTURES, RANGELAND

BLUEGRASS BILLBUG (Sphenophorus parvulus) - NEBRASKA - In commercial bluegrass sod planting near Omaha, Douglas County, 74 adults, 7 larvae and 2 pupae taken in sample of 5 square feet. (Kindler).

FALL ARMYWORM (Spodoptera frugiperda) - GEORGIA - Very heavy on brown-top millet in Meriwether County. (Godowns).

TWOLINED SPITTLEBUG (Prosapia bicincta) - GEORGIA - Heavy on Coastal Bermuda grass pastures in Madison County. (Welborn).

FORAGE LEGUMES

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - MASSACHUSETTS - Mined 26 percent of leaflets in untreated, mature alfalfa stand in Hampshire County. In nearby treated stand, only 12.5 percent of leaflets mined. (Capinera). NEW HAMPSHIRE - Caused no significant loss to second-cutting alfalfa. (Bowman, Aug. 17). MAINE - Infestation ranged 10-20 percent in alfalfa. (Gall).

ALFALFA WEEVIL (Hypera postica) - OREGON - Larvae collected in large alfalfa field 4.5 miles north-northwest of Junction City, Lane County; 10 taken June 16 and 8 taken June 22. This is a new county record. (Ritcher). COLORADO - Larvae increased on alfalfa in many areas of Arkansas Valley, ranged 0-800 per 100 sweeps; damage negligible in most cases. (Schweissing). OHIO - Larval counts may increase in northern two-thirds of State during September but no economic damage to alfalfa expected. Mature adults have been collected in Knox, Wayne, Wood, Hancock, Allen, and Pickaway Counties. Egg counts 14 per square foot in Pickaway County and 71 per square foot in Hancock County. (Flessel).

PEA LEAF WEEVIL (Sitona lineatus) - WASHINGTON - Adults heavily damaged alfalfa and late-planted garden peas at Pullman, Whitman County. (Telford).

PEA APHID (Acyrtosiphon pisum) - COLORADO - Populations in alfalfa varied in Arkansas Valley, ranged 0-3,500 per 100 sweeps. Damage not evident in fields checked. (Schweissing). NEVADA - Ranged 15-25 per sweep on alfalfa, heavily parasitized by Aphidius sp., in northwest Humboldt County. (Martinelli, Rowe).

ARMYWORMS - WASHINGTON - Unspecified species reported on seed alfalfa north of Pasco, Franklin County, in CEIR 22(30):477 determined as Amathes c-nigrum (spotted cutworm), Spodoptera

exigua (beet armyworm), and Peridroma saucia (variegated cutworm); bulk of infestation confirmed as Mamestra configurata (bertha armyworm). Determined by M.R. Gardner and R.E. Somerby. (Johansen).

GRASSHOPPERS - WISCONSIN - Populations unchanged. Absence of first instars in alfalfa indicates prolonged hatch of Melanoplus femurrubrum completed. Diseased specimen exhibiting symptoms resembling Empusa grylli (a fungus) observed in roadside grass in southern Dane County. Decrease in grasshopper numbers, due to unknown causes, noted in one area of Dane County. Damage by M. femurrubrum currently of little concern due to lush growth of alfalfa. (Wis. Ins. Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults present in many Eastern Shore fields but feeding and egg laying noneconomic to date. Expected to increase during late August. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Adults heavy and leaf feeding evident in 2 Wilcox County soybean fields August 10. Occasionally found in Sumter and Butler Counties. (Henderson, Farquhar).

GREEN CLOVERWORM (Plathypena scabra) - KENTUCKY - Larvae per 360 row feet of soybeans averaged 12 in Caldwell County, 61 in Hickman County. (Barnett, Raney).

PEANUTS

REDNECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Ranged light to moderate in dryland and irrigated peanuts in Caddo County. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Increased rapidly in peanuts in Cross Timbers area near Stephenville. Small larvae in fields in Gorman and De Leon areas. Continued heavy in sandy, dryland areas. (Hoelscher).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Heavy in many peanut fields in several southeast counties. (Walton et al.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Punctured squares ranged 4-97 percent. Second-generation "hatchout" expected by August 27 in older cotton. Migration to lightly infested and noninfested fields underway. Control with ground equipment very difficult in rank cotton. Conditions remain ideal for further increase. (Locke). SOUTH CAROLINA - Larval infestations in Florence area ranged 0-3 percent in treated plots, 4-18 percent in control plots. Adults per acre ranged 0-1,452 in treated plots, 1,867-4,900 in control plots. Populations remained low throughout area. Infestations increased rapidly in some fields due to emergence of second-generation adults. (Taft et al., Aug. 16). GEORGIA - Increased over southern area. (Womack, Barry, Aug. 11). Up to 100 percent weevil punctured squares in some fields in southern part of State where controls ended; 0-8 percent punctured squares in Crisp and Wilcox Counties. (Barry, Womack). ALABAMA -

Anthonomus grandis still heavy throughout south and central areas; generally 10-70 percent square infestation. Square damage 10-80 percent in most northern fields, including mountain area. Controls applied in most fields in extreme northern area. Controls delayed by rainy weather. Heavy weevil "hatchouts" in northern cotton producing area during early August, resulted in very heavy populations in most fields. Most fields under control. Weevils in south and central areas feeding and laying eggs in bolls. (McQueen). LOUISIANA - Increase will continue for remainder of season. (Tynes, Aug. 14). In Madison Parish, punctured squares found in 78 of 80 plots. Ranged 1-35 (averaged 7.2) percent in 78 plots. Punctured squares found in 3 of 4 fields; ranged 2-35 percent in infested fields. In Tensas Parish, punctured squares 2 percent in one field in area that received diapause control in fall 1971. Infestation ranged 6-47 (averaged 18) percent in 4 fields in untreated area. (Cleveland et al.).

ARKANSAS - A. grandis infestations showed marked increase in northeast areas. (Kimbrough). OKLAHOMA - Infestations ranged 10-30 percent in Washita and Caddo Counties, 5-22 percent in Bryan County, 2-25 percent in Muskogee County, 4-22 percent in Wagoner County; averaged 10 percent in Marshall County. Reported light to moderate in Garvin County. Ranged 0-3 percent in Tipton area, Tillman County. (Okla. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - TENNESSEE - H. zea increased rapidly over western area. Egg and larval counts ranged 1-8 per 100 terminals in late cotton. Further increase expected. Eggs found down in plants as well as on the terminals. (Locke). SOUTH CAROLINA - Heliothis spp. moth activity and egg laying continued to increase in Florence area. Larval damage increased to near total crop destruction in few unprotected fields. Larval infestation ranged 1-18 percent in treated plots, 4-39 percent in control plots. (Taft et al., Aug 16). GEORGIA - Counts per 100 terminals by county: Crisp 11-62 eggs, 1-6 larvae; Wilcox 18-163 eggs, 2-11 larvae. (Nix, Hudson). Egg laying still heavy in southern areas with larval damaged bolls in some areas. (Womack, Barry). LOUISIANA - Activity increased Statewide. Eggs and larvae abundant; applications should be kept on schedule. (Tynes, Aug. 14). In Madison Parish, damaged squares found in 66 of 80 plots; ranged 1-8 (averaged 3.4) percent in infested plots. Damaged squares found in 3 of 4 fields; infestation 6 percent in each infested field. In Tensas Parish, damaged squares found in 3 of 5 fields; infestation 3 percent in one field, 1 percent in each of 2 fields. (Cleveland et al.).

ARKANSAS - H. zea moths ranged 100-280 per night in light traps at Pickens, Desha County. Moths less than 30 per 0.5 mile of sugarcane. Heliothis spp. eggs up to 80 and larvae up to 84 per 100 terminals in southeast area. These counts correlate with moth catches at Pickens. (Boyer, Lincoln, Aug. 11). H. zea moths peaked in light trap in Desha County August 6 when 724 moths taken. (Holloway). Moths continued active in southeast; increased in areas farther north. At Marianna, Lee County, 43 moths taken in light trap August 6 and 75 taken August 9. Only 7 moths on cotton and 4 on soybeans observed night of August 8 on 0.5 mile

sugarline in Lee County. (Sterling). OKLAHOMA - H. zea percent damaged square counts by county ranged 5-40 in Bryan, 1-12 in Muskogee, 1-10 in Wagoner. Eggs ranged 0-78 per 100 terminals in Bryan County, 0-9 in Muskogee County, 1-6 in Wagoner County. Larvae ranged 0-13 per 100 terminals in Bryan County, 0-5 in Muskogee County, 1-6 in Wagoner County. Damaged squares averaged 8 percent in Marshall County, less than 1 percent in Tillman County. Reported light in Washita, Caddo, and Garvin Counties. (Okla. Coop. Sur.). ARIZONA - H. zea light with very little damage in Graham County. (Pearson, Sears). CALIFORNIA - H. zea moved into cotton fields rapidly in Kern County. Counts ranged 8-25 per 100 plants generally; ranged 35-50 per 100 plants locally. Moth flights peaked about August 7. (Cal. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Heavy influxes into cotton resulted from alfalfa hay cutting near cotton fields. Many bolls show black spotting. Problems occurred from Tulare County south. (Cal. Coop. Rpt.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Adults averaged 6 per plant in Caldwell County, 10 in Christian County. Averaged 1.2 per leaf in Grant County, 1.1 in Harrison County, and 1.3 in Henry County. Tobacco showed minor damage in Fayette, Owen, and Nicholas Counties. Light damage observed in Scott County, light to medium in Robertson County. Population light this year, but began to increase slowly past 7 days. This slow increase expected to continue until harvest. (Barnett).

GRASSHOPPERS - KENTUCKY - Caused minor damage to tobacco in Nicholas and Nelson Counties. Damage evenly distributed over fields, not confined to borders. (Barnett).

MISCELLANEOUS FIELD CROPS

SUNFLOWER MOTH (Homoeosoma electellum) - NEBRASKA - Larvae, second instar to full grown, ranged 5-25 per sunflower head in several fields near Schuyler, Colfax County. (Keith, Kantor, Aug. 9). IOWA - Infested up to 95 percent of heads in Polk County sunflower field. Larvae ranged 3-13 (averaged 7) per head. (Iowa Ins. Sur., Aug. 11).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - Larvae and second-generation adults reported in plots on Aroostook Farm in Aroostook County. Small populations in many other potato fields throughout central area. (Gall, Aug. 11). NEW HAMPSHIRE - Adults and larvae caused heavy damage at Dover on unsprayed egg plants. Potatoes in same plot destroyed previously, tomato loss expected. (Bowman). MARYLAND - New generation of larvae damaged tomatoes at several locations in Harford County. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma saucia) - MAINE - Continued threat in many central area potato fields. Larvae ranged up to full grown. Few dead larvae found in unsprayed fields. Growers should continue to check fields for larvae and damage to potatoes. (Gall, Aug. 11).

GREEN PEACH APHID (Myzus persicae) - MAINE - Winged aphids and aphids with wing pads continued very common in potato fields in Aroostook County. Leaf roll noted on scattered plants; growers should keep watch on fields. (Gall).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - WEST VIRGINIA - Adults and larvae caused 90 percent damage to unsprayed green beans in Fayette and Kanawaha Counties. (Hacker).

BEAN APHID (Aphis fabae) - MICHIGAN - Built up on all types of beans in all areas of State. Growers advised to check fields and take necessary action. (Sauer).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Ranged light to heavy on peas and lima beans in southwest area. (Rogers et al., Aug. 11).

EUROPEAN CORN BORER (Ostrinia nubilalis) - GEORGIA - Damaged peas in Spalding County. (Dupree). Ranged light to moderate on peas in southwest area. (Wheeler, French, Aug. 11).

DETECTION

New State Record - A REDUVIID BUG (Ectomocoris biguttulus) - HAWAII - Oahu. (p. 567). This is also a new United States record, but the species is not known to occur in the continental U.S.

New County Records - ALFALFA WEEVIL (Hypera postica) OREGON - Lane (p. 557). ELM LEAF BEETLE (Pyrrhalta luteola) NEW MEXICO - Harding (p. 563). MIMOSA WEBWORM (Homadaula anisocentra) OKLAHOMA - Marshall (p. 563). SPRUCE BUD SCALE (Physokermes piceae) OREGON - Marion, Polk (p. 562). WESTERN CORN ROOTWORM (Diabrotica virgifera) MISSOURI - Oregon. MICHIGAN - Kalamazoo. INDIANA - Benton, Pulaski, Miami (p. 556).

CORRECTIONS

CEIR 22(30):481 - New State Records - "ALFALFA LEAF BLOTCH-MINER (Agromyza fontella) ..." should read "... (Agromyza frontella)"

CEIR 22(31):499 - FORAGE LEGUMES - "PEA LEAF WEEVIL (Sitona lineata) ..." should read "... (Sitona lineatus) ..."

CEIR 22(32):529 - Line 9: "... I. julis emerged. (Sauer)." should read "... T. julis emerged. (Sauer)."

CEIR 22(32):529 - GRASSHOPPERS - Line 16: "... and I. strenua at Carson City, ..." should read "... T. strenua at Carson City, ..."

CEIR 22(32):530 - GYPSY MOTH (Porthetria dispar) - TENNESSEE - "... camp ground at Regean Forge, ..." should read "... camp ground at Pigeon Forge, ..."

DECIDUOUS FRUITS AND NUTS

REDHUMPED CATERPILLAR (Schizura concinna) - WASHINGTON - Heavy defoliation of unsprayed apples and crab apples still reported in Pullman, Whitman County; also, infesting chokecherry. Larval growth about completed, some early instars seen. (Harwood).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - OREGON - Increased in Jackson County peach orchards. Up to 120 adults per pheromone trap in 2 days. Flagging injury evident and larval damaged peaches easily found. (Berry, Larson).

CODLING MOTH (Laspeyresia pomonella) - COLORADO - Emergence continued in all areas with large numbers taken in Mesa County area. Catches ranged 10-30 per pheromone trap per day in some heavier infested areas. (Bulla). MASSACHUSETTS - Moths averaged 1.5 per trap in sprayed orchard, 1 per trap in abandoned orchard in Hampshire County. (Capinera, Aug. 11).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Emergence peaked, egg laying continued. Oviposition and larval blemish or deformed fruit easily seen in abandoned and poorly managed orchards. Larvae found in infested fruit, especially early varieties. (Sauer).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Average per leaf on untreated Red Delicious and McIntosh varieties respectively in Hampshire County: Eggs 85 and 89; adults 33 each. (Blyth).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Increased in unsprayed orchards in Washington, Wilcox, Houston, Geneva, Covington, and Henry Counties. (McQueen). TEXAS - Continued damaging pecans in Wilbarger and Wichita Counties in Rolling Plains, and in Brazos, Grimes, Waller, and Fort Bend Counties in Southeast. (Boring, Green, Aug. 11).

BLACK PECAN APHID (Tinocallis caryaefoliae) - TEXAS - Moderate to heavy on pecans in Pecos, Reeves, Ward, Winkler, Midland, and Glasscock Counties. (Neeb, Aug. 11).

ORNAMENTALS

SPRUCE BUD SCALE (Physokermes piceae) - OREGON - Moderate on specimen Black Hills spruce in Salem, Marion County. Tree imported 15 years ago. Young scales mostly on undersides of needles. Also found on large Colorado Blue spruce in West Salem, Polk County. These are new county records. (Westcott, Long).

GARDEN SYMPHYLAN (Scutigera immaculata) - OREGON - Caused severe damage to 4-acre planting of rhododendron in Portland area, Multnomah County. Controls applied. (Nicolaïson).

FOREST AND SHADE TREES

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - OREGON - Reached epidemic levels on about 130,000 acres of fir in parts of Grant, Umatilla, Union, and Wallowa Counties, extending into Washington. Tree mortality seen in local areas. Larvae severe problem to logging operations, many loggers experienced severe reactions from urticating hairs of larvae. Pupation occurred and

Some emergence seen. (Dolph, Gresbrink). WASHINGTON - Larvae caused serious damage to some white fir, tamarack, and other forest plants at Dayton, Columbia County. (Sunderland, Telford). Late larvae, prepupae, and pupae found on spruce at Puyallup, Mercer County. Severe defoliation reported. (Collman).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - WEST VIRGINIA - Adults, pupae, and larvae taken from pitch pine, 175-200 trees destroyed or dying because of pest in association with blue stain fungus. This is first record of insect in State since 1882. Collected August 18, 1972, in Kanawha State Forest, Kanawha County, by J.D. Hacker. Determined by A.E. Cole and J.D. Hacker. (Hacker).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Medium to heavy on elm trees in Grant and Sierra Counties. Many trees completely defoliated, appear dead. Damaged elm trees in Roy and Mosquera, Harding County. This is a new county record. (Hare).

LARGER ELM LEAF BEETLE (Monocesta coryli) - GEORGIA - Caused up to 100 percent defoliation of elms in Greene, Lincoln, Wilkes, Jasper, Spalding, Oglethorpe, Madison, and Clarke Counties. Appears heavier in lowlands than in highlands. (Smith).

ALABAMA - Larvae practically defoliated numerous large elms along major creeks in Chambers and Lee Counties. (McQueen).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa mantee) - MISSOURI - Adults appeared at lights in central part of State. Main flight expected in 7-14 days. Larvae expected to be heavy over much of central Ozark region this season. Controls recommended only on young ornamental oak plantings. (Craig).

MIMOSA WEBWORM (Homadaula anisocentra) - OKLAHOMA - Second-generation adults seen at lights in Payne County. Heavy in Oklahoma County. Larvae infested 60 percent of mimosa trees checked in Marshall County. This is a new county record. (Okla. Coop. Sur.).

WALKINGSTICK (Diaperomera femorata) - MISSOURI - Nymphs heavy on shade trees in Lake of the Ozarks region. (Munson).

HUMAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 3,405 confirmed cases reported in continental U.S. during period August 6-12 as follows: Texas 3,253; New Mexico 62; Arizona 70; California 1; Oklahoma 18; Arkansas 1. Screwworm cases reported from 215 Texas counties this period compared to 211 counties last period. Total of 1,000 cases confirmed in Mexico August 6-12. Number of sterile flies released in U.S. this period totaled 168,860,000 as follows: Texas 146,940,000; New Mexico 5,260,000; Arizona 15,010,000; California 850,000; Arkansas 800,000. Total of 27,796,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - PENNSYLVANIA - Averaged 15 per cow on 25 Holsteins and 30 per cow on 40 Jerseys on pasture in Jamestown, Mercer County. (Ode). OHIO - Averaged 25+ per face on Guernsey and Black Angus cattle in Preble and Brown Counties, 13 in Fayette County; on Holsteins, 18 in Stark and 12 in Wayne Counties. (Fox, Heller). KENTUCKY - Average by county per head of cattle: 21.3 on various breeds in Owen County, 28 on Holsteins in Scott County, 12.4 on Herefords in Nelson County, 2.8 on

various breeds in Larue County, 22.6 on various breeds in Henry County, 19.3 on various breeds in Robertson County, 25.6 on Charolais in Harrison County. (Barnett). WISCONSIN - Light to moderate on cattle in most counties; heavy in Richland County. (Wis. Ins. Sur.). SOUTH DAKOTA - Counts per head on untreated cattle in northern Moody County August 5: Cows 5-30 (averaged 20), calves 0-12 (averaged 6), bulls 20 per head; counts August 10 ranged 7-25 (averaged 9) on cows, 0-8 (averaged 5) on calves, with 15 per head on bulls. (DeFosse). NEBRASKA - Increased on canyon and river valley herds in Keith and Lincoln Counties. Ranged 16-17 per face on untreated animals, 7-8 per face where dust bags used. (Campbell, Aug. 11). UTAH - Annoyed horses and cattle in many Cache, Box Elder, and Weber County localities. (Knowlton).

HORN FLY (Haematobia irritans) - OHIO - Counts low, 2-3 per side, on 10-20 percent of Holstein cows examined in Stark and Wayne Counties. On beef cattle, ranged 45-250+ per side in Fayette County, averaged 80 per side in Brown County. (Fox). FLORIDA - Light, averaged 34 per animal, on dairy cows at Gainesville, Alachua County. (Fla. Coop. Sur.). WISCONSIN - Light to moderate on treated dairy cattle in all areas. (Wis. Ins. Sur.). SOUTH DAKOTA - Counts per side on untreated cattle in northern Moody County August 5: Cows 300-900 (averaged 600), calves 2-20 (averaged 10), bulls 125 per head; counts August 10 ranged 200-650 (averaged 500) on cows, 1-10 (averaged 6) on calves, with 900 per side on bulls. (DeFosse). NEBRASKA - Ranged 500-2,000 per head on several untreated range herds in Keith and Lincoln Counties. (Keith, Aug. 11). OKLAHOMA - Ranged 200-300 per head on cattle in Marshall County. Heavy in Garvin County and moderate in Pawnee County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - NEBRASKA - Ranged 15-20 per leg on untreated feedlot animals in Keith and Lincoln Counties. (Campbell, McEvoy, Aug. 11). WISCONSIN - No annoyance to cattle in Outagamie County, light in Chippewa County, moderate in Rock County, severe in Columbia County. Controls underway in all areas. Annoyance to man reported from Vilas, Walworth, Jefferson, Fond du Lac, and Bayfield Counties. (Wis. Ins. Sur.).

MOSQUITOES - MINNESOTA - Annoyance acute in Hennepin, Anoka, Scott, Dakota, Ramsey, and Washington Counties due to hot, humid weather which promoted mosquito flight. (Minn. Pest Rpt.). WISCONSIN - Biting increased past 14 days. Problem populations reported in Walworth, Calumet, Richland, Washburn, Dane, and Trempealeau Counties. Populations light in Vilas County, probably due to cooler temperatures. (Wis. Ins. Sur.). NEBRASKA - Aedes vexans ranged 100-150 per head on river bottom herds pastured in Keith and Lincoln Counties. (Campbell, McEvoy, Aug. 11). UTAH - Mosquitoes very annoying at Brigham City, Corinne, Locomotive Springs, and other localities in Box Elder County. (Knowlton, Lindsay).

BENEFICIAL INSECTS

LADY BEETLES - KANSAS - Stethorus sp. adults averaged 4 per leaf on ornamental sumac infested with spider mites; larvae and pupae present. Spider mites reduced to low level by this predator. Hippodamia convergens adults ranged 2-60 per 10 sweeps in alfalfa infested with Therioaphis maculata (spotted alfalfa aphid) in

Legdwick and Reno Counties; H. convergens larvae ranged 0-70 per 100 sweeps. (Bell, Aug. 11).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Eggs averaged 100,000 per acre in cotton checked in Tillman County, 1 per leaf in Wagoner County. Heavy in sorghum in Beaver County. (Okla. Coop. Bur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Treatment within Porterville, Tulare County, and in commercial citrus progressing. Survey negative in Exeter and Lindsay areas. Mortality 100 percent on mulberry in Lindsay area after second control application on 205 properties. (Cal. Coop. Rpt.).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Pupae first found August 8 at Lynden, Whatcom County. More extensive sampling August 9 at same locality showed 6 percent pupation, remainder larvae. (Jackson).

GRASSHOPPERS - NEBRASKA - Melanoplus spp. heavy, ranged 7-30 per square yard, in field margins and roadside ditches at scattered locations in Seward and Merrick Counties. (Berogan). NEW MEXICO - Grasshoppers noneconomic on rangeland in Grant and Hidalgo Counties. Surveys incomplete in Dona Ana, Luna, and Sierra Counties. (Hare). UTAH - Infestations spotty in many range areas in Box Elder County; moved into some alfalfa in Fielding area. (Knowlton, Lindsay). NEVADA - M. sanguinipes and M. bivittatus, third instar to adult, ranged 5-6 per square yard along margins, at Happy Camp, Humboldt County. (Martinelli, Rowe). WASHINGTON - Heavy outbreak, near 100 per square yard, on about 15,000 acres in Spokane County. M. sanguinipes, M. bivittatus, Melanoplus spp., Amnula pellucida, and other banded-winged species dominant. Apparently hatched on scabland and range areas and flew in to damage small grains and forage crops. (Kelsey, Telford).

GYPSY MOTH (Porthetria dispar) - MARYLAND - Six egg masses and 5 pupae taken in Cecil County. Confirmed by R. Altman and D. Raine. Numerous male moths trapped earlier in infested area. (U. Md., Ent. Dept.). WEST VIRGINIA - Male moths taken in sex-lure traps by A.E. Tustin as follows: Berkeley and Hampshire Counties August 9, determined by E.L. Todd; Jefferson County August 10, determined by D.M. Weisman. (Hacker). Until further survey and investigations are completed to verify the nature of these situations, they will be considered as regulatory incidents. (PP). OHIO - Seven male moths taken in sex-lure traps behind travel trailer and mobile home storage and sales yard in Lorain County. Determined by E.L. Todd. Scouting for egg masses underway. (Roach). Until further survey and investigations are completed to verify the nature of this situation, it will be considered as a regulatory incident. (PP).

JAPANESE BEETLE (Popillia japonica) - PENNSYLVANIA - Total of 1,282 adults collected in 16 bait traps in one locality at State College, Centre County. (Adams). Adults caused serious damage to various ornamentals in Darlington, Beaver County. (Carter). Adult infestation noted on 4 to 5-foot corn in Jamestown, Mercer County. (Ode). WEST VIRGINIA - Adult damage generally light this season;

some reports of heavy damage to unsprayed gardens and ornamental plants. (Hacker). VIRGINIA - Light to medium on corn silks in Augusta, Rockingham, and Rockbridge Counties. Damage seems less than in past years. (Allen).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Increased controls applied to many fields in Graham County. (Pearson, Sears). Infestations mostly under 5 percent in treated fields in Yuma Valley, Yuma County. (McHenry).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - No active infestations in core area or buffer zone in Siskiyou County. All known infested areas have received 3 treatments; 2 additional treatments schedules for core area. Results of program considered good. Treatment and survey continued at San Jose, Santa Clara County; live specimens still present. (Cal. Coop. Rpt.).

Weather of the week continued from page 552.

TEMPERATURE: Persistent southerly flow of moist tropical air kept maximum temperatures in the 90s over most of mid-America. The mercury at Bismarck, North Dakota, reached 100 degrees Tuesday and Philip, South Dakota, recorded 101 degrees Thursday. The 90-degree heat spread eastward and by Thursday covered all of Indiana and western Ohio. High humidity made sweltering heat more uncomfortable. Nighttime temperatures remained in the high 60s and 70s. While hot humid weather persisted over the Great Plains and Deep South, cool air slipping down from Canada brought early autumn weather to the Northeast with maximums in the 60's and low 70's from Maryland to Maine by Thursday. Torrid weather continued in the southwestern deserts with maximums exceeding 100 degrees on most afternoons. Onshore ocean breezes in the Pacific Northwest kept daytime temperatures along the coast in the 60's. Inland area in the Northwest were comfortably warm. Tropical heat persisted over much of mid-America over the weekend. Maximums generally reached the high 80's and low 90's. Minneapolis, Minnesota, registered 97 degrees Sunday afternoon. High humidity made heat feel more uncomfortable. Cooler air from Canada caused a relatively pleasant weekend in the Northeast. Temperatures averaged below normal west of the Rocky Mountains, over the southern Rockies and high Plains of Texas, and along the Atlantic coast. Parts of California averaged 6 to 10 degrees cooler than normal. In contrast, much of the northern Great Plains averaged 6 to 10 degrees warmer than normal.

HAWAII INSECT REPORT

New State Record - Five specimens of a REDUVIID BUG (Ectomocoris biguttulus Stal) taken on 3 occasions in light traps at Hickam Air Force Base, Oahu. Two on August 20, 1971, one during November 1971, and 2 additional specimens on August 1, 1972. Distribution includes southeast Asia. Determined by R.C. Froeschner. (Shiroma).

Corn - CORN EARWORM (Heliothis zea) severe in 6 acres of sweet corn at Pupukeya, Oahu; 100 percent of mature ears with 1+ larvae. Trace in 2 acres of same crop at Waialua; less than 5 percent of ears with early instar larvae. Intensive chemical control practiced in both plantings. (Kawamura).

General Vegetables - BEET ARMYWORM (Spodoptera exigua) and CABBAGE LOOPER (Trichoplusia ni) larvae light to moderate in 2 acres of broccoli at Waialua, Oahu; damage light. All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) light on young terminal leaves in 0.25 acre of greenhouse tomato at Pupukeya, Oahu. Larval mines of LEAFMINER FLIES (Liriomyza spp.) moderate in older leaves; BROAD MITE (Polyphagotarsonemus latus) generally trace, sporadic, and heavy on few isolated plants. (Kawamura).

Fruits and Nuts - COCONUT LEAFROLLER (Hedylepta blackburni) remained severe on about 1,000 coconut trees used to landscape resort area at Kahuku, Oahu; all except young terminal fronds appear free from damage. Trace number of a hymenopterous parasite cocoon noted in few fluted pinnae. TAHITIAN COCONUT WEEVIL (Diocalandra taitensis) larvae and adults moderate on fronds of coconut trees in residential area at Kailua, Oahu; damage light to moderate. (Kawamura).

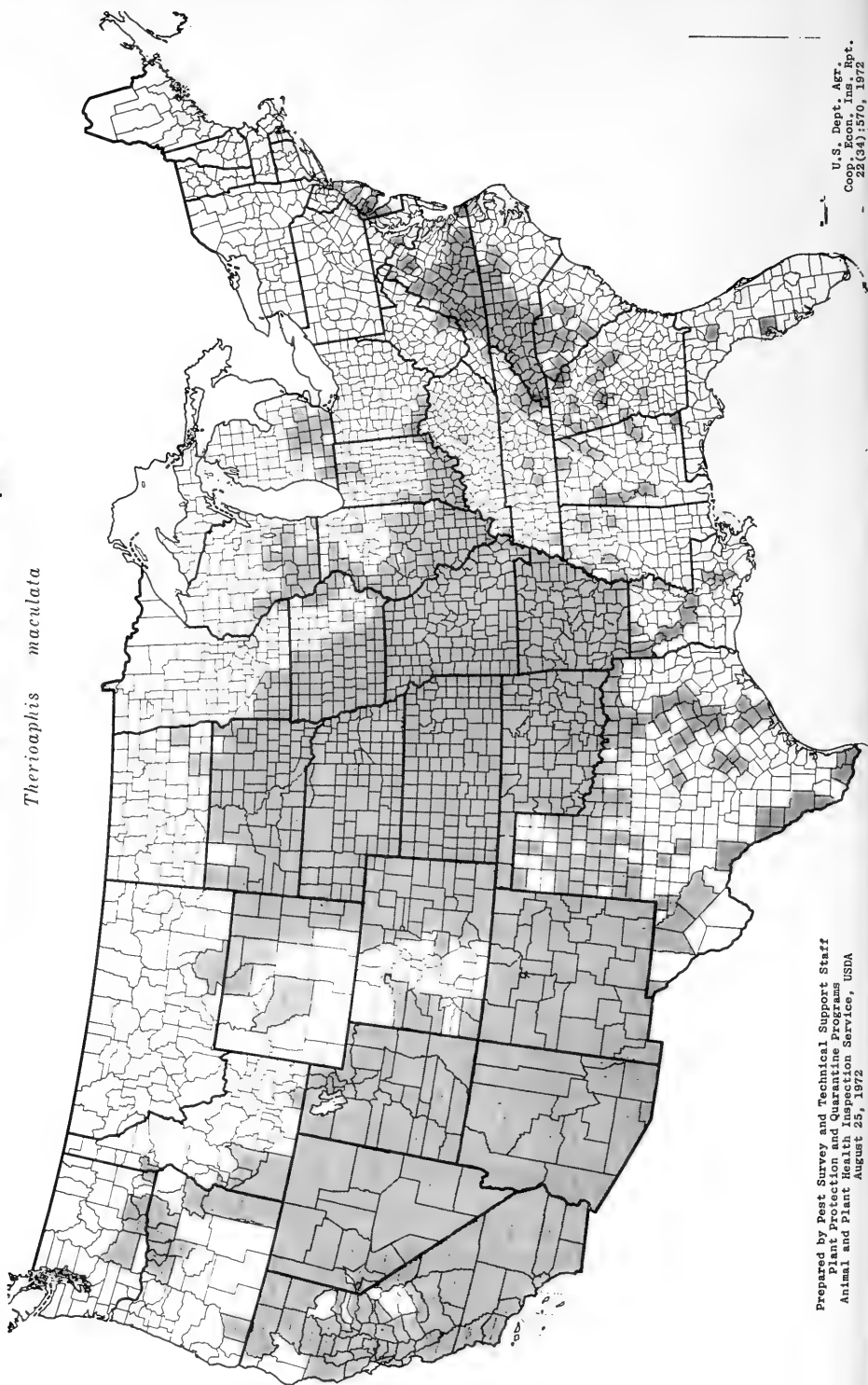
Ornamentals - WESTERN FLOWER THRIPS (Frankliniella occidentalis) nymphs and adults light to moderate in flower heads in 0.5 acre of chrysanthemum at Kahaluu, Oahu; approximately 10-15 percent of flowers severely affected. (Kawamura).

Beneficial Insects - Large numbers of a TRICHOGRAMMATID (Oligosita sp.) emerged from eggs of Elimaea punctifera (a tettigoniid) collected from anthuriums at Hilo, Hawaii, during November and December 1971. This is believed to be first report in Hawaii of an Oligosita emerging from eggs of a tettigoniid. (Matayoshi).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) - On Hawaii, second of 3 planned aerial drops of snail bait made at Kona. Total of 10,000 pounds of bait applied over area of about 60 acres. On Kauai, one large specimen found at Koloa, about 3 miles north of Poipu infestation; poison bait applied at this and surrounding residences. Surveillance continued at Poipu and Wahiawa, with light hand baiting at Wahiawa. Aerial drops of snail bait planned for coming winter season at Poipu. (Yoshioka, Sugawa).

Distribution of Spotted Alfalfa Aphid

Therioaphis maculata



Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
August 23, 1972

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(34):570, 1972

1911年11月11日
1911年11月11日
1911年11月11日

1911年11月11日

1911年11月11日

1911年11月11日

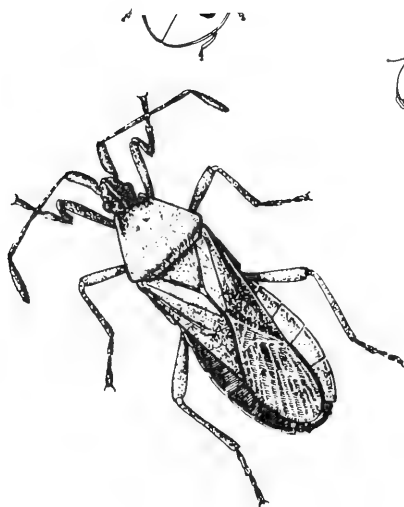
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101

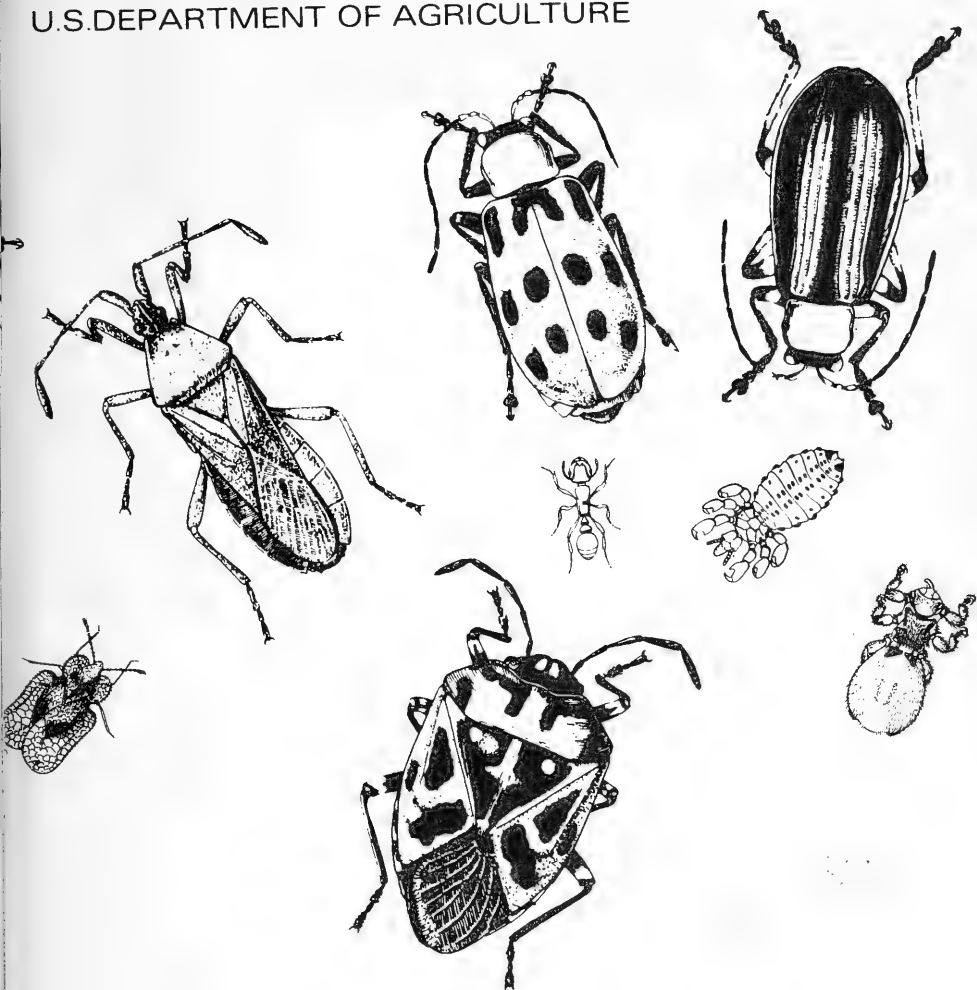


0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

CORN EARWORM damage to corn increased rapidly on Eastern Shore of Maryland. Moth flights increased in southeastern Virginia. (p. 573). SPOTTED ALFALFA APHID continued to increase and threaten seedling alfalfa in Arkansas Valley of Colorado. (p. 574).

CORN ROOTWORMS heavier in west-central district and lighter in other districts of Minnesota than in 1971; however, populations in southeast district of State still heavy enough to cause problems in 1973. NORTHERN CORN ROOTWORM caused extensive silk damage in western and central Ohio. (p. 574).

EUROPEAN CORN BORER adult flights increased throughout Eastern Shore of Maryland and in southern Wisconsin. (p. 575).

GREEN CLOVERWORM heavy on some soybeans in Kentucky and Indiana, increased in Iowa. (p. 576).

BANDEDWING WHITEFLY increased rapidly on cotton in central Alabama; increased in some areas of Mississippi. (p. 578).

MOSQUITO collections in light traps highest on record in south-east Minnesota. (p. 582).

Detection

New State records include a GRASSHOPPER in Maine (p. 579), WESTERN CORN ROOTWORM in Idaho (p. 574), and a CICADELLID in Hawaii (p. 585).

For new county records see page 579.

Special Reports

Boll Weevil, Selected References 1970-1971. (pp. 589-594).

Reports in this issue are for the week ending August 25 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	573
Insects Affecting	
Corn, Sorghum, Sugarcane....	574
Small Grains.....	575
Turf, Pastures, Rangeland...	575
Forage Legumes.....	576
Soybeans.....	576
Peanuts.....	577
Cotton.....	577
Tobacco.....	578
Miscellaneous Field Crops..	578
Potatoes, Tomatoes,	
Peppers.....	578
Cole Crops.....	579
General Vegetables.....	579
Deciduous Fruits and Nuts..	580
Citrus.....	580
Forest and Shade Trees.....	581
Man and Animals.....	581
Detection.....	579
Beneficial Insects.....	582
Federal and State Plant Protection Programs.....	583
Hawaii Insect Report.....	585
Light Trap Collections.....	586
Boll Weevil, Selected References 1970-1971.....	594

WEATHER OF THE WEEK ENDING AUGUST 28

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: A cold, dry air mass pushed into the northern Great Plains early in the week. Showers and some locally severe thunderstorms occurred along the leading edge of the cold air. One of these dumped 1.30 inches of rain at St. Cloud, Minnesota, in 18 minutes Monday evening. At such intensity, rain does not fall as drops but as streams. Such downpours are called cloud-bursts. In general, light to heavy showers fell over a wide bank in the vicinity of the cold front which marked the leading edge of air dividing it from hot, humid air which cold dry air was replacing. Air mass thundershowers popped up in the warm, moist air that covered a large area extending from the southern Great Plains to New England. Light showers also spotted the northern and central Rocky Mountains and the western edge of the central Great Plains. Generous showers fell over the eastern two-thirds of Kansas, western Missouri, southeastern Nebraska, and southwestern Iowa Thursday evening. The weekend brought widely scattered showers from southern California across the southern Rocky Mountains, the southern Great Plains, and the Deep South to the Atlantic Ocean; also from Minnesota and Iowa to southern New England. Amounts ranged widely from light sprinkles to an inch or more; Gainesville, Florida, received 9.61 inches in a 72-hour period ending Sunday morning. Most of the Great Basin received no rain during the week. Weather of the week continued on page 588.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - DELAWARE - Adults ranged 2-6 per night in Sussex County blacklight trap collections. Corn ear infestations still light. (Burbutis). MARYLAND - Damage levels increased rapidly. First and second instar larvae predominate; damaged ear counts ranged 20-80 percent. Infestations heaviest in Kent, Queen Annes, Dorchester, and Talbot Counties. (U. Md., Ent. Dept.). VIRGINIA - Infestations on field corn in Wythe, Pulaski, and Montgomery Counties averaged 7.3 percent of ears infested in 6 fields surveyed. (Allen, Surles). Moth flights increased sharply at Holland, Nansemond County, and at Independent City of Petersburg. Growers in nearby areas should expect damage to susceptible crops next 10-14 days. Crops should be checked on 3-4 day schedule to prevent damage. (Allen). GEORGIA - Light to heavy on sorghum and soybeans over southern area. Ranged 0-8 per row foot on peanuts across peanut belt. (French). Damaged okra in Spalding County. (Tippins). MISSISSIPPI - Light, less than 1 per head, in Madison County grain sorghum. (Robinson). ARKANSAS - Increased on soybeans in all areas, but at economic levels in only few fields. Infestations occurred earlier than normal this year. (Boyer et al.). OKLAHOMA - Larvae in 10-65 percent of ears of field corn checked in Texas County; all stages noted. Ranged moderate to heavy in sorghum in Jackson County, especially in fields adjoining cotton. Ranged 3-8 per plant in peanuts checked in Marshall County. (Okla. Coop. Sur.).

MISSOURI - *H. zea* increased in sorghum in southeast area. Averaged 1 larva per head in some areas. (Jones). NEBRASKA - Unusually light in Dawson County; only 2 larvae observed in ears of 3,250 plants in 65 cornfields. (Pruess, Mayo). MINNESOTA - Infestation in corn averaged 20 percent in Wabasha County, 5 percent in Fillmore County, less than one percent in Winona and Houston Counties. (Minn. Pest Rpt.). UTAH - Very light in sweet corn in Cache County, very light to light in Box Elder County. (Knowlton).

CORN LEAF APHID (*Rhopalosiphum maidis*) - MAINE - Continued to increase on most corn; averaged 100+ per plant. A fungus sharply reduced most *R. maidis* infestations that may have been severe. No treatments advised. (Gall). WISCONSIN - Heavy in some cornfields in northwestern counties. Mostly under husks on ears or under leaf sheaths. Few exposed on or near silks. Predators (lady beetles, lacewing larvae, and syrphid larvae) heavy in every field surveyed. (Wis. Ins. Sur.). OKLAHOMA - Ranged 50-300 per terminal in 2 late-planted sorghum fields in Texas County. (Okla. Coop. Sur.). ARIZONA - Medium on sorghum in Pinal County. (Ariz. Coop. Sur.).

GREENBUG (*Schizaphis graminum*) - OKLAHOMA - Moderate to heavy on sorghum in Jackson, Tillman, Caddo, and Washita Counties. Parasitism moderate to heavy in these counties also. Greenbug ranged 0-200 per plant in 2 fields and 0-30 per plant in 10 fields in Texas County. Light in Cimarron County. (Okla. Coop. Sur.). KANSAS - Usually none but occasionally very light in sorghum. In fields in Gray, Ford, Meade, Grant, Stanton, Morton, Stevens, Haskell, and Seward Counties, greenbug found in only one field in Gray County (3 per plant). In fields surveyed in Butler, Cowley, Sumner, Harvey, and Sedgwick Counties, infestations (up to 50 per plant) found only in southern Butler County. (Bell). SOUTH DAKOTA - Decreased to very low levels on corn. Few small colonies of 50 aphids per 100 plants on grain sorghum near Geddes, Charles Mix County. (Jones, Kantack, Aug. 18).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Early infestation of 1 per 5 plants present on 80 acres of alfalfa in Diamond Valley, Eureka County. (Harms). COLORADO - Found on alfalfa in all areas of Arkansas Valley; continued to increase. Ranged 10-5,000 per 100 sweeps; threat to seedling alfalfa. Severe damage and loss can occur, even to resistant varieties, in seedling stage. (Schweissing). KANSAS - Ranged from none up to 250 per 10 sweeps in alfalfa surveyed in southwest counties; Gray, up to 250 per 10 sweeps; Stanton, up to 5; Morton, none; and Seward, none. Very light in alfalfa examined in Stafford County; up to 10 per 10 sweeps. (Bell). NORTH DAKOTA - Collected from alfalfa in Bowman and McKenzie Counties; averaged 2 and 12 per 100 sweeps respectively. These are new county records. (Brandvik).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - OKLAHOMA - D. virgifera (western corn rootworm) adults still light in most corn in Texas County. Averaged less than 1 per plant in most fields; ranged 1-6 per plant in one field. (Okla. Coop. Sur.). OHIO - D. longicornis (northern corn rootworm) adults ranged 0-8 per silk on field corn in 5 western and 2 central counties. Extensive damage to silks noted in Mercer, Darke, and Marion Counties. Percent damage by county (3-4 fields): Darke 60-85, Mercer 71-90, Van Wert 24-32, Paulding 5-10, Defiance 25, Williams less than 5, Marion 45-60; Delaware 28 (1 field). (Fox). INDIANA - D. virgifera adults taken in Noble, Lagrange, Whitley, Wabash, Cass, Carroll, and Tippecanoe Counties. These are new county records. (Meyer). MINNESOTA - Annual Diabrotica spp. survey completed. Populations heavier in west-central district than in 1971. Preliminary figures show lighter populations in other districts. Two-thirds of counties in southeast district had lighter populations than 1971; however, 55 percent of these counties still have populations that will cause problems in 1973. Lodging generally light this year. Few severely lodged fields seen in southeast district after heavy rains and strong winds. Poor pollination also observed in some late-planted corn fields in southeast district. Silk feeding obvious in some fields. (Minn. Pest Rpt.). SOUTH DAKOTA - D. virgifera adults ranged 8-10 per plant in field of late corn south of Canton, Lincoln County. Similar counts found in corn near Garretson, Minnehaha County, and near Corsica, Douglas County. Adults ranged 2-3 per plant on late corn in northern Moody County field. (Jones, Kantack, Aug. 18).

NORTH DAKOTA - D. undecimpunctata howardi (southern corn rootworm) adults, 1 per 100 plants, on corn in Bowman County. This is a new county record. (Brandvik). IDAHO - D. virgifera medium to heavy and damaged 6 acres of corn at Dayton, Franklin County. Collected July 27 by G.L. Cunningham. Determined by R.W. Portman. This is a new State record. (Portman).

DUSKY SAP BEETLE (Carpophilus lugubris) - IDAHO - This species and Cryptarcha ampla (a sap beetle) collected August 10 from hybrid sweet corn at Nampa, Canyon County, by H.W. Homan. C. lugubris determined by L.R. Gillogly and C. ampla by W.F. Barr. These are new county records. (Portman).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MINNESOTA - Second-generation moths very active during recent hot weather. Light trap collections increased at Shakopee and Worthington. Night-time temperatures ideal for egg laying past 7 days. Current moth activity and egg laying about nil due to cooler temperatures. Second generation not expected to cause serious damage to field corn this season. (Minn. Pest Rpt.). **WISCONSIN** - Moth catches increased greatly in southern area blacklight traps last 7 days. Field dissections in Grant County showed only diapausing larvae and empty pupal cases. Emergence of first generation completed. First-generation larvae heavy in corn in Dunn, Pierce, St. Croix, Polk, Barron, and La Crosse Counties. Infested plants ranged 50-80 percent in fields surveyed. In some St. Croix County fields, 10 percent of stalks broken below ear. (Wis. Ins. Sur.).

KANSAS - First-generation *O. nubilalis* moths continued to decrease in blacklight traps in Brown and Republic Counties. Significant flight now occurring in Sedgwick County; probably second-generation moths; 105 trapped August 21. Second-generation pupa found in corn in Pottawatomie County. Late-planted corn in Brown County 5-95 percent infested with second-generation larvae. Late corn in Pottawatomie County 95 percent infested with 2-3 larvae per plant. Cornfield in Shawnee County 50 percent infested. Trace infestation found in cornfield in Stafford County. (Bell). **MARYLAND** - Adult flight increased throughout the Eastern Shore. Egg masses ranged 5-20 per 100 plants. Heaviest damage in no-till sweet corn with 20 percent infested ears. (U. Md., Ent. Dept.).

BANKS GRASS MITE (*Oligonychus pratensis*) - OKLAHOMA - Infested 7 of 11 cornfields checked in Texas County. Heavy (9-13 leaves) in 3 fields, one field moderate (2-6 leaves infested), and 3 fields light. Fields with heavy infestations in area from Guymon south and east toward Hitchland. Infested 5 of 11 sorghum fields; one moderate (6-9 leaves infested), others light (1-3 leaves infested). (Okla. Coop. Sur.).

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) - IDAHO - Caused severe damage to many Canyon County fields of sweet, silage, and seed corn by August 11. Many fields required controls for first time in many years by August 18. (Homan).

SMALL GRAINS

HESSIAN FLY (*Mayetiola destructor*) - MONTANA - Infested 30-50 percent of spring wheat plants in 200-acre field in Sheridan County. (Pratt). **NORTH DAKOTA** - Puparia averaged 4 per 100 tillers in field of spring wheat in Bowman County. (Brandvik).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - MONTANA - Ranged 40-50 per head on 400 acres of spring wheat in Wibaux County. (Pratt, Aug. 18).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (*Spodoptera frugiperda*) - MISSISSIPPI - Medium in 50 acres of millet in Walthall County. Also heavy in 100 acres and killing grass in some Bahia pastures and turf grazing crops. (Estess, Locke, Aug. 18). Current damage heavy to pasture grasses on 800 acres in Madison County and on 8 farms in Scott County. Athletic field grasses and several lawns destroyed in Madison County. (Robinson).

BLUEGRASS BILBUB (Sphenophorus parvulus) - NEBRASKA - Adults 69, larvae 9, and pupae 3, taken in 5 square feet of one Douglas County sodfield. (Kindler).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - IDAHO - Ranged from few to 5,000 per sweep in alfalfa; yields reduced in southern area. Many heavy damaging populations occurred in fields where organophosphate insecticides applied for alfalfa weevil control. Few predators and parasites present. (Portman et al.).

KENTUCKY - Increased in certain areas of State. Averaged 1,000 per 100 sweeps of alfalfa at one Fayette County location. Predators relatively heavy. (Barnett).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - MASSACHUSETTS - Infestation near 25 percent on 3-week-old alfalfa in Berkshire County. (Jensen).

ALFALFA CATERPILLAR (Colias eurytheme) - IDAHO - Larvae, 60-80 per sweep, severely damaged alfalfa hay in 80-acre area in Elmore County. (Edwards).

ALFALFA WEEVIL (Hypera postica) - NORTH DAKOTA - Still present in irrigated 12-inch, third-crop alfalfa in McKenzie County. Larvae ranged 65-95 (averaged 78) per 100 sweeps. Old and new adults present, 17 per 100 sweeps, in same fields. (Brandvik).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - WISCONSIN - This species along with grasshoppers comprised total insect population in many alfalfa fields. This predator of grasshopper eggs most noticeable in Iowa and Sauk Counties; ranged 5-10 per 10 sweeps. (Wis. Ins. Sur.).

GRASSHOPPERS - WISCONSIN - Still heavy in isolated alfalfa fields in Iowa, northern Grant, Monroe, Sauk, eastern Vernon, and La Crosse Counties. Feeding damage scarcely noticeable. (Wis. Ins Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Generally light in 35 fields examined, except in 2 fields near economic level. On about 591 acres surveyed in Middlesex County, adults per 30 linear feet averaged 10.5 in no-till soybeans, 35.5 in conventionally planted soybeans. Most new adults; will begin egg laying soon, resulting in sharp increase in populations and subsequent defoliation. (Allen, Egan). KENTUCKY - Moderate to heavy on soybeans in western areas. Adults averaged 39 per 360 row feet. (Barnett, Raney).

GREEN CLOVERWORM (Plathypena scabra) - KENTUCKY - Heavy on soybeans in western areas. Larvae averaged 400 per 360 row feet. Very heavy in Hancock County, larvae averaged 5 per linear row foot in 100-acre field. Controls applied. Also heavy in Logan County. (Barnett, Raney). INDIANA - Larvae of this species and adults of Epicauta vittata (striped blister beetle) heavy in two Jefferson County soybean fields. Controls applied. (Sanders). IOWA - P. scabra larval population increased, averaged 0.5 per sweep, in Story County fields. Still below economic levels. (Iowa Ins. Sur.).

BEEF ARMYWORM (Spodoptera exigua) - GEORGIA - Ranged light to heavy on soybeans throughout southern area. (French).

BROWN STINK BUG (Euschistus servus) - KENTUCKY - This species and Acrosternum hilare (green stink bug) averaged 49 per 360 row feet of soybeans in western areas. (Barnett, Raney).

PEANUTS

REDNECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Heavy in most peanut-growing areas of State this year, except light in Love County. Currently ranged up to 82 per 100 terminals in fields checked in Caddo County. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Infestations averaged 30 percent and 60 percent in 2 most heavily infested fields in southern Marshall County. (Okla. Coop. Sur.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - MISSISSIPPI - Heavy infestations spreading over 40 percent of peanut acreage in Coahoma County. Many fields damaged, plants drying. (Robinson).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Damaged squares ranged 2-57 percent in western area. Most cotton stopped squaring. (Locke, Patrick). In Tipton County, some fields have 100 percent punctured squares. In some cases, controls unsuccessful; however, if small bolls protected, good crop expected. (Gordon). SOUTH CAROLINA - Infestation levels in Florence area remained low. Larval infestations ranged 1-8 percent in treated plots, 13-18 percent in control plots. Adults per acre ranged 0-764 in treated plots, 272-1,376 in control plots. (Taft et al., Aug. 23). GEORGIA - Percent punctured squares by county: Burke, ranged up to 87, averaged 6; Dooly, ranged up to 50, averaged 5; Wilcox, ranged 0-18; Crisp, ranged 0-7. (Barry et al.). MISSISSIPPI - Generally light over State. Heavy on plants that are squaring. Average percent punctured squares in selected counties: Bolivar 6 in "hot spots"; Grenada 14.9; Noxubee 4-8 in 1,000 acres; Covington 1.9; Lincoln 0.65; Jones 1.9. (Robinson). OKLAHOMA - Percent punctured squares by county: Wagoner 1-15, Muskogee 1-30, Bryan 1-44, Love 3-8, Grady 48-68 in Chickasha area, Tillman 3-36, Harmon 0-18; averaged 11, ranged up to 40, percent in Jackson County; averaged 10 percent in Marshall County. Light in Kiowa, Cotton, and Jefferson Counties. (Okla. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - TENNESSEE - H. zea damaged squares ranged 1-3 percent in western area. Larvae ranged 1-2 per 100 terminals. (Locke, Patrick). NORTH CAROLINA - H. zea heavy in some Robeson County fields near early maturing corn. Heavy damage restricted mostly to fields where improper controls made. (Williford). SOUTH CAROLINA - Heliothis spp. activity decreased in Florence area. Larval infestations ranged 2-32 percent in treated plots, 11-33 percent in control plots. Adults in 3 light traps: H. zea 243, H. virescens 7. (Taft et al., Aug. 23). GEORGIA - Counts per 100 terminals by county: Burke, ranged up to 30 larvae, averaged 3; Dooly, ranged up to 20 larvae, averaged 3; Wilcox, ranged 8-45 eggs and 0-9 larvae; Crisp, ranged 6-97 eggs and 0-29 larvae. (Hudson et al.). MISSISSIPPI - Egg laying continued moderate to heavy in most areas. Larval infestations light; control good. (Robinson). ARKANSAS - Adults moderate to

heavy in southeast, central, and southwest areas, light in extreme northeast area. H. virescens heavy in localized areas of southeast part of State. (Boyer). OKLAHOMA - Percent squares damaged by H. zea by county: Wagoner 1-6, Muskogee 1-8, Bryan 1-12, up to 40 in Caddo and Washita, 8-20 in Grady, averaged 8 in Marshall and Love; southwest area 0-8. Eggs present in most areas; ranged 1-12 per 100 terminals except in Bryan County where counts up to 144 per 100 terminals found. (Okla. Coop. Sur.). ARIZONA - H. zea infestations increased slightly in Graham and Yuma Counties. Treatment planned in Yuma County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Larvae feeding on leaves throughout southern and central areas and as far north as Marion County. Two fields in Elmore County show 65-70 percent defoliation. Virus disease reducing population in central part of State. Moth flights heavy in Dallas, Elmore, and other counties; eggs 100-300 per 100 stalk terminals. (Price et al.). NEW MEXICO - Damaged cotton foliage in Columbus area, Luna County. (N.M. Coop. Rpt.).

BANDEDWING WHITEFLY (Trialeurodes abutilonea) - ALABAMA - Exploding populations of mixed ages occurred in cotton in Elmore, Dallas, Lee, and Russell Counties. Infestations reported statewide. (McQueen). MISSISSIPPI - Increased slightly in some areas. Heaviest in field margins. Infestations by county: Madison, light in 250 acres; Rankin, spotty; Sunflower, light to moderate in 200 acres; Tallahatchie, very heavy on 300 acres, moderate on 600 acres. (Robinson).

TOBACCO

TOBACCO HORNWORM (Manduca sexta) - MARYLAND - Controls applied in most of 4,000 acres of Calvert County tobacco. Light to moderate outside this area. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma saucia) - VIRGINIA - Severely damaged lower leaves in field of flue-cured tobacco in Chesterfield County. (Allen, Jennings).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Adults heavy on tobacco in Madison County, averaged 1.9 per leaf. Generally lower than past years. (Barnett).

MISCELLANEOUS FIELD CROPS

SUNFLOWER MOTH (Homoeosoma electellum) - NEBRASKA - Larvae, 2-15 per head, infested 100 percent of sunflowers in late-planted field near Schuyler, Colfax County. (Keith et al.).

POTATOES, TOMATOES, PEPPERS

Potato Aphids in Maine - Average counts per plant (by 3-leaf method) for 150 plants in 6 plots of untreated potatoes at Aroostook Farm, Aroostook County: Aphis nasturtii (buckthorn aphid) 9.8; Myzus persicae (green peach aphid) 2.5; Macrosiphum euphorbiae (potato aphid) 0.7. Winged A. nasturtii general, including fall forms returning to buckthorn. Few winged M. persicae found; indicates some movement from field to field. Fungi still heavy on M. euphorbiae; some parasites still active. Limited top killing of plants begun in all areas. (Gall).

FALL ARMYWORM (Spodoptera frugiperda) - MONTANA - Ranged 5-8 per plant in 40-acre potato field at Waterloo, Madison County. (Pratt).

COLE CROPS

BEEF ARMYWORM (Spodoptera exigua) - NEW MEXICO - This species and Trichoplusia ni (cabbage looper) problem in Dona Ana County lettuce fields. Controls applied. (N.M. Coop. Rpt.).

GENERAL VEGETABLES

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - FLORIDA - Adults heavy in stems, roots, and fruits of sweetpotato in 8-acre planting at Grand Ridge, Jackson County. (Miller).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OHIO - Adults very heavy on peppers, squash, melons, pumpkins, and cucumbers in Delaware County. Damage light to heavy on all squash and melon leaves in one area. Lighter on Huron County cucumbers; feeding damage ranged from very light to moderate on about every other leaf. Adults ranged 1-2 per plant on lima beans in Huron County. (Fox).

EGGPLANT FLEA BEETLE (Epitrix fuscula) - OHIO - Heavy, adults ranged 6-25 per plant, on eggplants in Huron County. All leaves damaged; about one-third appeared "peppered with shot." (Fox).

DETECTION

New State Records - A GRASSHOPPER (Metrioptera roeselii) - MAINE - Nymphs and adults common at Kittery, York County, July 9 and 12, and at York, York County, July 19. Collected and determined by E.K. Ede. (Gall).

A CICADELLID (Carneiocephala sagittifera) - HAWAII - Hawaii Island (p. 585). WESTERN CORN ROOTWORM (Diabrotica virgifera) - IDAHO - Franklin County. (p. 574).

New County Records - BROWN RECLUSE SPIDER (Loxosceles reclusa) KENTUCKY - Fayette (p. 582). COMSTOCK MEALYBUG (Pseudococcus comstocki) CALIFORNIA - Kern (p. 583). DUSKY SAP BEETLE (Carpophilus lugubris) IDAHO - Canyon (p. 574). EULOPHID WASPS - Sympiesis viridula - INDIANA - Rush. Tetrastichus julis - MICHIGAN - Iosco, Livingston, Oscoda (p. 582). FACE FLY (Musca autumnalis) NORTH CAROLINA - Chatham (p. 581). MOSQUITOES - Aedes dorsalis, A. cantator, A. sollicitans, Culex tarsalis, Culiseta minnesotae - OHIO - Lorain (p. 582). RED IMPORTED FIRE ANT (Solenopsis invicta) MISSISSIPPI - Sunflower (p. 584). A SAP BEETLE (Cryptarcha ampla) IDAHO - Canyon (p. 574). SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) NORTH DAKOTA - Bowman (p. 574). SOYBEAN CYST NEMATODE (Heterodera glycines) MISSISSIPPI - Calhoun, Marshall. ILLINOIS - White. TENNESSEE - Lawrence (p. 584). SPOTTED ALFALFA APHID (Therioaphis maculata) NORTH DAKOTA - Bowman, McKenzie (p. 574).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - MARYLAND - First-generation larvae emerged from apples in Washington, Frederick, and Carroll Counties. Second-generation eggs expected first 14 days in September. September populations expected to be controlled with scheduled treatments. (U. Md., Ent. Dept.).

SHOTHOLE BORER (Scolytus rugulosus) - ALABAMA - Beetles, as secondary pests, became heavy and damaged several weak and dying apple trees in Lee and Randolph Counties. (Barwood).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - OREGON - Unusually heavy in Wasco County cherry orchards. In many orchards, dead twigs seen, especially in tops of trees. Summer controls suggested. (Thienes).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Built up rapidly in many orchards with onset of hot weather in Franklin, Hampshire, and Hampden Counties. (Jensen).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Larvae unusually heavy in many Butler County pecan trees. (Morgan).

PECAN WEEVIL (Curculio caryae) - ALABAMA - Damage seen in several pecan orchards in Bullock and Lowndes Counties. Some controls applied in Bullock County. (Stone, Gerald).

CITRUS

Insect Situation in Florida - Mid-August - CITRUS RUST MITE (Phyllocoptura oleivora) infested 78 (norm 65) percent of groves; economic in 65 (norm 51) percent. Population attained summer peak in mid-August and in high range and above normal on leaves and fruit. Although decrease expected, numerous groves will continue to have important infestations. All districts high. TEXAS CITRUS MITE (Eutetranychus banksi) infested 56 (norm 44) percent of groves; economic in 33 (norm 21) percent. Population decreased, still above normal and in moderate range. Rapid decrease to low level expected. Highest districts west, central, and east. CITRUS RED MITE (Panonychus citri) infested 20 (norm 45) percent of groves; economic is 6 (norm 22) percent. At lowest August level in 21 years of record. Will remain very low and of little importance in all districts. BLACK SCALE (Saissetia oleae) infested 89 (norm 68) percent of groves; economic in 75 (norm 47) percent. Population decreased but still highest on record for August and in very high range. Gradual decrease expected. All districts are high. AN ARMORED SCALE (Unaspis citri) infested 38 (norm 27) percent of groves; economic in 27 percent. Population decreased from all-time high level reported last month. Slight temporary decrease expected. GLOVER SCALE (Lepidosaphes gloverii) infested 76 (norm 64) percent of groves; economic in 5 (norm 14) percent. Population below normal and in moderate range. Decrease expected. Highest district north. PURPLE SCALE (L. beckii) infested 62 (norm 56) percent of groves; economic in 3 (norm 4) percent. Near normal abundance and in low to moderate range in all districts. Will decrease until October. YELLOW SCALE (Aonidiella citrina) infested 28 (norm 50) percent of groves; none economic (norm 6 percent). CHAFF SCALE (Parlatoria pergandii) infested 42

(norm 46) percent of groves; none economic (norm 4 percent). These scales below normal and will occur only as light infestations. GREEN SCALE (*Coccus viridis*) infested 24 percent of groves; economic in 6 percent. Decreased and in low range. Population higher than any prior August on record. WHITEFLIES infested 77 percent of groves; economic in 24 percent. Population of larval form decreased, still in high range and above normal. Adult population also above normal and higher than larval population. Highest districts east and west. MEALYBUG population dropped into low range and will continue decrease. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

FOREST AND SHADE TREES

LARGER ELM LEAF BEETLE (*Monocesta coryli*) - GEORGIA - New infestations found in Morgan, Monroe, and Butts Counties. Many elms infested along 25-mile front in 10 lower Piedmont counties from Spalding County to Lincoln County; defoliation usually 100 percent. (Smith). ALABAMA - Many large elms along 4 creeks in Elmore County defoliated. (McQueen).

MIMOSA WEBWORM (*Homadaula anisocentra*) - KANSAS - Damage to mimosa and honeylocust unusually light in southeast district. Foliar damage generally severe in Manhattan, Riley County. Eggs, pupae, and large larvae abundant with some smaller larvae on honeylocust. (Bell).

MAN AND ANIMALS

SCREWWORM (*Cochliomyia hominivorax*) - Total of 4,272 confirmed cases reported in continental U.S. during period August 13-19 as follows: Texas 4,082; New Mexico 44; Arizona 101; Oklahoma 44; Colorado 1. Total of 1,082 cases confirmed in Mexico. Number of sterile flies released in U.S. this period totaled 204,608,000 as follows: Texas 169,220,000; New Mexico 8,960,000; Arizona 25,000,000; California 800,000; Arkansas 628,000. Total of 28,540,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (*Musca autumnalis*) - NORTH CAROLINA - Ranged up to 10 per head on cattle near Pittsboro, Chatham County. This is a new county record and most eastern occurrence of this pest in State. (Falter). KENTUCKY - Average per animal on cattle by county: Madison 14.2 and Fayette 8.2. (Barnett). MISSISSIPPI - Averaged 5 per face on 300 treated cattle in Monroe County. (Combs). MISSOURI - Ranged 5-31 (averaged 8.4) per head in northwest area. (Munson). MONTANA - Average counts per head on cattle: 4 in Billings area, Yellowstone County; 8 in Bozeman area, Gallatin County; 10 in Hamilton area, Ravalli County. Ranged 13-15 per head on horses in Bitter Root Valley. (Pratt, Aug. 18).

HORN FLY (*Haematobia irritans*) - MISSISSIPPI - Ranged 100-125 per head on herd of 175 beef cattle in Montgomery County. (Robinson). MISSOURI - Ranged 70-365, averaged 237, per animal in northwest area. (Munson). OKLAHOMA - Ranged 60-100 per head on cattle in Payne County, 300-500 per head in Marshall County. Heavy in Oklahoma and Pontotoc Counties, moderate in Atoka County. (Okla. Coop. Sur.). NEBRASKA - Ranged 500-3,000 per head in 3 untreated range herds in Keith and Lincoln Counties. (Campbell, McEvoy).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Light to moderate annoyance to treated dairy cattle in most areas. Annoyance to humans heavy in portions of Walworth, Bayfield, Waukesha, Jefferson, and Dane Counties. (Wis. Ins. Sur.). NEBRASKA - Averaged 20 per leg on untreated animals in 2 Brown County feedlots and 15-20 per leg on untreated animals in 4 feedlots in Lincoln and Keith Counties. (Campbell, McEvoy).

HOUSE FLY (Musca domestica) - NEBRASKA - Heavily infested feedlot near Ainsworth, Brown County. Ranged 10-12 per Scudder grid in 4 Lincoln and Keith County feedlots. (Campbell, McEvoy). WISCONSIN - Heavy in the southern three-quarters of State. Severe nuisance in homes, at picnics, and cookouts. Numbers in dairy barns very heavy on farms where controls lacking or inadequate. Infestations on some farms in Columbia County reported heaviest ever known. (Wis. Ins. Sur.).

MOSQUITOES - OHIO - Aedes dorsalis, A. cantator, A. sollicitans, Culex tarsalis, and Culiseta minnesotae collected during period August 8-18 in Loraine County. These are new county records. Total of 4,414 mosquitoes taken; averaged 72.3 per trap per night, ranged 4-787 per trap. (Fox). WISCONSIN - Mosquitoes increased greatly past 7 days. Severe biting noted in Grant County State parks and in Dunn, Barron, Polk, and St. Croix County cornfields. Biting a problem in Dane, Walworth, Calumet, Trempealeau, Racine, and in parts of Bayfield Counties. Continued rains insure mosquito problem to last several weeks. Annoyance to cattle moderate in most areas. (Wis. Ins. Sur.). MINNESOTA - Light trap counts in Metropolitan Mosquito Control District August 12-18 highest on record. Total of 104,045 females from 16 traps; 35,000 males taken. Aedes vexans accounted for 95 percent of collection, A. cinereus 1.5 percent. Nuisance levels very high throughout most of State, probably as high as any time in recent years. Numbers decreased and cooler weather somewhat restricted activity. (Minn. Pest Rpt.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - MISSISSIPPI - Heavy in 3 homes in Prentiss County. (Smith, Aug. 18). KENTUCKY - Single immature and 4 females collected in warehouse at Lexington, Fayette County, June 12 by B. Runion. Determined by W.B. Peck. This is a new county record. (PP).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Still heavy on cattle in Atoka and Pontotoc Counties. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - OHIO - Averaged 1 per 2 linear feet of cucumbers in Huron County. Species, in order of predominance included: Coleomegilla maculata, Hippodamia convergens, and Adalia bipunctata. (Fox, Eischen).

EULOPHID WASPS - MICHIGAN - Tetrastichus julis recovered for new county records as follows: Iosco during June by M. Davenport; Livingston June 7 by D. Girbach; Oscoda June 19 by D. Olson. All determined by F.W. Stehr. Originally released in these counties June 9, 1971, as parasites of Oulema melanopus (cereal leaf beetle) larvae: Iosco by R. Britt; Livingston by D. Girbach; Oscoda by D. Olson. For recovery, O. melanopus larvae were collected and reared to full growth; if present, T. julis

emerged. (Sauer). For previous records in State see CEIR 22(32): 528-529.(PP). INDIANA - One female and 2 male Symphysis viridula recovered from burrow of Ostrinia nubilalis (European corn borer) July 26, in Rush County. Collected by R.W. Meyer. This is a new county record. This parasite released about 1946 in several counties and has since been recovered in Tipton, Jasper, Vermillion, Kosciusko, and Tippecanoe Counties. (Meyer).

A BRACONID (Apanteles congregatus) - NORTH CAROLINA - Parasitism of Manduca spp. (hornworms) on tobacco increased average of 10 percent at Bladen, Columbus County, at Wilson, Wayne County, and in Surry County. Parasitism heaviest, 64 percent, at Wilson, Wayne County. (Hunt).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - New infestation found on mulberry trees on 21 city blocks in Delano, Kern County. Counts averaged 10 per leaf. Collected by T. Tandrow and R. Rockwell. Determined by R. Gill. This is a new county record. P. comstocki also occurs in Porterville, Springville, Strathmore, Lindsay, Terra Bella, and Exeter in Tulare County. Delano infestation about 20 miles from Porterville infestation. (Cal. Coop. Rpt.).

GRASSHOPPERS - INDIANA - Mainly Melanoplus spp. adults predominated over immatures in sandier portions of Porter, La Porte and Lagrange Counties. Damage evident to leaves and corn silks in few weedy fields and also to poorly maintained alfalfa field. (Meyer). MINNESOTA - Adult survey underway. Very heavy infestations found on Olmsted and Dodge County line, 3 miles east of Oslo; ranged 100-150 per square yard in one alfalfa field. Counts high in other fields in immediate area. Some damage seen on adjacent soybeans. Alfalfa being cut; mass movement of grasshoppers from these fields expected. Most grasshoppers in area, as well as statewide, Melanoplus femurrubrum in fourth instar to adult. Other economic counts of 8 or more per square yard generally very widely scattered. (Minn. Pest Rpt.).

NORTH DAKOTA - Grasshopper adults noneconomic in Oliver, Hettinger, Divide, and Stutsman Counties. Light and economic infestations found in southern Morton County. Mostly noneconomic in Sioux County, occasionally light in western parts of county, and economic in central Grant County. Mostly noneconomic in Adams County, except for occasional light infestations in northeast. Infestations light and economic in central Williams County. Grasshoppers light in southern Kidder County. (Grasser). UTAH - Ranged 20-40 per square yard (90 percent nymphs) in some range areas in Lefthand Fork of Blacksmith Fork Canyon, Cache County, and 1-12 per square yard in other areas. (Knowlton).

GYPSY MOTH (Porthetria dispar) - WEST VIRGINIA - Male moth collected in trap in Hardy County August 21 by R. Clark. Determined by E.L. Todd. NORTH CAROLINA - Adult trapped August 4 at Campground near Kings Mountain, Cleveland County, by G.B. Lott. Adult trapped in log holding yard at Beaufort, Carteret County, August 7 by P.J. Lockerman. Determined by V.H. Owens. Confirmed by D.M. Weismann. Until further survey and investigations are completed to verify the nature of these situations, they will be considered as regulatory incidents. (PP).

RED IMPORTED FIRE ANT (Solenopsis invicta) - MISSISSIPPI - Collected at Moorehead, Sunflower County, August 7 by C.E. Wood. Determined by V.H. Owens. Confirmed by D.R. Smith. This is a new county record. (PP).

JAPANESE BEETLE (Popillia japonica) - PENNSYLVANIA - Total of 15,986 taken from one bait trap at Pennsylvania Furnace, Centre County, July 3 to August 23. At State College, Centre County, 1,105 adults taken in 16 bait traps at one location August 18-23. (Bierlein, Adams). TENNESSEE - Continued to damage favored hosts in local areas of Johnson County. (Hammett, Quillin).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Since June 1, when original female trapped at Santa Barbara, Santa Barbara County, total of 2,798 trap inspections made; no additional flies taken. Two toxic bait applications made within 6-square-mile core area. Two additional treatments scheduled. (Cal. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Increased in Graham County cotton; some treatments made. Infestation 1-2 percent in Gila Valley cotton in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Rosetted cotton blooms seen in 5 fields in Sunland Park area of Dona Ana County. (N.M. Coop. Rpt.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - TENNESSEE - In random sampling, 37 percent of soil samples taken in soybean fields of western area found infested. Some fields show stunting symptoms; decrease in yield expected in many fields. (Ponchillia, Hooper). MISSISSIPPI - Collected on soybeans at Gore Springs, Calhoun County, July 17 by D. Pittman, and at Byhalia, Marshall County, July 21 by J. Brigance. ILLINOIS - Collected on soybeans at Springerton, White County, July 13 by D. Edwards. TENNESSEE - Collected on soybeans at Five Points, Lawrence County, August 15 by L.C. Green. Determined by V.H. Owens. Confirmed by A.M. Golden. These are new county records. (PP).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Population increased in San Diego, San Diego County. Infestations spreading, homeowners concerned. Many parasite release sites in area of increased A. floccosus populations. Total of 326 release sites established. Parasite activity presently very low due to adverse weather. (Cal. Coop. Rpt.).

New State Record - Several adults of a CICAPELLID (Carneocephala sagittifera) collected in various grasses at Kona, Hawaii, by S. Kashiwai and S. Kobayashi June 7. Determined by J.P. Kramer. Known to occur in Texas, Louisiana, Mexico, Puerto Rico, Cuba, and the West Indies. According to literature it has been found on several species of grasses and frequently in close association with sugarcane. It has not been noted commonly on sugarcane and has not been credited with transmission of any disease. (Kawamura).

Fruits and Nuts - CLOUDYWINGED WHITEFLY (Dialeurodes citrifolii) and Bemisia giffardi collected from citrus foliage at Nawiliwili, Kauai, in December 1971. This is first collection of these 2 species on island of Kauai. D. citrifolii previously recorded from Oahu and Hawaii; B. giffardi from Oahu, Maui, and Molokai. (Nakahara). Several additional adults of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) observed over south and west Kauai indicating establishment of this citrus pest on this island. First discovered on Kauai at Poipu in June 1972. (Sugawa).

Ornamentals - Adults of a WEEVIL (Brachyrhinus cribricollis) moderate and caused light to moderate damage to chrysanthemum flowers in upper Kula, Maui. (Miyahira).

Beneficial Insects - Only traces of Klamath weed (Hypericum perforatum) noted on Mount Hualalai, Hawaii, at 6,700 feet elevation, where a GALL MIDGE (Zeuxidiplosis giardi) and CHRYSOMELID BEETLES (Chrysolina spp.) were released in 1965. Although no beetles found, light population of the gall midge was observed on few remaining plants. (Yoshioka). In July, infestations of an ARCTIID MOTH (Selca brunella), a flower, fruit and leaf feeder of Melastoma malabathricum, ranged 25-35 percent on fruits and terminals in the Kulani area, Hawaii, and averaged 43 percent on fruits at Hanahanapuni, Kauai. (Yoshioka, Sugawa). Leaf feeding larvae of a HELIODINID MOTH (Schreckensteinia festaliella) and a TORTRICID MOTH (Apotoforma sp.) very active on blackberry in the Kilauea Forest Reserve, Hawaii. This is first recovery of S. festaliella in this area. (Yoshioka). PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) remains very active, with heavy adult emergence, in the Waikapu and Maalaea area on Maui. Native puncturevine (Tribulus cistoides) scarce and heavily infested wherever found. (Miyahira).

LIGHT TRAP COLLECTIONS

Locality	Date	Time of Day	Trap Type	Weather	Temp. (air)	Temp. (soil)	Humidity	Crops													
								Other	Blacklight	1	2	3	4	5	6	7	8	9			
							0	1	2	3	4	5	6	7	8	9	10	11	12	Total	
FLORIDA	Gainesville	8/18-24	BL					3													
IOWA	Beaconsfield	8/11-17	BL					9													
	Castana	8/11-17	BL																		
	Kanawha	8/11-17	BL																		
KANSAS	Garden City	8/21	BL						1												
	Hiawatha	8/22	BL																		
	Wichita	8/21	BL						103												
KENTUCKY	Lexington	8/18, 20, 23	BL																		
	Monticello	8/21, 22	BL																		
MICHIGAN	Adrian	8/16-22	BL																		
	Maybe	8/14-20	BL																		
	Shelby	8/14-20	BL																		
MINNESOTA	Crookston	8/16-22	BL																		
	Shakopee	8/16-22	BL																		
	Worthington	8/16-22	BL																		
MISSISSIPPI (County)	Washington	8/18-24	2BL																		
MISSOURI	Portageville	8/18-24	BL																		
NEBRASKA	Lincoln	8/24	BL																		
	North Platte	8/24	BL																		
	Plymouth	8/17	BL																		
NEW HAMPSHIRE (County)	Strafford	8/14, 20	BL																		

LIGHT TRAP COLLECTIONS

	Precipitation	Temperature	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
	inches	F.	%	mi/hr															
NEW JERSEY																			
Centerxton 8/15-21	BL																		
Englishtown 8/15-21	BL																		
Lumberton 8/15-21	BL																		
NORTH DAKOTA																			
Bismarck 8/16, 18	BL																		
Fargo 8/20, 22, 23	BL																		
OHIO																			
Wooster 8/18-24	BL																		
OREGON (County)																			
Lane 8/17	BL																		
Marion 8/17-23	BL																		
Multnomah 8/17-23	BL																		
PENNSYLVANIA (District)																			
Central 8/16-22	BL																		
Southeast 8/16-22	BL																		
Southwest 8/16-22	BL																		
SOUTH DAKOTA (County)																			
Brookings 8/10-14	BL																		
TENNESSEE																			
Dyer 8/21-25	BL																		
Franklin 8/21-25	BL																		
Madison 8/21-25	BL																		
TEXAS																			
Waco 8/24	BL																		
VIRGINIA																			
Montgomery 8/16-23	BL																		
Petersburg 8/15-21	BL																		
Warsaw 8/15-22	BL																		
WISCONSIN																			
Hartford 8/15-21	BL																		
Lancaster 8/15-20	BL																		
Mazomanie 8/17-22	BL																		

TEMPERATURE: Cooler, drier air spread into the northern Great Plains and upper Mississippi River Valley early in the week. The temperature at Jamestown, North Dakota, dropped from 92 degrees Sunday to 64 degrees Monday morning and climbed only to 68 degrees Monday afternoon. Minneapolis, Minnesota, registered 97 degrees Sunday afternoon but only 63 degrees Tuesday. By midweek, comfortable temperatures had spread southward to the central Great Plains and eastward to the upper Great Lakes. North Platte, Nebraska, recorded 41 degrees Wednesday morning. Autumn weather was also noted in the high Rockies. Big Piney, Wyoming, registered 30 degrees and Leadville, Colorado, 31 degrees Tuesday morning. The Far Southwest continued hot with afternoon temperatures climbing above 100 degrees on most days. Blythe, California, registered 116 degrees Tuesday afternoon. Early morning temperatures in the desert Southwest were generally near 80 degrees. Temperatures in the Far Northwest ranged from the 60's in the morning to the 70's and 80's on most afternoons. Central and eastern Oklahoma and nearby parts of adjoining States warmed to the 100's or higher Monday afternoon but only to the 80's on Tuesday. The Deep South continued in the 90's most afternoons. The mercury reached the 80's from the lower Great Lakes to the Middle Atlantic States most afternoons. High relative humidity over the South and East added to the discomfort caused by warm temperatures. Warm weather continued over the Northeast over the weekend. Summer heat returned to the Northwest. The Dalles, Oregon, registered 103 degrees Sunday afternoon. The northern Great Plains also warmed with afternoon temperatures near 90 degrees Sunday, 92 degrees at Bismarck and Williston, North Dakota. Temperatures averaged above normal along the Pacific coast.

BOLL WEEVIL
(Anthonomus grandis Boh.)

Selected References
1970-1971

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

- Agee, H. R. and Elder, H. W. 1970. Histology of the compound eye of the boll weevil. Ent. Soc. Amer. Ann. 63(6):1654-1656.
- Andrawes, N. R. and Dorough, H. W. 1970. Metabolism of Temik in boll weevils and houseflies. Tex. Agr. Expt. Sta. Prog. Rpt. 2833. 8 pp.
- Baker, D. N. and Lloyd, E. P. 1970. An energy balance for the boll weevil, Anthonomus grandis. Ent. Soc. Amer. Ann. 63(1):104-107.
- Baker, D. N. and Lloyd, E. P. 1970. Effect of age on respiration and transpiration in the boll weevil, Anthonomus grandis. Ent. Soc. Amer. Ann. 63(1):100-104.
- Bariola, L. A. and Lindquist, D. A. 1970. Longevity and fecundity of boll weevils exposed to sublethal doses of systemic insecticides. J. Econ. Ent. 63(2):527-530.
- Bariola, L. A., Ridgway, R. L., and Coppedge, J. R. 1971. Large-scale field tests of soil applications of aldicarb for suppression of populations of boll weevils. J. Econ. Ent. 64(5):1280-1284.
- Bell, M. R. and McLaughlin, R. E. 1970. Influence of the protozoan Mattesia grandis McLaughlin on the toxicity to the boll weevil of four insecticides. J. Econ. Ent. 63(1):266-269.
- Bonham, C. D. and Fye, R. E. 1971. An empirical model for predicting boll weevil distribution on cotton plants. J. Econ. Ent. 64(2):539-540.
- Bottrell, D. G. and Almand, L. K. 1970. Evaluation of the 1968 reproductive-diapause boll weevil control program of the Texas High Plains. Tex. Agr. Expt. Sta. Prog. Rpt. 2766. 15 pp.
- Bottrell, D. G. and Coauthors. 1970. Studies of boll weevil populations and their movement in the High and Rolling Plains of Texas using male-baited traps, 1968. Tex. Agr. Expt. Sta. MP-948. 8 pp.
- Brasher, C., Mullins, J. A., and Bennett, S. E. 1971. Electrostatic ULV spraying for control of the boll weevil. J. Econ. Ent. 64(6):1537-1541.
- Bull, D. L., Stoker, R. A., Hardee, D. D., and Gueldner, R. C. 1971. Gas chromatographic determination of the components of the synthetic boll weevil sex pheromone (grandlure). Agr. Food Chem. J. 19(1):202-203.

- Burt, E. C. and Coauthors. 1970. Boll weevil control with insecticide applied in sprays with narrow-spectrum droplet sizes. *J. Econ. Ent.* 63(2):365-370.
- Chesnut, T. L. and Cross, W. H. 1971. Arthropod parasites of the boll weevil, Anthonomus grandis: 2. Comparisons of their importance in the United States over a period of thirty-eight years. *Ent. Soc. Amer. Ann.* 64(3):549-557.
- Chisholm, W. C. 1970. Lower insecticide cost and increased yield under diapause boll weevil control. *Cotton Prod-Mech. Conf. Sum-Proc.* pp. 22-23.
- Clower, D. F., Jones, J. E., Benkwith, K. B., and Sloane, L. W. 1970. Non-preference; a new approach to boll weevil control. *La. Agr.* 13(4):10-11.
- Cross, W. H. and Chesnut, T. L. 1971. Arthropod parasites of the boll weevil, Anthonomus grandis: 1. An annotated list. *Ent. Soc. Amer. Ann.* 64(2):516-527.
- Cross, W. H., Leggett, J. E., and Hardee, D. D. 1971. Improved traps for capturing boll weevils. *U.S. Dept. Agr. Coop. Econ. Ins. Rpt.* 21(21):367-368.
- Davich, T. B. 1970. Trapping of weevils by sex lure in reproduction-diapause control areas. *Cotton Prod-Mech. Conf. Sum-Proc.* pp. 12-15.
- Davich, T. B., Hardee, D. D., and Alcáala M., J. 1970. Long-range dispersal of boll weevils determined with wing traps baited with males. *J. Econ. Ent.* 63(5):1706-1708.
- Earle, N. W., Padovani, I., Thompson, M. J., and Robbins, W. E. 1970. Inhibition of larval development and egg production in the boll weevil following ingestion of ecdysone analogues. *J. Econ. Ent.* 63(4):1064-1069.
- Flint, H. M., Walk, E. L., Klassen, W., and Greenberg, D. 1971. Biological effects of irradiation with thermal neutrons on boll weevils fed boric acid containing boron-10². *J. Econ. Ent.* 64(5):1002-1008.
- Fye, R. E. and Bonham, C. D. 1970. Analysis of populations of the boll weevil in one acre of cotton at Florence, South Carolina, in 1957-59. *J. Econ. Ent.* 63(5):1505-1510.
- Fye, R. E. and Bonham, C. D. 1970. Summer temperatures of the soil surface and their effect on survival of boll weevils in fallen cotton squares. *J. Econ. Ent.* 63(5):1599-1602.
- Fye, R. E., Cole, C. L., and Bull, D. L. 1970. Populations of boll weevils in selected fields in Presidio County, Texas, and Ojinaga, Chihuahua, Mexico, in late 1968 subsequent to reproductive-diapause control programs in 1965-1967. *J. Econ. Ent.* 63(4):1084-1086.
- Fye, R. E., Leggett, J. E., and Bonham, C. D. 1970. Winter survival of the boll weevil complex in Arizona. *J. Econ. Ent.* 63(4):1071-1074.

- Sueldner, R. C., Thompson, A. C., Hardee, D. D., and Hedin, P. A. 1970. Constituents of the cotton bud. XIX. Attractancy to the boll weevil of the terpenoids and related plant constituents. *J. Econ. Ent.* 63(6):1819-1821.
- Suillbault, G. G., Kuan, S. S., and Sadar, M. H. 1970. Purification and properties of cholinesterases from honeybees--Apis mellifera Linnaeus--and boll weevils--Anthonomus grandis Boheman. *J. Agr. Food Chem.* 18(4):692-697.
- Hardee, D. D. 1970. Pheromone production by male boll weevils as affected by food and host factors. *Contrib. Boyce Thompson Inst.* 24(13):315-322.
- Hardee, D. D., Cleveland, T. C., Davis, J. W., and Cross, W. H. 1970. Attraction of boll weevils to cotton plants and to males fed on three diets. *J. Econ. Ent.* 63(3):990-991.
- Hardee, D. D., Cross, W. H., Huddleston, P. M., and Davich, T. B. 1970. Survey and control of the boll weevil in west Texas with traps baited with males. *J. Econ. Ent.* 63(4):1041-1048.
- Hardee, D. D., Lindig, O. H., and Davich, T. B. 1971. Suppression of populations of boll weevils over a large area in west Texas with pheromone traps in 1969. *J. Econ. Ent.* 64(4):928-933.
- Hardee, D. D., Wilson, N. M., Mitchell, E. B., and Huddleston, P. M. 1971. Factors affecting activity of grandlure, the pheromone of the boll weevil, in laboratory bioassays. *J. Econ. Ent.* 64(6):1454-1456.
- Haynes, J. W., Davich, T. B., Mitlin, N., and Sloan, C. E. 1971. Shipment of large numbers of boll weevils in small containers. *J. Econ. Ent.* 64(1):325-327.
- Hopkins, A. R., Taft, H. M., and Agee, H. R. 1971. Movement of the boll weevil into and out of a cotton field as determined by flight screens. *Ent. Soc. Amer. Ann.* 64(1):254-257.
- Hopkins, A. R., Taft, H. M., James, W., and Jernigan, C. E. 1970. Evaluation of substitutes for DDT in field experiments for control of the bollworm and the boll weevil in cotton: 1967-69. *J. Econ. Ent.* 63(3):848-850.
- Jenkins, J. N., McLaughlin, R. E., Parrott, W. L., and Wouters, C. J. J. 1970. Eliminating Glugea gasti (Protozoa: Microsporidia) from genetic stocks of the boll weevil. *J. Econ. Ent.* 63(5):1638-1639.
- Klassen, W. and Earle, N. W. 1970. Permanent sterility induced in boll weevils with busulfan without reducing production of pheromone. *J. Econ. Ent.* 63(4):1195-1198.
- Leggett, J. E. and Cross, W. H. 1971. A new trap for capturing boll weevils. *U.S. Dept. Agr. Coop. Econ. Ins. Rpt.* 21(45-48):773-774.
- Lincoln, C. and Coauthors. 1971. Resistance of Frego-type cotton to boll weevil and bollworm. *J. Econ. Ent.* 64(5):1326-1327.

- McHaffey, D. G. 1970. Boll weevil chemosterilants. Research program seeks compounds to eradicate a major pest of cotton. South. Res. Inst. Bul. 23(1):3-7.
- McKibben, G. H., Hedin, P. A., McLaughlin, R. E., and Davich, T. B. 1971. Development of the bait principle for control of boll weevils: addition of terpenoids and related plant constituents. J. Econ. Ent. 64(6):1493-1495.
- McKibben, G. H. and Coauthors. 1971. Addition of food acidulants to increase attractiveness to boll weevils of bait containing cottonseed oil. J. Econ. Ent. 64(3):583-585.
- McKibben, G. H. and Coauthors. 1971. Slow-release formulations of grandlure, the synthetic pheromone of the boll weevil. J. Econ. Ent. 64(1):317-319.
- Mistic, W. J., Jr., Covington, B. M., and Smith, F. D. 1970. Effects of methyl parathion, DDT, and toxaphene on the boll weevil, bollworm, and cotton plant in North Carolina. J. Econ. Ent. 63(2):596-599.
- Mitchell, H. C. and Cross, W. H. 1971. Mating of boll weevils in the field. J. Econ. Ent. 64(3):773-774.
- Mitlin, N. and Wiygul, G. 1971. Synthesis of nucleic acid and protein in the boll weevil fed with busulfan. Ent. Soc. Amer. Ann. 64(4):822-824.
- Moore, R. F., Jr. and Taft, H. M. 1971. Differences in percentages of fatty acids in triglycerides and phospholipids of larvae of the bollworm and the tobacco budworm as possible factors in their tolerance to insecticides. J. Econ. Ent. 64(5):1060-1065.
- Moore, R. F., Jr. and Taft, H. M. 1971. Effect on reproduction of the boll weevil by drugs which act on catecholamines and indolealkylamines. Ent. Soc. Amer. Ann. 64(6):1390-1393.
- Moore, R. F., Jr., Taft, H. M., and Payne, L. B. 1970. Dimethyl sulfoxide as a possible synergist for selected insecticides against the boll weevil. J. Econ. Ent. 63(4):1342-1343.
- Nettles, W. C., Jr., Parro, B., Sharbaugh, C., and Mangum, C. L. 1971. Trehalose and other carbohydrates in Anthonomus grandis, Heliothis zea, and Heliothis virescens during growth and development. J. Insect Physiol. 17(4):657-675.
- Norment, B. R. and Chambers, H. W. 1970. Joint actions in organophosphorus poisoning in boll weevils. J. Econ. Ent. 63(2):499-502.
- Norment, B. R. and Chambers, H. W. 1970. Temperature relationships in organophosphorus poisoning in boll weevils. J. Econ. Ent. 63(2):502-504.
- Parrott, W. L., Jenkins, J. N., and Buford, W. T. 1970. Instars and duration of stadia of boll weevil larvae. Ent. Soc. Amer. Ann. 63(5):1265-1267.

- Pfrimmer, T. R., Furr, R. E., and Stadelbacher, E. A. 1971.
Materials for control of boll weevils, bollworms, and tobacco
budworms on cotton at Stoneville, Mississippi. J. Econ. Ent.
64(2):475-478.
- Rainwater, C. F. 1970. Prospects for eradication of boll weevil.
Wash. Acad. Sci. J. 60(2):48-53.
- Ridgway, R. L., Bariola, L. A., and Hardee, D. D. 1971. Seasonal
movement of boll weevils near the High Plains of Texas.
J. Econ. Ent. 64(1):14-19.
- Roach, S. H., Ray, L., Hopkins, A. R., and Taft, H. M. 1971.
Comparison of attraction of wing traps and cotton trap plots
baited with male boll weevils for overwintered weevils. Ent.
Soc. Amer. Ann. 64(2):530-531.
- Roach, S. H., Ray, L., Taft, H. M., and Hopkins, A. R. 1971.
Wing traps baited with male boll weevils for determining
spring emergence of overwintered weevils and subsequent
infestations in cotton. J. Econ. Ent. 64(1) 107-110.
- Roach, S. H., Taft, H. M., Ray, L., and Hopkins, A. R. 1971.
Population dynamics of the boll weevil in an isolated cotton
field in South Carolina. Ent. Soc. Amer. Ann. 64(2):394-399.
- Roach, S. H. and Walker, J. T. 1970. A parasitic mite found on
boll weevils near Florence, South Carolina, in 1968. J. Econ.
Ent. 63(2):646-647.
- Rummel, D. R. and Adkisson, P. L. 1970. Distribution of boll
weevil-infested cotton fields in relation to overwintering
habitats in the High and Rolling Plains of Texas. J. Econ.
Ent. 63(6):1906-1909.
- Rummel, D. R. and Adkisson, P. L. 1971. A two-phased control
program designed for maximum suppression of the boll weevil
in the High and Rolling Plains of Texas. J. Econ. Ent.
64(4):919-922.
- Spencer, N. R. 1971. Sterilization of insect diet by gamma irra-
diation. J. Econ. Ent. 64(3):753-754.
- Sterling, W. L. 1971. Winter survival of the boll weevil in the
High and Rolling Plains of Texas. J. Econ. Ent. 64(1):39-41.
- Sterling, W. L. and Adkisson, P. L. 1970. Seasonal rates of
increase for a population of the boll weevil, Anthonomus
grandis, in the High and Rolling Plains of Texas. Ent. Soc.
Amer. Ann. 63(6):1696-1700.
- Talmadge, K., Albersheim, P., and Earle, N. W. 1970. Cotton plant
cell wall polysaccharide-degrading enzymes of the boll
weevil. J. Econ. Ent. 63(5):1712-1714.
- Terranova, A. C. 1971. An automated procedure for analysis of
busulfan in boll weevils and in fortified boll weevil diet.
J. Econ. Ent. 64(2):549-550.

- Thompson, A. C., Pratt, J. R., Minyard, J. P., and Hedin, P. A. 1970. Constituents of the cotton bud. XVII. A survey of the lipids and fatty acids of glanded and glandless cotton with respect to nutrition and host-preference of the boll weevil. *J. Econ. Ent.* 63(3):753-756.
- Thompson, A. C. and Coauthors. 1970. Constituents of the cotton bud. XVI. The attractancy response of the boll weevil to the essential oils of a group of host and nonhost plants. *J. Econ. Ent.* 63(3):751-753.
- Tingle, F. C., Lane, H. C., King, E. E., and Lloyd, E. P. 1971. Influence of nutrients in the adult diet on diapause in the boll weevil. *J. Econ. Ent.* 64(4):812-814.
- Tumlinson, J. H. and Coauthors. 1970. The boll weevil sex attractant, pp. 41-59. In M. Beroza (Ed.) *Chemical Controlling Insect Behavior*. Academic Press, New York. 170 pp.
- Tumlinson, J. H. and Coauthors. 1971. Identification and synthesis for the four compounds comprising the boll weevil sex attractant. *J. Org. Chem.* 36(18):2616-2621.
- Vanderzant, E. S. and Chremos, J. H. 1971. Dietary requirement of the boll weevil for arginine and the effect of arginine analogues on growth and on the composition of the body amino acids. *Ent. Soc. Amer. Ann.* 64(2):480-485.
- Vavra, J. and McLaughlin, R. E. 1970. Fine structure of some developmental stages of Mattesia grandis McLaughlin (Sporozoa, Neogregarinida), a parasite of boll weevil Anthonomus grandis Boheman. *J. Protozool.* 17(3):483-496.
- Walker, J. K., Jr. and Bottrell, D. G. 1970. Infestations of boll weevils in isolated plots of cotton in Texas, 1960-69. *J. Econ. Ent.* 63(5):1646-1650.
- Wiygul, G., Mitlin, N., Love, J. N., and Lusk, G. J. 1970. The absorption and metabolism of glycine-U-¹⁴C in the irradiated and normal boll weevil, Anthonomus grandis Boheman (Coleoptera: Curculionidae). *Comp. Biochem. and Physiol.* 33(3):475-480.
- Wolfenbarger, D. A., McGarr, R. L., Longoria, R. R., and Nosky, J. B. 1970. Toxicity of EPN, accothion, and certain chlorinated hydrocarbons to certain cotton insects. *J. Econ. Ent.* 63(5):1568-1573.
- Zurflüh, R. L., Dunham, L. L., Spain, V. L., and Siddall, J. B. 1970. Synthetic studies on insect hormones. IX. Stereo-selective total synthesis of a racemic boll weevil pheromone. *Amer. Chem. Soc. J.* 92:425-427.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(35):589-594, 1972



U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



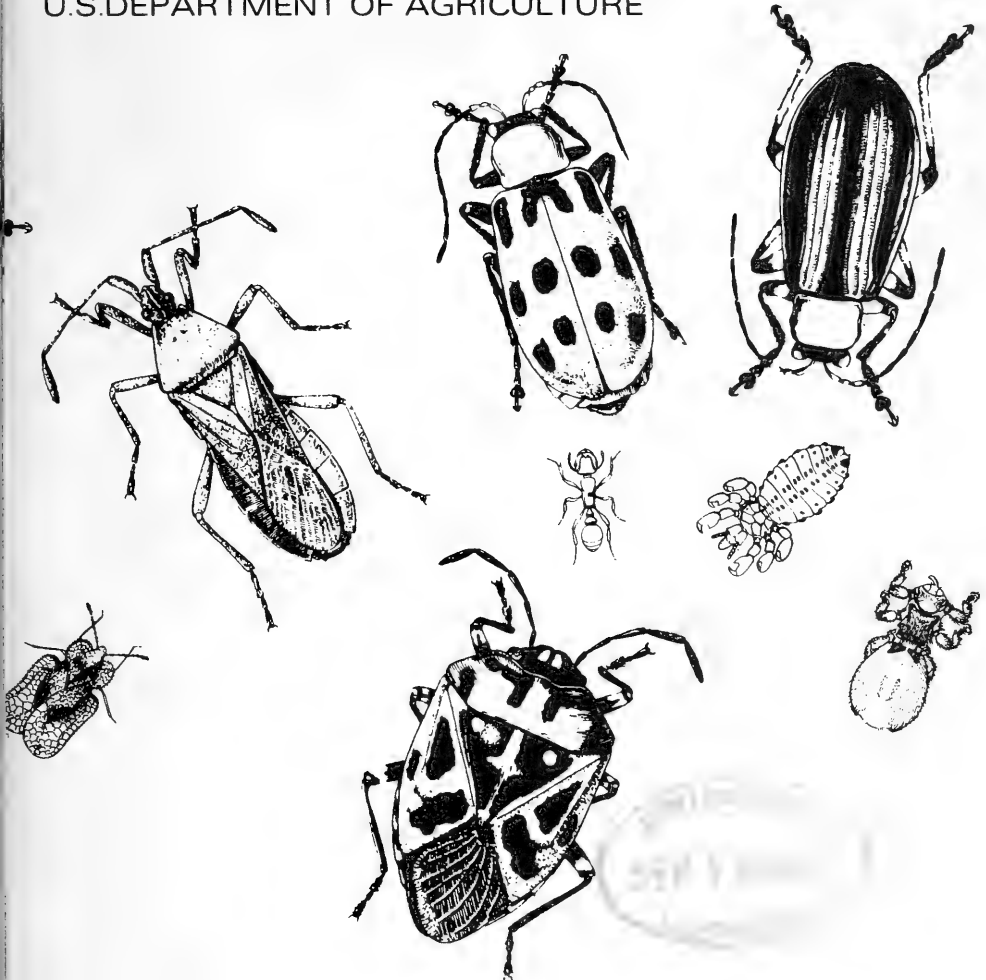
0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by

PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Economic Insect Survey and Detection
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOP. ECON. INS. RPT.

HIGHLIGHTS

Curren Conditions

CORN EARWORM adults increased on Virginia Eastern Shore, growers advised to follow recommended treatment schedules. Larvae heavy on late soybeans in North Carolina, feeding on pods in southwestern Alabama. (p. 597).

CORN ROOTWORMS heavier in Nebraska than in 1971. (p. 598).

BANDEDWING WHITEFLY heavy on soybeans and cotton in southwest Alabama; continued threat to cotton in many areas of Mississippi with some controls applied. (pp. 601, 602).

BOLL WEEVIL continued problem on cotton in hill section of Mississippi; counts and damaged squares increased in central and northern Alabama. (p. 601).

BOLLWORM egg laying heavy in southern Georgia, moth flights heavy throughout Alabama. Bollworms continued problem in southeastern district and in Arkansas River Valley of Arkansas. (p. 602).

Detection

New State records include a CHRYSOMELID BEETLE in South Dakota (p. 599), and a SPIDER MITE in Pennsylvania (p. 604).

For new county and parish records see page 610.

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

CONTENTS

Special Insects of Regional Significance.....	597
Insects Affecting	
Corn, Sorghum, Sugarcane...598	Cole Crops.....603
Small Grains.....599	General Vegetables.....603
Turf, Pastures, Rangeland..599	Deciduous Fruits and Nuts...604
Forage Legumes.....600	Citrus.....604
Soybeans.....600	Ornamentals.....604
Peanuts.....601	Forest and Shade Trees.....604
Cotton.....601	Man and Animals.....605
Tobacco.....602	
Hawaii Insect Report.....	603
Beneficial Insects.....	600
Federal and State Plant Protection Programs.....	600
Light Trap Collections.....	600
Detection.....	610

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

SEPTEMBER 1972

The National Weather Service's 30-day outlook for September is for temperatures to average below seasonal normals across the southern half of the Nation except for near to above normal in California. Above normal temperatures are also expected across the northern third of the Nation. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Pacific coast, the Great Basin, Texas, and the south Atlantic coast. Subnormal totals are called for over the northeastern quarter of the Nation. Elsewhere near normal precipitation is indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the 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 SEPTEMBER 4

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Scattered thunderstorms occurred along the eastern slopes of the southern Rocky Mountains Monday, August 28. Heavier showers fell along the Atlantic coast from Virginia to Florida. Savannah, Georgia, received 4.14 inches in 6 hours early Tuesday. Tropical storm Gwen, about 300 miles south-southwest of San Diego with winds near the center gusting to 60 m.p.h., brought showers and thunderstorms to southern California. Heavier, local showers fell in the mountains in the Southwest. Heavy showers continued in the East Wednesday. Orlando, Florida, received 3.26 inches of rain Wednesday afternoon and early evening. A cold front moved into the northern Great Plains by midweek. It set off numerous showers and thunderstorms as it moved across the central Great Weather of the week continued on page 610.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - GEORGIA - Moderate in Coastal Bermuda grass pastures in Cook, Schley, and Tift Counties. (Smith et al.). ALABAMA - Full-grown larvae heavy in Bermuda grass lawn established July 15 in Blount County. (McQueen).

CORN EARWORM (*Heliothis zea*) - DELAWARE - Adults increased in blacklight traps, averaged 5 per night for 5 locations in Sussex County. Highest counts in southwestern area. (Burbutis, Kelsey). VIRGINIA - Adults still light but increased abruptly; 15 taken night of August 28, and 23 taken August 29 in Accomack and Northampton Counties. Growers of fall snap beans, tomatoes, and other susceptible crops advised to follow 5 to 7-day schedule, preferably 5 days, during this period and to keep close check on soybeans and watch for cut pods. (Hofmaster). KENTUCKY - Larvae averaged less than one per ear of corn in Union County. (Barnett). NORTH CAROLINA - Early instar larvae very heavy in many late soybean fields. In 3 of 10 soybean fields along State Highway 11 in Duplin County, 8 larvae per row foot noted. In Columbus and Bladen Counties, 2 larvae per row foot seen. (Hunt).

GEORGIA - *H. zea* light to heavy across peanut belt. Ranged light to very heavy on soybeans in southern area. (French et al.). FLORIDA - Averaged less than 1 late-instar larva per row foot of soybeans at Newberry, Alachua County. (Strayer). ALABAMA - Present to some degree in all of 40 soybean fields surveyed in Mobile, Baldwin, and Escambia Counties. Larvae heavy, 7-12 per 6 row feet and feeding on pods in Baldwin County field. Ranged 1-4 per 10 row feet in many other fields. Moth flights and egg laying very heavy in these 3 counties. (Kilpatrick et al.). MISSISSIPPI - Averaged 2 per 10 heads in sorghum grown for ensilage in Lowndes and Noxubee Counties. In soybeans, averaged 1 per 3 row feet in Noxubee County. Heavy enough in several fields in Coahoma County to cause damage and justify controls. (Robinson). KANSAS - Percent corn ears damaged by county: Lane 0-20 (2 fields); Trego 20-30 (2 fields); Logan 4-32 (3 fields); Sheridan 8-84 (3 fields); Thomas 4-24 (2 fields); Rawlins 0-20 (2 fields); Pottawatomie 30-95 (3 fields). (Bell).

CORN LEAF APHID (*Rhopalosiphum maidis*) - KANSAS - Heavy in whorls in some fields of late-planted (preboot) sorghum in Reno, Stafford, and Rice Counties. Reddening of terminal leaves seen in some infested fields. (Bell). NEW HAMPSHIRE - Continued problem on sweet corn where controls not applied. (Bowman, Aug. 25). MAINE - Numerous in few cornfields in State. Parasites and fungus disease reduced most populations. (Gall).

GREENBUG (*Schizaphis graminum*) - NEBRASKA - None seen in 3 grain sorghum fields checked in Dodge and Burt Counties. Parasitism now 100 percent, occasional mummies still seen on plants. (Berogan). KANSAS - Surveys negative on sorghum in Butler, Chautauqua, Harvey, Sumner, Sedgwick, Lane, Ness, Trego, Logan, Sheridan, Rawlins, and Cheyenne Counties. (Bell). TEXAS - Activity heavy in isolated field of grain sorghum in Martin County in Trans-Pecos area. Counts ranged 2,000-7,000 per plant on individual plants. In most other areas, activity very light on grain sorghum. (Green). NEW MEXICO - Light, ranged 2-3 per leaf, on grain sorghum at Roswell, Chaves County. (Mathews). ARIZONA - Spotty on sorghum plantings in Cochise County; predators abundant. (Kozloski).

POTATO LEAFHOPPER (Empoasca fabae) - VIRGINIA - Adults ranged 0-45 per 50 sweeps in peanuts in Prince George and Sussex Counties. Nymphs scarce. (Allen).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MISSOURI - Populations in southwest and south-central areas ranged 0-1,500 per 10 sweeps. Yellowing of alfalfa evident in fields recently harvested and without rain. (Munson).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - D. virgifera (western corn rootworm) and D. longicornis (northern corn rootworm) ranged 0-12 (averaged 5) per plant in 9 cornfields in Dodge, Burt, and Thurston Counties. Populations heavier statewide than in 1971. (Berogan). MICHIGAN - D. virgifera adults collected in field corn by R. Ling August 22 at Assyria Township, Barry County; from sweet corn silks August 25 by B. Peters in Kent County. Determined by R.J. Sauer. Taken on field corn by D. Kaiser August 25 at Danby Township, Ionia County, determined by R.F. Ruppel; on field corn August 31 by M. Sutherland at Oneida Township, Eaton County, determined by J.H. Newman; on field corn August 29 by F. Henningsen near Mendon, St. Joseph County, determined by R.F. Ruppel. These are new county records. D. virgifera appears widely scattered in southern areas, increasing problems expected. (Sauer et al.).

NEW HAMPSHIRE - D. longicornis abundant on corn near Claremont, Sullivan County; "goosenecking" severe. (Bowman, Aug. 25). KENTUCKY - Adults of D. longicornis and D. undecimpunctata howardi (southern corn rootworm) averaged 0.5 per corn ear in Union County. All surveys for D. virgifera negative to date. (Barnett).

RICE WEEVIL (Sitophilus oryzae) - MISSISSIPPI - Averaged 2 per 10 heads in sorghum grown for ensilage in Lowndes and Noxubee Counties. (Robinson).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MAINE - Infestation ranged 0-6 percent in corn; heavier infestations rare. Infestation 75 percent in small field of sweet corn in Orono area, Penobscot County. (Gall). NEW HAMPSHIRE - First-brood adults active; little damage to sweet corn observed. (Bowman, Aug. 25). NEW YORK - Second-brood expected to be serious on untreated corn. Moth flights heavy; late sweet corn should be protected. At Geneva, Ontario County, 59 moths taken during period August 19-25. (N.Y. Wkly. Rpt.). DELAWARE - Adults increased in blacklight traps, averaged 22 per night for 5 locations in Sussex County. (Burbutis, Kelsey). NORTH CAROLINA - Lodging occurred in some fields throughout State. Lodging of more than 5 percent of stalks rare. Counts of 300+ per 100 plants in 2 Northampton County fields. (Long, Hunt).

ALABAMA - Larvae 2-10 and pupae 1-3 per stalk in maturing corn in 0.5 acre of commercial research plot of corn at Atmore, Escambia County. Several moths seen in other areas of county. (Knowles et al.). KANSAS - Third and fourth-instar second-generation larvae infested 5-20 percent of stalks of early planted corn (hard dough stage, 3 fields) and 90 percent of stalks in late-planted field (milk stage) in Pottawatomie County. Percent infested stalks by

county (2-3 fields per county): Trego 16-32; Logan 0-4; Sheridan 8-52; Thomas 0-20; and Cheyenne 0-4. Trego County is a new county record. Specimens collected and determined by M. Shuman. (Bell).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - First-instar to full-grown larvae heavy, damaged young corn, grain sorghum, and mixed Sudan and Sudex plantings in all fields examined in Baldwin and Escambia Counties. (Knowles et al.).

SORGHUM WEBWORM (Celama sorghiella) - MISSISSIPPI - Averaged 10 per 10 heads in sorghum grown for ensilage in Lowndes and Noxubee Counties. (Robinson).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - KANSAS - Third and mostly fourth-instar larvae still found in some corn in some west-central and northwest counties. Percent infestation by county: Logan 0-80; Sheridan 0-8; Thomas 24-48; Rawlins 0-44; and Cheyenne 0-12. (Bell).

CONCHUELA (Chlorochroa ligata) - NEW MEXICO - Heavy on sweet corn in Rio Arriba County. Damage heavy in one field. (N.M. Coop. Rpt.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Midge numbers continued to increase; 10 of 11 counties showed increased emergence during week ending August 17. (McIntyre).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Moderate to light on grain sorghum in El Paso and Pecos Valley areas of Trans-Pecos area. Recent rain and cool night temperatures slowed activity in area. Light to moderate infestations reported from most counties on South Plains week ending August 17. Current infestations spotted in fields with small colonies found on most leaves within infested area. (Neeb, McIntyre).

SMALL GRAINS

HESSIAN FLY (Mayetiola destructor) - MONTANA - Infestation ranged 1-2 percent in 20,000 acres of wheat, including Durham, in Plentywood area, Sheridan County. No winter wheat within 60 miles. (Pratt).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Moderate to heavy in pastures in Amite, Madison, and Scott Counties. (Robinson).

A SOD WEBWORM (Pediasis mutabilis) - COLORADO - Adults ranged 5-10 per square yard on grasses in Fort Collins area, Larimer County. (Thatcher).

CHINCH BUG (Blissus leucopterus leucopterus) - NEW HAMPSHIRE - Completely destroyed some lawns in Durham area, Strafford County. (Bowman, Aug. 25).

A CHRYSOMELID BEETLE (Galeruca rudis) - SOUTH DAKOTA - Collected from lupine (Lupinus parviflorus) in North Cave Hills, Harding County, August 6, 1969. Collected and determined by E.U. Balsbaugh. This is a new State record. (Jones).

FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Counts of 460 larvae per 100 sweeps taken in alfalfa at Yuma Valley and 800 per 100 sweeps taken at Gila Valley, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 15-20 larvae per 25 sweeps in Chaves County alfalfa. Adult flights heavy. (N.M. Coop. Rpt.). NEVADA - Adults unusually heavy on forage crops in Lovelock area, Pershing County. (Stitt).

BET ARMYWORM (Spodoptera exigua) - ARIZONA - Counts of 920 per 100 sweeps taken in alfalfa at Gila Valley, Yuma County. (Ariz. Coop. Sur.).

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - WASHINGTON - Heavy in alfalfa in Pasco and Wallula area of Franklin and Walla Walla Counties. (Halfhill).

PEA APHID (Acyrtosiphon pisum) - OHIO - Population "explosions" occurred in many east-central area hay fields during recent hot, humid weather; increases in hay noted Statewide. Counts per sweep by county: Alfalfa - Guernsey 3.5, Holmes 20, Ashland 3-3.5, Coshocton slightly less than one; mixture of clover and timothy - Summit 4-6.5, Wayne 4.5, Morrow 1, Stark 2. Except in few cases, biological control not sufficient. (Fox).

ALFALFA WEEVIL (Hypera postica) - KENTUCKY - Average counts per square foot of alfalfa in Fayette County: August 3, larvae 2.7 and eggs 6.2; August 10, larvae 2.3 and eggs 15.2. (Barnett, Parr).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - MASSACHUSETTS - Infestations decreased sharply; less than 1 percent of leaflets infested in one Hampshire County semimature alfalfa field. (Jensen).

SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatialis) - GEORGIA - Light to very heavy in south-central area. (Wood et al.). FLORIDA - Larvae decreased, averaged 2 per row foot of soybeans. Adults numerous in 35-acre field at Newberry, Alachua County. (Fla. Coop. Sur.). ALABAMA - Full-grown larvae light in most soybean fields examined in Mobile, Baldwin, and Escambia Counties. Heavy moth flights continued throughout Baldwin County. (Kilpatrick et al.).

GREEN CLOVERWORM (Plathypena scabra) - INDIANA - Larvae non-economic in most soybean fields in southern districts, averaged less than one per linear foot. Heavy in some fields, either alone or in conjunction with blister beetles; some fields treated. Parasitized specimens rare. (Edwards et al.).

SOYBEAN LOOPER (Pseudoplusia includens) - ALABAMA - This and Trichoplusia ni (cabbage looper) infested all of 40 soybean fields examined in Mobile, Baldwin, and Escambia Counties. Virus disease eliminated loopers in field near Atmore, Escambia County. Defoliation by loopers and other leaf feeders ranged 10-20 percent. Some growers started controls. (Kilpatrick et al.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Of 48 soybean fields checked in Middlesex, Isle of Wight, Prince George, Curry, Sussex, and Southampton Counties, four above economic threshold and four nearing economic threshold. This pest increases rapidly and should be checked often this time of year. (Allen et al.). INDIANA - Larvae ranged 16-48 per linear yard in untreated field in Jennings County. Controls applied in this county where no problem occurred since 1969. Early and middle-instar larvae most common, eggs occasional, pupae rare. (Meyer).

BANDED WING WHITEFLY (Trialeurodes abutilonea) - ALABAMA - Nymphs and adults light to heavy in all of 30 soybean fields examined in Baldwin and Escambia Counties. Adult emergence general in both counties. One large field near Foley, Baldwin County, with several thousand adults clustering at tops of plants. Young nymphs ranged 200-500 per leaf on bottom sides of top leaves. These are new county records. (Turner et al.).

PEANUTS

CORN ROOTWORMS (Diabrotica spp.) - GEORGIA - Moderate to heavy in Lee and Terrell Counties. (Andrews, Locke). NORTH CAROLINA - Larvae of D. undecimpunctata howardi (southern corn rootworm) ranged 4-12 under each plant in 12 peanut fields in Northampton County. (Long, Hunt).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - GEORGIA - Adults and larvae heavy on peanuts in south-central areas. (Wood et al.).

SPOTTED SPIDER MITE (Tetranychus urticae) - NORTH CAROLINA - Damage in Northampton County ranged from spots to one acre in size with advanced yellowing and dead leaves. Webbing noticeable in smaller spots (500 square feet) with thousands of mites per leaf. Damage occurred on about 20,000 acres in Halifax and Northampton Counties in 1971, about same expected for 1972. Resistance to chemical controls caused problems. (Long).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Punctured squares ranged 20-80 percent in northern Glasscock County. No activity reported in Martin, Midland, and Upton Counties. Activity increased rapidly in areas below the Caprock south of Lubbock and in a south-central area. Populations ranged 16-24,000 per acre in Dalhousie County prior to application of insecticides for diapausing weevil control. (Green). MISSISSIPPI - Continued problem in hill section where cotton still green and blooming. One 5-acre field in Noxubee County had average of 5 weevils per bloom in 20-bloom count. (Robinson). ALABAMA - With much cotton "cutting out" and reduction in squares along with continuing "hatchouts", weevils and percent damaged squares increased to 30-80 percent in many central and northern area fields. Weevil control especially to protect young bolls, continued throughout most of State. (McQueen). GEORGIA - General migration occurred over southern areas; 0-85 percent punctured squares, infestations low where controls continued. In Polk County, punctured squares averaged 9 percent, high of 42. (Womack, Stowe). TENNESSEE - Number of squares too low to make counts. Weevils continue to damage small bolls in late cotton. (Locke).

BOLLWORMS (Heliothis spp.) - TENNESSEE - Cotton not attractive to H. zea; controls not justified. (Locke). GEORGIA - Heliothis spp. oviposition still heavy, much boll damage in many southern area fields. Infestations predominately Heliothis virescens (tobacco budworm). (Womack). ALABAMA - Moth flights heavy throughout State; larval counts increased. Problem in numerous isolated fields where control schedules variable. (McQueen). MISSISSIPPI - Infestation by county: Coahoma, numerous in most green cotton; Madison, light to heavy in 2,600 acres; Rankin, moderate to heavy in few fields; Warren, light to moderate in 500 acres; Bolivar, larvae and egg laying moderate in 500 acres; Issaquena, egg laying heavy; Quitman, larval infestation ranged 4-6 percent with many eggs in 1,500 acres. (Robinson et al.).

ARKANSAS - H. virescens continued problem in 3 southeast counties and in upper Arkansas River Valley. In Ashley, Chicot, Desha, and Pope Counties, H. virescens comprised 58 percent of population; much lighter in Lincoln and Woodruff Counties. None found in small sample from Lonoke County. (Boyer). TEXAS - H. zea activity ranged light to heavy in Trans-Pecos area; light to moderate in El Paso County. In Reeves and Pecos Counties, eggs ranged 50-150 and larvae 4-12 per 100 terminals; 8-20 percent damaged squares. Some fields averaged less than 15 eggs per 100 terminals. Moths plentiful in most fields; laying eggs in upper plant terminals. Activity light to moderate in Glasscock, Reagan, Upton, Martin, and Midland Counties. Eggs ranged 3-20 per 100 terminals, larvae 3-6 per 100 plants; damaged squares and small bolls ranged 3-10 percent in most fields. (Neeb). NEW MEXICO - H. zea light in cotton in Chaves and Dona Ana Counties. (N.M. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - ARKANSAS - Heavy moth flights and egg deposition of this and Pseudoplusia includens (soybean looper) continued in many fields. Infestations occurred somewhat earlier than normal this year. Infestations appear to be more fieldwide rather than mainly on edges of fields as in past. (Boyer). ARIZONA - T. ni larvae heaviest on treated cotton at Safford, Graham County; short staple cotton preferred host. (Ariz. Coop. Sur.).

COTTON LEAFPERFORATOR (Bucculatrix thurberiella) - ARIZONA - Problems occurred in some fields at Yuma, Yuma County. Insecticides changed. (Ariz. Coop. Sur.).

BANDEDWING WHITEFLY (Trialeurodes abutilonea) - ALABAMA - Nymphs and adults ranged light to heavy in maturing cotton field at Atmore, Escambia County; 10-100 adults clustering at tops of plants. (Knowles et al.). MISSISSIPPI - Remained threat to cotton in many areas. Some controls applied. Reports indicate more widespread in State than in 1971. (Robinson). ARKANSAS - Infestations increased slightly but generally lighter than in 1971. (Boyer).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Adults averaged 2 per leaf on tobacco at one Fayette County location. (Barnett).

COLE CROPS

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae ranged 5-15 per lettuce plant at Kansas Settlement, Cochise County. (Ariz. Coop. Sur.).

GENERAL VEGETABLES

SWEETPOTATO LEAF BEETLE (Typophorus nigritus viridicyaneus) - FLORIDA - Larvae ranged 1-25 per sweetpotato plant in field at Milton, Santa Rosa County. This species rarely reported from State. (Fla. Coop. Sur.).

HAWAII INSECT REPORT

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) Larvae trace in 5 acres of Kikuyu grass at Kapahi, Kauai, compared with 23 per square foot 3 weeks ago. About 10 percent of larvae collected were parasitized by Eucelatoria armigera (a tachina fly). On Maui, larvae heavy in small Kikuyu grass pasture at Kaupakuloa; averaged 10.5 per square foot. Many larvae collected parasitized by Trathala flavo-orbitalis (an ichneumon wasp). (Sugawa, Ah Sam).

General Vegetables - TOMATO PINWORM (Keiferia lycopersicella) Larvae heavy in 2 acres of tomato at Wailua, Kauai. About 50 percent of terminal shoots and young leaves heavily damaged; 15 percent of fruits light to moderately damaged. This pest apparently unaffected by repeated applications of recommended insecticides. (Sugawa).

Fruits and Nuts - Eggs and larvae of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) moderate on various backyard citrus trees from Kapaa to Anahola, Kauai. This pest now common over most of island from Kekaha to Anahola. On Oahu, 5 of 22 eggs collected from young citrus terminals at Moanalua, Ewa Beach, and Ewa Plantation parasitized by Trichogramma sp. (Sugawa, Kumashiro, Otsuka). Larvae of LEAFMINER FLIES (Liriomyza spp.) light in 200-acre passion fruit farm at Kahului, Maui. Infestations only at trace levels in this farm in previous years. (Miyahira).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) moderate to heavy under bark of 15 kiawe trees in Pearl City, Oahu; 580 larvae collected in 2 man-hours. (Otsuka, Kumashiro).

Beneficial Insects - Nymphs and adults of a THRIPS (Liothrips urichi) moderate, 10-20 per foot-long terminal of Clidemia hirta, at Palolo and Waiahole Forest Reserves, Oahu. (Kashiwai, Otsuka). Larvae and adults of a GALL FLY (Procecidochares utilis) heavy on Maui pamakani (Eupatorium glandulosum) along roadsides at Haleakala, elevation 6,000 feet, and Ulupalakua, elevation 2,000 feet, on Maui. (Miyahira et al.).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - In Yakima area of Yakima County, problems increased due to delayed timing of control applications. Controls satisfactory where applications well timed and effective materials used. (Gregorich).

APPLE MAGGOT (Rhagoletis pomonella) - NEW HAMPSHIRE - Adults laying eggs; controls applied. (Bowman, Aug. 25).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - WASHINGTON - Crawlers general on apples despite dormant spray and 2 applications against crawlers in Yakima area, Yakima County. (Gregorich).

BLACK PECAN APHID (Tinocallis caryaefoliae) - TEXAS - Heavy on pecan trees in Nueces Canyon area of Edwards County. Light in Brazos and Burleson Counties. (Neeb, Green).

CITRUS

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - This species and Chrysomphalus aonidum (Florida red scale) severely infested all 650 Meyer lemon plants at nursery in Baker County. (Fla, Coop. Sur.).

ORNAMENTALS

A GEOMETRID MOTH (Coryphista meadii) - NEVADA - Larval infestations caused heavy damage to barberry in Reno and Sparks, Washoe County. (Bechtel).

A LACE BUG (Stephanitis takeyai) - PENNSYLVANIA - Adults heavy on one Pieris japonica plant at Lake Ariel, Wayne County. Determined by E.E. Simons. This is a new county record. (Andreychik, August 15).

EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Several adults collected near residence in Benzonia, Beulah County by N. Sleeper. Determined by I.J. Cantrall. This is a new county record. (Sauer).

A SPIDER MITE (Eurytetranychus buxi) - PENNSYLVANIA - Adults collected on Buxus sp. in Harrisburg, Dauphin County, July 26 by R. Hill. Determined by R. Lehman. This is a new State record. (Hill).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Two localized infestations seen on pine trees in Mobile and Conecuh Counties. Infestations followed lightning damage to one tree in Mobile County and trees along U.S. Highway I-65 near Evergreen, Conecuh County, following logging operation. (Kilpatrick et al.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ALABAMA - Infested numerous pine trees on lawns and in timberland following damage by lightning, construction equipment, and other damage in Mobile and Baldwin Counties. (Kilpatrick, Turner).

PINE BUTTERFLY (Neophasia menapia) - OREGON - Adults uncommon throughout most of area in portions of Deschutes, Klamath, Lake, and Marion Counties. None seen along west slope below Santiam Pass, Marion County, where numerous past few years. (Westcott).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - SOUTH DAKOTA - Larvae collected from Pinus ponderosa 3.5 miles west of Lemmon, Perkins County, June 6 by M.E. McKnight and A.D. Tagestad, and 3.5 miles north of Olsonville, Todd County, June 16 by M.E. McKnight and June 23 by J.D. Stein. Determined by J.D. Stein. These are new county records. (McKnight).

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Moderate to heavy in Mathews and Gloucester Counties, and moderate in Surry, Sussex, and Isle of Wight Counties on sourwood, persimmons, and pecans. (Allen, May). NEW MEXICO - Light to heavy on cottonwood, apple, and other shade trees. Many trees almost completely defoliated. (N.M. Coop. Rpt.).

AMERICAN DAGGER MOTH (Acronicta americana) - NEVADA - Larval infestations caused heavy damage to boxelder in Reno and Sparks, Washoe County. (Hilbig et al.).

ELM LEAF BEETLE (Pyrrhalta luteola) - ARKANSAS - Chinese elms in all areas, especially in northwest, show effects of heavy feeding. Practically all leaves brown. Infestations of this type for several consecutive years may result in loss of some trees. (Boyer).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Infested Chinese elm trees at rate of 95 per limb at Poway, San Diego County. (Cal. Coop. Rpt.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 4,936 confirmed cases reported in continental U.S. during period August 20-26 as follows: Texas 4,700; New Mexico 63; Arizona 109; Oklahoma 64. Total of 593 cases confirmed in Mexico. Number of sterile flies released in U.S. this period totaled 179,468,000 as follows: Texas 155,378,000; New Mexico 4,910,000; Arizona 16,360,000; California 600,000; Oklahoma 2,080,000; Arkansas 140,000. Total of 24,780,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - OHIO - Heaviest in Coshocton and Tuscarawas Counties. Up to 40+ per face on Guernsey cattle, and up to 50+ per face on Herefords. Caused extreme annoyance to these animals, tearing and streaking common. (Fox). KENTUCKY - Ranged 10-15 per animal on cattle in Union County. Incidence of pinkeye higher than in past years. (Brown, Barnett). GEORGIA - Annoyed beef cattle in Meriwether County. This is a new county record and the southernmost occurrence in State to date. (Willis et al.).

HORN FLY (Haematobia irritans) - OHIO - Up to 200-500 per side on beef cattle in Tuscarawas and Carroll Counties. (Box). MISSISSIPPI - Moderate to heavy in 6 herds in Warren County; light to moderate on 200 cattle in Amite County; 150+ per head on 100 Hereford cattle in Oktibbeha County. (Robinson). TEXAS - Increased on cattle across Trans-Pecos area; ranged 100-500 per animal. Increased throughout Panhandle. Decreased on cattle in south central area. (Neeb et al.).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Heavy in southern counties. Annoyance to dairy cattle severe in Columbia County, light in Chippewa County. Annoyance to man heaviest in recent years in southern counties. (Wis. Ins. Sur.).

MOSQUITOES - RHODE ISLAND - Biting by Culex pipien pipiens heavy in Washington County. (Field). KENTUCKY - Mosquitoes increased along Ohio River; controls applied. (Barnett). MINNESOTA - Light trap catches of mosquitoes showed substantial decrease from preceding period, nuisance levels also decreased. Egg diapause beginning with shorter days. (Minn. Pest Rpt.). UTAH - Mosquitoes annoying in several Box Elder County communities from Perry through Fielding and at Locomotive Springs. Continued annoying in Allen Canyon and Randolph Meadows areas in Rich County. (Knowlton).

BENEFICIAL INSECTS

A LADY BEETLE (Stethorus picipes) - WASHINGTON - Increased generally on apples in Yakima area of Yakima County where Tetranychus mcdanieli (McDaniel spider mite) present. (Gregorich).

BRACONIDS (Aphidius spp.) - WASHINGTON - Very abundant in alfalfa infested with Acyrtosiphon pisum (pea aphid) in Royal Slope area of Grant County in Columbia Basin and in Pasco and Wallula area of Franklin and Walla Walla Counties. (Halfhill).

LACEWINGS (Chrysopa spp.) - WASHINGTON - C. californica and Chrysopa spp. abundant in fruit orchards around Wenatchee, Chelan County. (Anthon).

PHYTOSEIID MITES - WASHINGTON - Zetzellia mali and Metaseiulus occidentalis increased generally where Tetranychus mcdanieli (McDaniel spider mite) infested apples in Yakima area, Yakima County. (Gregorich).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Infested area enlarged to 71 city blocks in Delano, Kern County. All but one property occurs east of U.S. Highway 99. Mulberry only host recorded. (Cal. Coop. Rpt.).

GRASSHOPPERS - WISCONSIN - Populations increased, due mostly to heavier numbers of adults and to larger nymphs. Counts heaviest in southern Grant, southeastern Rock, and southwestern Walworth Counties. Mostly Melanoplus femurrubrum and concentrated in fence rows, along roadsides, on road surfaces, and in older or recently cut alfalfa fields. Ranged 15-45+ per square yard; feeding on crops minimal. Damage to soybeans and corn expected to increase. M. differentialis mostly adults in these areas; some severe damage to corn and related crops in few areas in western Dane County. About 2 per plant noted throughout field of field corn in Rock County; field of sweet corn in northern part of county treated. Grasshoppers heavy enough in field of dent corn in southern Grant County that marginal 5 rows brown. (Wis. Ins. Sur.). SOUTH DAKOTA - M. bivittatus (40 percent), M. differentialis (40 percent), and M. femurrubrum (20 percent) infested 80-acre alfalfa field near Sturgis, Meade County. Counts ranged 8-10 per square

yard in one-half of field, 15-20 per square yard in remainder. Controls applied. (Jones). NEBRASKA - Melanoplus spp. damaged border rows of corn, grain sorghum, and soybeans in Dodge, Burt, and Thurston Counties. Defoliated up to 80 percent of outer 4-6 rows in some cornfields. Ranged up to 20 per square yard in waste areas and roadside ditches. (Berogan). KANSAS - M. differentialis adults caused some foliar damage to some pines grown for Christmas trees in nursery in Pottawatomie County. (Bell). NEW MEXICO - Moderate in grain sorghum in Chaves County. (N.M. Coop. Rpt.).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Active in many areas of Washington and Providence Counties. (King, Field). INDIANA - Adults trapped at several locations July 27 in Green and July 31 in Dubois Counties by R. Chandler. Determined by J.M. Kingsolver. These are first specimens taken in these counties and are to be considered as interceptions until evidence of infestation is found. (PP). IOWA - Adult trapped near Waterloo airport, Black Hawk County, by R. Larson July 28. Adult trapped near West Branch, Cedar County, by D.B. Showman August 3. Determined by J.L. Kingsolver. Black Hawk County collection is first time this pest trapped in State, and both are considered to be interceptions until evidence of infestation is found. (PP). MINNESOTA - Two beetles taken in 2 traps August 24 by S. Lentz; traps located in 2 railroad switching yards about 4 miles apart in Minneapolis, Hennepin County. Determined by J.M. Kingsolver. (Minn. Pest Rpt.). These will be considered as regulatory incidents until evidence of infestation is found. (PP).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Infested bolls ranged 5-25 percent across El Paso County; ranged 8-50 percent in Pecos and Reeves Counties, with few isolated fields having 65-80 percent infested bolls. Infested bolls ranged 3-8 percent in Glasscock, Midland, and Martin Counties. Moths taken in hexalure traps in Upton County ranged 15-51 per trap. (Neeb). NEW MEXICO - Generally light in cotton in southern Dona Ana County. (Hare). ARIZONA - Average boll infestations 6-8 percent in Yuma County cotton fields. Increased in Safford area with many more fields placed on spray schedule in Graham County. (Ariz. Coop. Sur.). CALIFORNIA - Single nonsterile moth taken in trap in Old River and one in Mettler Station, Kern County. This brings season's total to 7 nonsterile moth collections. Sterile drops continued at increased rate. (Cal. Coop. Rpt.).

WESTERN GRAPELEAF SKELETONIZER (Harrisinia brillians) - CALIFORNIA - Additional properties and blocks added to infestation in San Jose, Santa Clara County; now involves 121 city blocks. Previous infestations under treatment or survey in El Dorado, Yolo; Placer, Sacramento, Siskiyou, and Fresno Counties remain negative. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - SOUTH CAROLINA - G. leucoloma striatus collected from aster in parking area of restaurant in Barnwell, Barnwell County, August 3 by P.W. Langford. LOUISIANA - G. leucoloma fecundus collected from goldenrod on railroad property at Joyce, Winn Parish, August 8 by L.L. Sandoz. Determined by V.H. Owens. Confirmed by R.E. Warner. These are new county and new parish records. (PP).

LIGHT TRAP COLLECTIONS

State	Location	Temp., F.	Humidity, %	Wind, m.p.h.	Wind Dir.	Time of Day	Light	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30								
FLORIDA	Gainesville 8/25-31						BL	Blattella germanica	1																																					
								Spodoptera ornithogalli																																						
								Spodoptera frugiperda																																						
								Spodoptera eximia																																						
IOWA	Beaconsfield 8/18-24						BL	Blattella germanica	366																																					
								Spodoptera frugiperda	22																																					
								Spodoptera ornithogalli	110																																					
KANSAS	Garden City 8/28,30						BL	Blattella germanica	24																																					
								Spodoptera frugiperda	4																																					
								Spodoptera ornithogalli	11																																					
								Spodoptera eximia	1																																					
KANSAS	Hawatha 8/28						BL	Blattella germanica	4																																					
								Spodoptera frugiperda	11																																					
								Spodoptera ornithogalli	1																																					
KANSAS	Wichita 8/30						BL	Blattella germanica	4																																					
								Spodoptera frugiperda	1																																					
KENTUCKY	Bowling Green 8/24,29						BL	Blattella germanica	8																																					
								Spodoptera frugiperda	7																																					
								Spodoptera ornithogalli	340																																					
								Spodoptera eximia	529																																					
MICHIGAN	Adrian 8/23-29						BL	Blattella germanica	24																																					
								Spodoptera frugiperda	286																																					
								Spodoptera ornithogalli	21																																					
MISSISSIPPI (County)	Washington 8/25-31						2BL	Blattella germanica	1																																					
								Spodoptera frugiperda	1																																					
MISSOURI	Portageville 8/25-31						BL	Blattella germanica	11																																					
								Spodoptera frugiperda	11																																					
NEBRASKA	North Platte 8/31						BL	Blattella germanica	8																																					
								Spodoptera frugiperda	34																																					
								Spodoptera ornithogalli	34																																					
NEW JERSEY	Haltown 8/24-30						BL	Blattella germanica	213																																					
								Spodoptera frugiperda	11																																					
								Spodoptera ornithogalli	38																																					
								Spodoptera eximia	64																																					
NEW JERSEY	Hamonton 8/24-30						BL	Blattella germanica	245																																					
								Spodoptera frugiperda	17																																					
								Spodoptera ornithogalli	137																																					
NEW JERSEY	Seabrook 8/24-30						BL	Blattella germanica	23																																					
								Spodoptera frugiperda	178																																					
OHIO	Wooster 8/25-31						BL	Blattella germanica	88																																					
								Spodoptera frugiperda	2																																					

LIGHT TRAP COLLECTIONS

	Temperature (Fahrenheit)	Precip- itation (Inches)	Type of light	Moths		Beetles		Diptera		Hymenoptera		Lepidoptera		Coleoptera		Dermatophy-		Arachnida		Miscellaneous		Total
				Spodopora	Others	Spodopora	Others	Spodopora	Others	Spodopora	Others	Spodopora	Others	Spodopora	Others	Spodopora	Others	Spodopora	Others	Spodopora	Others	
OREGON (County)																						
Lane 8/25-30			BL	1																		
Marion 8/24-30			BL	5																		
Multnomah 8/24-30			BL																			
PENNSYLVANIA (District)																						
Central 8/22-30			BL	3	15																	
Southeast 8/22-30			BL	26	14																	
Southwest 8/22-30			BL	3																		
SOUTH DAKOTA (County)																						
Brookings 8/22-25			BL	2		14																
TENNESSEE (County)																						
Dyer 8/25-9/1			BL	22	1			10	2	21												
Franklin 8/25-9/1			BL					1	1	12												
Madison 8/25-9/1			BL	3	1			3	2	7												
TEXAS																						
Waco 8/31			BL	32				72		108												
VIRGINIA																						
Holland 8/23-25			BL	7																		
Montgomery 8/24-30			BL	4						6		40										
Warsaw 8/23-29			BL	4								34										
WISCONSIN																						
Hartford 8/22-28			BL	1						2												
Lancaster 8/21-27			BL																			
Mazomanie 8/23-29			BL																			

DETECTION

New State Records - A CHRYSOMELID BEETLE (Galeruca rudis) - SOUTH DAKOTA - Harding County. (p. 599). A SPIDER MITE (Eurytetranychus buxis) - PENNSYLVANIA - Dauphin County. (p. 604).

New County and Parish Records - BANDEDWING WHITEFLY (Trialeurodes abutilonea) ALABAMA - Baldwin, Escambia (p. 601). EUROPEAN CORN BORER (Ostrinia nubilalis) KANSAS - Trego (pp. 598-599). EUROPEAN EARWIG (Forficula auricularia) MICHIGAN - Beulah (p. 604). EUROPEAN PINE SAWFLY (Neodiprion sertifer) SOUTH DAKOTA - Perkins, Todd (p. 605). FACE FLY (Musca autumnalis) GEORGIA - Meriwether (p. 605). A LACE BUG (Stephanitis takeyai) PENNSYLVANIA - Wayne (p. 604). WESTERN CORN ROOTWORM (Diabrotica virgifera) MICHIGAN - Barry, Kent, Ionia, Eaton, St. Joseph (p. 598). WHITEFRINGED BEETLES (Graphognathus spp.) SOUTH CAROLINA - Barnwell. LOUISIANA - Winn (p. 607).

Weather of the week continued from page 596.

Plains. As the weekend approached, thunderstorms were widespread from the upper Great Lakes to the southern Great Plains. Also, a tropical depression was shaping up off the Carolina coast and a low was forming in the eastern part of the Gulf of Mexico. A cold front pushed into the northern Great Plains as the weekend approached. The leading edge of cold air set off showers and thunderstorms. Light rains, 2 to 4 inches in 24 hours, fell in east-central Kansas Friday and Saturday causing substantial flooding along Gypsum Creek and Turkey Creek and tributaries of the lower Smoky Hole River. Flooding also occurred in south-central New Mexico due to heavy showers in that area. Meanwhile, tropical storm Carrie was dumping heavy rainfall in eastern Massachusetts -- 8 inches southwest of Hyannis Port and over 5 inches at Chatham in 6 hours. Weekly totals at spots in Massachusetts exceeded 10 inches.

TEMPERATURES: High pressure extending from California to the Appalachians and from the Great Lakes to the Gulf of Mexico early in the week brought comfortable temperatures and lower relative humidity to much of the Nation. Onshore breezes cooled the Pacific Northwest. Lewiston, Idaho, registered 102 degrees Monday but no higher than 84 degrees Wednesday. Hot, muffy air still covered the South and East. At midweek, a cold front pushed from Canada across the Great Lakes region. It brought cooler, drier air to the Northeast but oppressive summer heat continued in the South. Pleasant weather followed the frontal passage as it moved southward and eastward. Another front pushed into the northern Great Plains as the weekend approached. Temperatures fell into the 30's in northern Minnesota and below freezing in the central Rockies. Afternoon temperatures in the 60's were common Thursday and Friday over the northern Great Plains after the frontal passage. Cool air spread southward and eastward bringing a touch of autumn to much of the Nation. Elkins, West Virginia, recorded 54 degrees Sunday morning. This is 12 degrees below normal. Parts of the central Great Plains averaged 5 to 11 degrees cooler than normal.

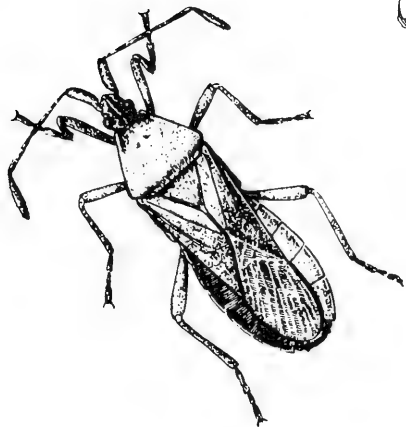
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C77 Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

First CORN EARWORM moths of season taken in southeastern Lower Michigan and in Willamette Valley of Oregon. (p. 613).

SPOTTED ALFALFA APHID ranged light to heavy on alfalfa in Arkansas Valley of Colorado. (p. 614).

LESSER CORNSTALK BORER ranged light to heavy on dryland peanuts in central Texas, some damage reported in Alabama. (p. 617).

BOLL WEEVIL moderate to heavy in most cotton in Rolling Plains of Texas. (p. 618).

GREEN PEACH APHID heavy on potatoes in northwest Oregon and in central Wisconsin. (pp. 619-620).

PECAN WEEVIL and PECAN NUT CASEBEARER damaged pecans in north-central and central Texas. (p. 621).

FACE FLY in Maryland and Wisconsin and STABLE FLY in Wisconsin annoyed dairy cattle. (pp. 622-623).

Detection

ALFALFA LEAF BLOTCH-MINER reported for first time in Maine. (p. 616).

For new county records see page 620.

Special Reports

Khapra Beetle. Additional Selected References 1967-1969. (pp. 628-630).

The name of the Economic Insect Survey and Detection Staff has been changed to the Pest Survey and Technical Support Staff effective September 3. This name change is reflected on the inside of the front cover.

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

CONTENTS

Special Insects of Regional Significance.....	613
Insects Affecting	
Corn, Sorghum, Sugarcane....	614
Small Grains.....	615
Turf, Pastures, Rangeland....	615
Forage Legumes.....	616
Soybeans.....	617
Peanuts.....	617
Cotton.....	618
Tobacco.....	619
Sugar Beets.....	619
Miscellaneous Field Crops.....	619
Potatoes, Tomatoes, Peppers.....	619
Cole Crops.....	620
General Vegetables.....	620
Deciduous Fruits and Nuts.....	621
Ornamentals.....	621
Forest and Shade Trees....	621
Man and Animals.....	622
Stored Products.....	623
Detection.....	620
Corrections.....	620
Beneficial Insects.....	623
Federal and State Plant Protection Programs.....	624
Hawaii Insect Report.....	625
Light Trap Collections.....	626
Khapra Beetle. Additional Selected References 1967-1969.....	628

WEATHER OF THE WEEK ENDING SEPTEMBER 11

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Cold fronts pushing across the eastern two-thirds of the Nation accounted for most of the precipitation last week. Showers and thunderstorms, some heavy, occurred from the southeastern Great Plains to the middle and southern Atlantic coast Monday afternoon September 4. Lighter more scattered showers fell west of the Rocky Mountains and from Minnesota to Upper Michigan. A storm centered over the Dakotas produced windy weather over the Dakotas and western Nebraska. Light to heavy showers fell in the Texas Panhandle, northeastern Kansas, nearby parts of Nebraska, Iowa, and Missouri. Heavy rains fell in Illinois and Indiana Thursday and early Friday. Weekend rains were mostly associated with a cold front that stretched from Texas to New England. Some heavy thundershowers fell over the central Great Plains and the middle Mississippi River Valley. Weekly totals ranged widely within short distances; some places from none to 2 inches or more within 20 miles. Some of the heaviest rains fell in western Iowa east of Council Bluffs.

TEMPERATURE: Cold fronts moving southward from Canada into the northern Great Plains then continuing to the Gulf of Mexico brought cool, pleasant weather to central and eastern portions of the Nation. Minimum temperatures in the 30's and 40's were common over the northern Great Plains. The mercury dropped to freezing or lower in the higher Rocky Mountains. Big Piney, Wyoming, registered 25 degrees Thursday morning. Moist, tropical air pushed northward from the Gulf of Mexico. Early morning temperatures along the gulf coast were generally in the 70's and afternoon readings reached the 90's. Weather of the week continued on page 625.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - DELAWARE - Adults continued to increase in blacklight traps in Sussex County; averaged 19 per night for 5 locations. (Burbutis, Kelsey). MARYLAND - Larvae caused light to moderate damage in unsprayed tomato plantings in Wicomico and Somerset Counties week ending September 1. (U. Md., Ent. Dept.). VIRGINIA - Larvae remained very light across soybean belt. (Allen, Egan). NORTH CAROLINA - Most larvae in late instars in 10 soybean fields checked in Robeson and Cumberland Counties. Damaged pods showed pupation occurred in most fields. (Hunt). SOUTH CAROLINA - Larvae heavy on soybeans Statewide. Damage economic in areas where no controls applied. (Thomas). ALABAMA - Averaged one larva per 2 row feet in large soybean field at Roba, Macon County; feeding on pods. Controls being considered due to large numbers of H. zea, Plathypena scabra (green cloverworm), Anticarsia gemmatalis (velvetbean caterpillar), loopers, and other leaf feeders infesting soybeans. (Brown et al.).

MISSISSIPPI - H. zea averaged 1 per 3 row feet in 1,500 acres and 1.25 per row foot in 2,000 acres of soybeans in Quitman County. (Thompson). Larvae ranged up to 2 per head in late-planted grain sorghum in Oktibbeha County. (Robinson). TEXAS - On peanuts, populations as leaf feeders generally increased rapidly in all areas; estimated at about 70,000 per acre at DeLeon, Comanche County. Populations at Tarleton Experiment Station averaged 8 larvae per row foot. Virus activity increased. (Hoelscher). ARKANSAS - Survey of 26 soybean fields in southeast and east-central areas negative in 16 fields. Highest count in 10 infested fields slightly less than one larva per row foot. Infestations declined slightly; any possible general threat believed over this year. Some economic infestations can occur in very late-planted soybeans which should still be watched. (Boyer).

MICHIGAN - First H. zea moths of season taken in blacklight traps in Lenawee and Monroe Counties September 1. This is 14 days later than usual. (Sauer). NORTH DAKOTA - Light on sweet corn in Cass County week ending September 1. (Frye). CALIFORNIA - Infested corn generally in Yolo County. (Cal. Coop. Rpt.). OREGON - First moths of season taken in blacklight traps in Willamette Valley August 31 through September 6. Counts very low. (See light trap collections page 626). (Penrose).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Ranged 50-2,000 per plant on late sorghum in Caddo County. (Okla. Coop. Sur., Sept. 1). CALIFORNIA - Heavy on milo plantings at Lodi, San Joaquin County. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Still heavy in some late sorghum in Washita and Caddo Counties. Parasitism light to moderate. (Okla. Coop. Sur., Sept. 1). NEBRASKA - Populations in grain sorghum in Lincoln County beginning to increase but still at low level. In scattered fields near North Platte, up to 20 percent of plants infested with 2-3 small colonies. Little parasitism seen. (Campbell). SOUTH DAKOTA - Very heavy on early planted winter wheat in central and southern Lyman County and in northern and central Tripp County. Ranged 2-7 winged forms and 10-70 nymphs on seedlings in 2-leaf stage. Infestation 100 percent in all fields surveyed. Heavy damage expected unless immediate controls applied. (Jones, Kantack).

POTATO LEAFHOPPER (Empoasca fabae) - OKLAHOMA - Heavy and wide-spread in peanuts in Caddo and Washita Counties past 3 weeks. Caused yellowing of leaves, some fields treated. (Okla. Coop. Sur.). INDIANA - Adults noneconomic in central district alfalfa. Most alfalfa 11-18 inches tall. (Meyer). OHIO - Beginning to decline statewide with cooler weather. Counts of 1-1.5 per sweep still found in alfalfa in Clinton, Madison, and Pickaway Counties. Noneconomic in hay in Meigs, Fayette, Washington, Scioto, and Pike Counties. (Fox). MARYLAND - Adults ranged 30-350 per 10 sweeps in alfalfa in Frederick, Montgomery, Carroll, Baltimore, and Harford Counties. Damage remained light to moderate with 10 percent yellowing in most fields. Populations in 200 acres of late snap and lima bean plantings in Frederick and Carroll Counties below economic levels. (U. Md., Ent. Dept., Sept. 1).

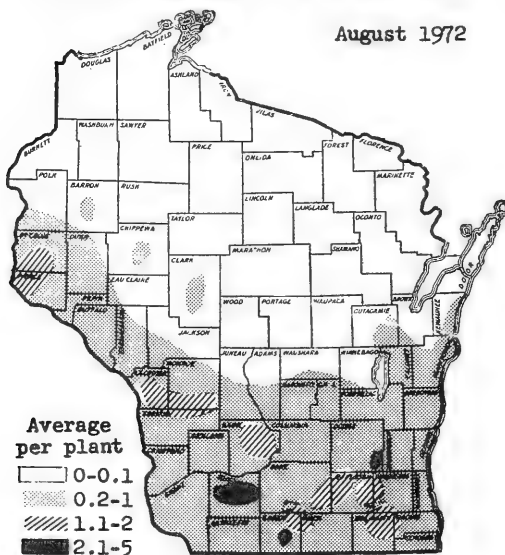
SPOTTED ALFALFA APHID (Therioaphis maculata) - COLORADO - Found in all alfalfa checked in Arkansas Valley; greatly reduced in Prowers County, ranged light to heavy in several fields in Pueblo, Crowley, Otero, and Bent Counties. Ranged 0-3,000 per 100 sweeps. (Schweissing). ARKANSAS - Survey negative past 14 days in northwest area. Buildup usually occurs this time of year when rainfall is low, as has been situation past several weeks. (Boyer).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - MONTANA - D. longicornis (northern corn rootworm) adults ranged 1-2 per corn plant in Prairie County. (Pratt). NORTH DAKOTA - D. virgifera (western corn rootworm) adults averaged 26 (ranged 5-70) per 100 corn plants in Richland County fields and 20 per plant in one Dickey County field. No lodging seen. (Kaatz, August 25). WISCONSIN -

Corn Rootworm Population in Wisconsin

August 1972



Diabrotica spp. 1972 adult survey showed large decrease compared to 1971 population; adults averaged 10,334 per acre in 1972 compared to 25,647 per acre in 1971. D. virgifera declined more than D. longicornis. In fields surveyed, D. longicornis comprised 54 percent of population, D. virgifera about 45 percent, and D. undecimpunctata howardi (southern corn rootworm) less than 0.5 percent. Despite decline, D. virgifera comprised 50+ percent of population in Grant, Lafayette, Green, Rock, Crawford, Richland, Dane, Vernon, and Monroe Counties in southern area and in Pepin, Dunn, Pierce, and Polk Counties in northwest area. (Wis. Ins. Sur.).

MICHIGAN - D. virgifera (western corn rootworm) adults collected in field corn in Eagle Township, Clinton County, September 1 and in 2 cornfields in Moorland Township, Muskegon County, September 7 by D. Kaiser. Determined by R.J. Sauer. These are new county records. D. virgifera and D. longicornis (northern corn rootworm) adult counts decreasing; those still in corn deep in silk canal feeding on soft kernels at tips of ears. (Ruppel). MARYLAND - D. longicornis (northern corn rootworm) adults in Frederick, Carroll, and Baltimore Counties caused 10-30 percent desilking, mostly after pollination; grain losses will be light. Adults along edges of cornfields in alfalfa and weeds ranged 2-10 per sweep. Light injury due to adult feeding seen in other areas of State. (U. Md., Ent. Dept., Sept. 1).

FALL ARMYWORM (Spodoptera frugiperda) - MARYLAND - Third and fourth instar larvae found in 10 percent of 800 acres of late-planted corn in Frederick County. Damage below economic thresholds. (U. Md., Ent. Dept. Sept. 1). SOUTH CAROLINA - Egg masses averaged one per plant in all areas where sweet corn planted. (Thomas). OKLAHOMA - Built up, with 50-60 percent of late sorghum plants infested in Washita County. (Okla. Coop. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Adults averaged 15 per night in blacklight traps at 5 locations in Sussex County. (Burbutis, Kelsey). KANSAS - Heavy in Sheridan County cornfield; large percentage of ear shanks infested, some ear drop evident. Second-generation moth flight light in Miami County field. (Bell).

SORGHUM WEBWORM (Celama sorghiella) - MISSISSIPPI - Larvae ranged up to 10 per head in experimental sorghum in Oktibbeha County, ranged 1-5 per head in sorghum grown for ensilage in Noxubee County. Infested 25 percent of heads in Chickasaw County sorghum field. (Betterton).

BANKS GRASS MITE (Oligonychus pratensis) - COLORADO - Still found in corn in all areas of Arkansas Valley but counts declined. (Schweissing). TEXAS - Widespread on grain sorghum in Knox County. (Boring).

SMALL GRAINS

HESSIAN FLY (Mayetiola destructor) - KANSAS - Loss to 1972 wheat crop estimated at 570,240 bushels valued at \$889,512. Much less than 1971 loss of 3,031,000 bushels valued at \$3,970,650. Infestations in 1972 heaviest in northeast district, lightest in southwest district. (Bell).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - SOUTH CAROLINA - Infested Coastal Bermuda grass in several central counties. (Thomas). MISSISSIPPI - Continued heavy in temporary pasture and Coastal Bermuda grass hay in Rankin County. (Barker). TEXAS - Light to moderate on lawns and grasses in Wilbarger County. (Boring).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - NEBRASKA - One bluegrass sod field near Omaha, Douglas County, with 86 adults and 3 larvae in 5 square feet noted. (Kindler).

WALKINGSTICK (Diapheromera femorata) - NEW MEXICO - Defoliated creosote bushes in southern Dona Ana and Otero Counties. (N.M. Coop. Rpt.).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - OHIO - Varied from less than one to 3.5 per sweep in hay in southeast and south-central districts. Parasites and diseases not yet exerting control. Damsel bugs increased from 1-10 per 50 sweeps in early August to about one per sweep currently. (Fox). INDIANA - Maximum count 2 per sweep in alfalfa sampled in central districts. (Meyer). WISCONSIN - Increased gradually in alfalfa; counts per sweep ranged 6-12 in southwest counties, 8-10 in central area. (Wis. Ins. Sur.). COLORADO - Ranged 0-1,500 per 100 sweeps in Arkansas Valley alfalfa. (Schweissing).

ALFALFA CATERPILLAR (Colias eurytheme) - IDAHO - Adults heavy, averaged 30 per square yard in alfalfa fields at Bruneau, Owyhee County. Some treated fields reinfested. (Homan, Aug. 31). NEW MEXICO - Adult flights generally light in Dona Ana County alfalfa, 6-8 per 25 sweeps. (N.M. Coop. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - INDIANA - Larvae averaged 6 per 25 sweeps in central district alfalfa. Only occasional larva parasitized. (Meyer).

GARDEN FLEAHOPPER (Halticus bractatus) - PENNSYLVANIA - Adults caused moderate to heavy damage on forage legumes in areas throughout 4 fields in Northampton County and in 2 fields in Bucks County. (Valley, Wheeler).

MEADOW SPITTLEBUG (Philaenus spumarius) - KENTUCKY - Increased in alfalfa in northern areas. Adults averaged 136 per 100 sweeps in Mason County. (Barnett).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - MISSOURI - Ranged 0-41 per 10 sweeps in southeast area alfalfa; girdled plants ranged 0-6 percent. Discoloration easily seen in heavily infested fields. (Munson).

BLISTER BEETLES (Epicauta spp.) - KENTUCKY - Although decreasing, populations still moderate to heavy in alfalfa and on other hosts in Pendleton, Owen, Mason, and Grant Counties. (Barnett). ARKANSAS - E. pennsylvanica (black blister beetle) and E. fabricii (ashgray blister beetle) ranged 100-150 per 100 sweeps in alfalfa on experiment station in Washington County. E. pennsylvanica outnumbered E. fabricii about 3 to 1. One plot of breeding material grown for seed to be treated. (Boyer).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - MAINE - Adults collected from alfalfa at Buxton, York County, by D.W. Skinner July 28. This is a new State record. Also collected from alfalfa in Androscoggin, Cumberland, Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, and Waldo Counties. These are new county records. All determinations by G.C. Steyskal. (Gall).

A CECIDOMYIID MIDGE (Cecidomyia texana) - TEXAS - Heavy on guar in Hardeman County. Large numbers of beneficial species present. (Boring).

SOYBEANS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Non-economic in most fields in Talbot, Queen Annes, Dorchester, Wicomico, Somerset, and Worcester Counties; egg masses ranged 1-2 and larvae 1-20 per 50' row feet, with newly emerged adults laying eggs week ending September 1. Several currently heavy infestations needed controls in Somerset County. Populations and damage well below 1971 heavy levels. (U. Md., Ent. Dept.).
VIRGINIA - Buildup continued in Coastal Plain area, but most infestations still below economic levels. (Allen, Egan).
KENTUCKY - Larvae averaged 52 per 360 row feet in Henderson County. (Barnett, Raney).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MISSISSIPPI - Damaged some pods in late maturing soybeans in Oktibbeha County. (Robinson).

GREEN CLOVERWORM (*Plathypena scabra*) - MARYLAND - Remained below economic levels. Ranged 2-3 per 3 row feet in heaviest infested fields in Worcester and Wicomico Counties. (U. Md., Ent. Dept.).
KENTUCKY - Larvae averaged 66 per 360 row feet in Henderson County and 23 per 360 row feet in Hickman County. (Barnett, Raney).
INDIANA - Larvae present in most fields in central districts south of Indianapolis, but noneconomic. (Meyer).
ARKANSAS - Building up on soybeans across State. (Thomas).

SOYBEAN LOOPER (*Pseudoplusia includens*) - LOUISIANA - Defoliation ranged 50-80 percent on 100+ acres of soybeans in Franklin Parish, September 5. Economic at 40 percent defoliation. (Coburn, St. Cloud).

BEET ARMYWORM (*Spodoptera exigua*) - MISSISSIPPI - Heavy in spots in 2,000 acres of soybeans in Quitman County. (Thompson).

STINK BUGS - LOUISIANA - Mixed nymphal and adult populations of *Nezara viridula* (southern green stink bug) and *Acrosternum hilare* (green stink bug) ranged 1-7 per 3 row feet on 15 acres of soybeans for oil in Grant Parish. Economic at 1 per 3 row feet. Controls to be applied. (Coburn, St. Cloud).
KENTUCKY - *A. hilare* averaged 21 per 360 row feet in Hickman County and 13 per 360 row feet in Henderson County. (Barnett, Raney).

PEANUTS

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - TEXAS - Moderate to heavy in dryland peanuts in many fields, especially in sandy soil. Fields in DeLeon area, Comanche County, showed 30 percent infestation with heavy damage. Field reports from Gorman area, Eastland County, showed dryland peanut infestations of 15, 25, 40, and 42 percent. Larval population heavy even where soil moisture adequate. Irrigated peanuts pegging rapidly in Comanche, Eastland, and Erath Counties. (Hoelscher).
ALABAMA - Larvae of *E. lignosellus* and *Graphognathus* spp. (whitefringed beetles) destroyed 90 percent of expected yield in 10-acre field at Cottonwood, Houston County. Adults of both pests also present. *E. lignosellus* destroyed 10 acres in field 3 miles north of Ashford. Damage continued most severe in several years in several acres in Geneva County. (Stephenson et al.).

REDNECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Present in 75-80 percent of terminals in most fields checked in Caddo and Washita Counties; averaged 30 percent in Payne County. (Okla. Coop. Sur.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - TEXAS - Heavy, increased rapidly in two peanut fields in Hill County; killing plants. Controls to be applied. Scattered infestations seen in dryland fields near DeLeon, Comanche County. Populations not increasing rapidly, controls not needed in area. (Hoelscher).

COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Percent puncture squares ranged 0-22 in irrigated cotton in Jackson, Greer, Harmon, and Kiowa Counties. Heavy in some scattered dryland fields. Moderate and building up in Comanche County. Ranged 40-50 percent in treated fields in Caddo and Washita Counties, 1-20 percent in Wagoner County, 1-37 percent in Muskogee County, 1-30 percent in Bryan County, 6-8 percent in Marshall County. (Okla. Coop. Sur.). TEXAS - Ranged moderate to heavy in most cotton fields in Rolling Plains counties near Vernon. Square damage in many fields in area ranged 42-95 percent. Populations ranged 4,000-14,000 weevils per acre in fields of Stonewall, Foard, Fisher, Jones, Cottle, Knox, Young, Hardeman, Tom Green, Runnels, Schleicher, Concho, Kent, and Haskell Counties. (Boring). GEORGIA - Of 800 fields surveyed in Burke County, present in 90 percent and in 50 percent of 800 fields in Dooly County. Percent punctured squares by county: Burke, up to 35 (average 5); Dooly, up to 13 (average 3). Some fields harvested, remainder "cutting out" or in late stages of development. (Barry).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Adult H. zea catches and egg counts increased across mid-State area and fall line. Eggs ranged 40-70 per 100 terminals in mid-State, counts low in upper part of State. (Sparks). GEORGIA - H. zea counts per 100 plants by county: Burke, up to 30 eggs (average 7) and 23 larvae (average 4); Dooly, up to 60 eggs (average 6) and 10 larvae. (Barry). MISSISSIPPI - Mixed population of Heliothis spp., Spodoptera frugiperda (fall armyworm), and S. exigua (beet armyworm) found in late-planted field in Holmes County; about 20 percent of white blooms infested. (Robinson). OKLAHOMA - Percent H. zea damaged squares ranged 0-11 in Jackson, Greer, Harmon, and Kiowa Counties; 1-12 in Wagoner and Muskogee Counties; 4-8 in Marshall County. Percent damaged boll ranged 1-30 in Bryan County; very light in Caddo, Washita, and Payne Counties. (Okla. Coop. Sur.). TEXAS - H. zea moderate to heavy in Knox, Wichita, Baylor, Concho, and Tom Green Counties. Square damage ranged 20-40 percent in most heavily infested fields. Heaviest damage occurred in fields under control programs for several weeks. (Boring).

NEW MEXICO - H. zea light on cotton in Dona Ana County. Beneficial insects exerting control in most areas. (N.M. Coop. Rpt.). ARIZONA - H. zea and H. virescens larvae active in many fields in Pinal and Maricopa Counties. Difficult to control H. virescens, resistance problem present. (Ariz. Coop. Sur.).

CABBAGE LOOPER (*Trichoplusia ni*) - GEORGIA - Medium to heavy in 75 percent of 800 fields in Burke County. Virus disease giving control in some fields; 2 fields totally defoliated. In Dooly County, light to moderate infestations found in 30 percent of 800 fields. (Barry). TEXAS - Ranged light to heavy in spotted areas in Knox County. Populations seem to be decreasing. (Boring).

BEE T ARMYWORM (*Spodoptera exigua*) - GEORGIA - Light to heavy in 50 percent of 800 fields in Burke County and light to medium in 75 percent of 800 fields in Dooly County. (Barry).

BANDED WING WHITEFLY (*Trialeurodes abutilonea*) - MISSISSIPPI - Heavy in 150 acres in Rankin County. (Barker).

TOBACCO

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - OHIO - Adults caused serious damage to plants ready for harvest in Gallia County; damage moderate to severe on every leaf in 3 fields. Damage also seen on every leaf in 3 acres of tobacco in Lawrence County. (Fox). KENTUCKY - Average adult counts per leaf by county: Robertson 2.3, Scott 2.4, Madison 6.4, Fleming 0.7, Mason 0.5, Nicholas 3, Harrison 1.2. Heaviest damage to tobacco observed in Robertson County. (Barnett).

SUGAR BEETS

A WEEVIL (*Cosmobaris americana*) - WASHINGTON - Previously known in State only at Grandview, Yakima County, on *Atriplex* sp. (saltbush) and on sugar beets. Taken August 24-25 on weeds at several locations in Walla Walla, Franklin, Benton, and Yakima Counties. Collected on weeds September 1 at locations in Benton and Grant Counties. Infestations in sugar beets during 1972 confined to Walla Walla area in Walla Walla County and to Grandview and Toppenish areas in Yakima County. Benton, Franklin, Grant, and Walla Walla are new county records. (Landis).

ZEBRA CATERPILLAR (*Ceramica picta*) - WASHINGTON - Egg masses seasonally heavy on sugar beets at Toppenish, Yakima County. Damage on beets and potatoes expected in 14-21 days. (Landis).

MISCELLANEOUS FIELD CROPS

BANDED SUNFLOWER MOTH (*Phalonia hospes*) - NORTH DAKOTA - Larval averages per 100 heads by county: Traill 45, Grand Forks 123, Cass 105. (Brandvik, Kaatz, September 1).

SUNFLOWER BLOSSOM MIDGE (*Contarinia schulzi*) - NORTH DAKOTA - Up to 48 larvae (averaged 16) per infested head in sunflower fields in Cass and Traill Counties. (Brandvik, Kaatz, September 1).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - OREGON - Significant numbers still trapped in Chalk Butte and Mitchell Butte areas of Malheur County. Growers advised to check late potatoes periodically. (Henninger). Infestations variable, counts ranged 8-600 per 25 bottom leaves at scattered localities west of Wilsonville and north of Sherwood, Washington County, and on Sauvie Island, Multnomah County. Infestations so severe in fields at Wilsonville and Sauvie Island honeydew present over entire plants. Controls with several organic phosphates unsatisfactory. (Collins).

WISCONSIN - Myzus persicae counts heavy in several potato fields in central area; up to 100 per leaf not unusual, but about 50 percent are mummies. Some growers treating specifically for this pest. (Wis. Ins. Sur.).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Larvae infested tomato fruit in Bakersfield, Kern County. Incident low north of Tehachapi Mountains this season. (Cal. Coop. Rpt.).

POTATO SCAB GNAT (Phyxia scabiei) - WASHINGTON - Infested tubers found August 31 near Pasco, Franklin County. This is a new county record. (Hokanson, Landis).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - This species and Spodoptera exigua (beet armyworm) caused problem on lettuce in Dona Ana County. Some fields treated on 4 to 5-day schedule. (N.M. Coop. Rpt.).

GENERAL VEGETABLES

EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Adults collected in commercial greenhouse in Harbor Springs, Emmet County, September 1 by V. Sayan. Determined by R.J. Sauer. This is a new county record. Also collected in home at Charlevoix, Charlevoix County, September 3 by R. Geiken. Present for past 3 years. (Sauer).

DETECTION

New State Record - ALFALFA LEAF BLOTCH-MINER (Agromyza frontella)- MAINE - York County. (p. 616).

New County Records - ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) MAINE - Androscoggin, Cumberland, Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, Waldo (p. 616). ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) WEST VIRGINIA - Grant, Braxton, Roane, Hampshire (p. 622). EUROPEAN EARWIG (Forficula auricularia) MICHIGAN - Emmet (p. 620). A LACE BUG (Stephanitis takeyai) PENNSYLVANIA - Blair, Cambria (p. 621). A LONGHORNED BEETLE (Eburia quadrigeminata) WEST VIRGINIA - Ritchie (p. 622). POTATO SCAB GNAT (Phyxia scabiei) WASHINGTON - Franklin (p. 620). A WEEVIL (Cosmobaris americana) WASHINGTON - Benton, Franklin, Grant, Walla Walla (p. 619). WESTERN CORN ROOTWORM (Diabrotica virgifera) MICHIGAN - Clinton, Muskegon (p. 615).

CORRECTIONS

CEIR 22(35):583 - Line 2: INDIANA - "... Sympiosis viridula ..." should read "... Sympiesis viridula ..."

CEIR 22(36):607 - WESTERN GRAPELEAF SKELETONIZER (Harrisinia brillians) should read (Harrisina brillians).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - TEXAS - Moderate to heavy infestations damaged pecans in Wichita, Young, and Clay Counties. Controls applied in some orchards in these counties. Light to moderate in Baylor County. Damage seen in Stephenville area in Erath County. Activity in excess of economic thresholds. Damage heavy in some areas with many punctured pecans found on ground. (Boring, Hoelscher). OKLAHOMA - Adult emergence heavy from pecans in Payne County week ending September 2; continued at lower rate. Moderate on pecans in Love County. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Infestations on early maturing pecans in Payne County near 100 percent. Very light in later maturing varieties. (Okla. Coop. Sur.).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Caused much damage to pecans in Wilbarger and Baylor Counties. Second and third generations caused heavy damage to pecans in these counties. Heaviest damage seen where effective control of first generation A. caryae not obtained. (Boring).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - All stages severely infested 50 of 1,000 plum trees in nursery at Glen St. Mary, Baker County. (Collins, Aug. 31).

PEARSLUG (Caliroa cerasi) - IDAHO - Late-generation larvae still heavy on numerous untreated cherry and pear trees at Moscow, Latah County. (Gittins).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - Overwintering forms in apple and pear orchards on Western Slope with foliage damage evident. Large populations, mainly overwintering forms, congregating on trunks and scaffold limbs. All stages ranged 50-200 per leaf before end of August. (Bulla).

ORNAMENTALS

A LACE BUG (Stephanitis takeyai) - PENNSYLVANIA - Adults taken on foliage of Pieris japonica in Tyron, Blair County, August 18 by T. Wolf. Adults noted as heavy on single P. japonica in Johnstown, Cambria County, August 29 by T. Wolf. Determined by E.E. Simons. These are new county records. (Kim).

GREEN PEACH APHID (Myzus persicae) - SOUTH CAROLINA - Heavy on terminal branches of ornamental cherry plants in Anderson County nursery. Caused considerable curling of leaves. (McCaskill).

FLORIDA WAX SCALE (Ceroplastes floridensis) - SOUTH CAROLINA - Moderate on hemlocks at Anderson County nursery. Damage light, controls planned. (McCaskill).

FOREST AND SHADE TREES

ELM LEAF BEETLE (Pyrrhalta luteola) - ARIZONA - Almost completely defoliated Chinese elms in Prescott area of Yavapai County. (Ariz. Coop. Sur.). COLORADO - Larvae and adults of second generation caused severe defoliation of Chinese elms in Mesa, Delta, and Montrose Counties. (Bulla). GEORGIA - Caused heavy damage to elms in Houston County. (Dinkins).

A LONGHORNED BEETLE (Eburia quadrigeminata) - WEST VIRGINIA - Adult of this cerambycid collected on black locust at Harrisville, Ritchie County, August 12 by J.P. Szeliga. Determined by J.D. Hacker. This is a new county record. (Hacker).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - WEST VIRGINIA - Adults causing light damage collected from scarlet oak in Grant County September 1 by J.M. Atkins. Also collected from red maple by R.D. Whipkey in Braxton County August 8, pin oak by N. Hedrick in Roane County August 18, and around light by J.D. Hacker in Hampshire County August 22. These are new county records. (W.Va. Ins. Sur.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MARYLAND - Heavily damaged several wood lots, about 100 acres, in Kent County week ending September 1. Damage currently evident in several small loblolly pine plantings in Kent, Talbot, Worcester, and Wicomico Counties. Damage and counts well below 1971 outbreak levels. Some mortality expected in Kent, Queen Annes, and Talbot Counties where rainfall below normal for August. (U.Md., Ent. Dept.).

ORANGESTRIPED OAKWORM (Anisota senatoria) - SOUTH CAROLINA - Larvae fed on oaks in numerous areas of State. Population heavier than 1971; many complaints noted. (Mc Caskill).

WALKINGSTICK (Diaperomera femorata) - OKLAHOMA - Heavy in scattered areas of Ouachita National Forest in Le Flore County. Several oak species and black locust completely defoliated in some areas; some damage noted on elms, wild cherry, and few other trees. (Okla. Coop. Sur.).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 4,921 confirmed cases reported in continental U.S. during period August 27 to September 2 as follows: Texas 4,677; New Mexico 96; Arizona 85; Oklahoma 61; Arkansas 1; Iowa 1. Single case reported in Yell County, Arkansas, on farm in mountainous valley. State personnel sprayed that herd and 21 other herds totaling 2,223 cattle; total of all herds in 9-square-mile area. Total of 868 confirmed cases reported in Mexico. Number of sterile flies released in U.S. this period totaled 171,346,000 as follows: Texas 150,838,000; New Mexico 5,200,000; Arizona 12,378,000; California 600,000; Oklahoma 2,080,000; Arkansas 250,000. Total of 32,660,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MARYLAND - Ranged 20-100 per head on dairy cattle in Frederick, Baltimore, and Harford Counties. Populations still at annoyance levels throughout central area; expected to continue until cooler weather in October. (U. Md., Ent. Dept., Sept. 1). OHIO - Counts very light on cattle in southeastern counties along Ohio River; averaged 7 or less per face. Counts per face on beef cattle by county: Clark 18+, Clinton 12+, Madison 23+. (Fox). KENTUCKY - Adults averaged 9.3 per animal on Hereford cattle in Scott County and 12.8 per animal on mixed breeds of cattle in Harrison County. (Barnett). MISSISSIPPI - Ranged up to 15 per face on beef cattle in Monroe County. (Combs). WISCONSIN - Annoyance to dairy cattle moderate

in portions of Chippewa County. (Wis. Ins. Sur.). NEBRASKA - Ranged up to 14 per head on pastured animals in North Platte River Valley and in canyon herds in vicinity in Lincoln and Keith Counties. (Campbell).

HORN FLY (Haematobia irritans) - MARYLAND - Ranged 200-300 per head in several herds in Frederick and Carroll Counties. Most dairy herds treated, counts ranged 30-100 per head. (U.Md. Ent. Dept., Sept. 1). MISSISSIPPI - Very heavy on herd of 15 mixed beef cattle in Monroe County. Ranged up to about 5,000 per animal. (Combs). TEXAS - Increased on cattle in Rolling Plains area. (Green). OKLAHOMA - Ranged 300-500 per head on cattle in Payne County; moderate in Cleveland County, heavy in Comanche County. (Okla. Coop. Sur.). UTAH - Moderate on Washington County cattle. (Huber).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Moderately annoyed dairy cattle in Columbia, Rock, Chippewa, and Dane Counties; less annoying in Outagamie County. Biting of man continued problem in several localities in southern counties. (Wis. Ins. Sur.). NEBRASKA - Ranged 15-30 per leg on feedlot animals in Lincoln and Keith Counties. Activity decreased due to cool weather. (Campbell).

MOSQUITOES - MINNESOTA - Trap counts in Metropolitan Control District decreased greatly week ending September 1. Natural mortality and cool temperatures main factors. (Minn. Pest Rpt.). UTAH - Still annoying in Bloomington and St. George areas of Washington County and in several areas of Tooele and Box Elder Counties. (Knowlton, Nuber).

SOUTHERN FIRE ANT (Solenopsis xyloni) - ARIZONA - Stinging incidents reported at Tucson, Pima County. Medical treatments necessary in some cases. (Ariz. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - TENNESSEE - This vector of Rocky Mountain spotted fever still heavy in western area. Three cases recently reported in Hardeman County. (Locke).

EAR TICK (Otobius megnini) - OKLAHOMA - Ranged 10-20 per ear in cattle herd checked in Adair County. (Okla. Coop. Sur.).

A COMBFOOTED SPIDER (Latrodectus hesperus) - NEVADA - Unusual high population resulted in numerous bites to humans that required hospitalization in Las Vegas Valley area of Clark County. (Zoller). Public notice of caution issued by health officials. (Nev. Coop. Rpt.).

STORED PRODUCTS

INDIAN MEAL MOTH (Plodia interpunctella) - IOWA - Treatments required for apparently resistant populations in stored grain in Butler, Cedar, Greene, Grundy, and Madison Counties. (Iowa Ins. Sur.). KANSAS - Heavy surface infestation reported in bin of wheat at elevator in Shawnee County. (Bell).

BENEFICIAL INSECTS

DAMSEL BUGS - OHIO - Nabis americanoferis and Nabis sp. increased statewide in hay where current Acyrtosiphon pisum (pea aphid)

counts increased. Adult and nymphal Nabis spp. counts per 50 sweeps by county: Clinton 46, Madison 30, Pickaway 22, Clark 47, Washington 33. (Fox).

A NYMPHALID BUTTERFLY (Precis coenia) - NORTH CAROLINA - Larvae fed on witchweed in 2 Robeson County cornfields. In one field, 40-50 percent of 200+ witchweed plants showed feeding signs; 10-15 percent eaten to ground level with no sprouting. Sprouting occurred in some cases. About 20 larvae from third instar observed. Earlier observations and damage indicated P. coenia larval population had been heavier in area. (Mears et al.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Spray treatment rapidly being completed in Porterville and Lindsay area, Tulare County. Third and final treatment in Lindsay and second treatment in Springville to be completed this period. Equipment trouble slowed treatment. Biological control progressed well. Total of 150,000 lacewing eggs and 100,000 adult Cryptolaemus sp. (a lady beetle) released at 2 areas. Cryptolaemus spp. larvae found in Delano area infestation, Kern County. (Cal. Coop. Rpt.).

GRASSHOPPERS - NORTH DAKOTA - Adult survey completed. Infestations increased and general in north-central and northwest counties, spotty in south-central counties and about same as 1971. Infestations about same as 1971 in eastern counties with decrease in some areas. Economic in parts of Williams, McHenry, Morton, Grant, Emmons, Cass, Richland, and Ransom Counties, about 139,000 cropland acres infested. Populations increased in sand hills area of Richland and Ransom Counties, about 15,900 rangeland acres economically infested. Dominant species Melanoplus bivittatus, M. sanguinipes, and M. femurrubrum. Grasshoppers matured early this season; weather both favorable and unfavorable for maximum egg production. Expect population increase over much of State next season. (Brandvik). OKLAHOMA - Adult survey for 1972 revealed about 1,485,000 acres of rangeland and 85,000 acres of cropland infested. (Okla. Coop. Sur.). UTAH - Ranged 5-12 per square yard in some areas of Green Canyon, Cache County; heavy in areas of Locomotive Springs and east Fielding, Box Elder County. (Knowlton).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Heavy in mature green bolls in Bell, Falls, McLennan, Coryell, and Hill Counties of central area. Infestations in these counties ranged 1-8 larvae per boll. (Hoelscher).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Local yard infestation of eggs, larvae, and adults found last of August at Biola, Fresno County. Treatments applied. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Turf and Pasture - Collected 13 specimens of a LEAFHOPPER (Carneocephala sagittifera) in blacklight trap during August at Hilo, Hawaii. Species was first discovered in State on grasses in Kona, Hawaii, June 7. (Shiroma).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) infestations remain generally trace in commercial papaya and banana plantings on windward Oahu. About 5 percent of trees with small colonies on 1-2 older leaves at Kaaawa and Hakipu. (Kawamura).

Man and Animals - Mosquito collections during August from 58 light traps operated on Oahu totaled 198 Aedes vexans nocturnus and 2,363 Culex pipiens quinquefasciatus. Aedes catches heaviest at Kahaluu and Culex heaviest at Waipahu. (Mosq. Control Br., State Dept. of Health).

Beneficial Insects - LANTANA GALL FLY (Eutreta xanthochaeta) infestations medium, 1-2 galls per 0.25 inch stem, on lantana at Kualoa Ranch, Oahu. (Otsuka).

General Pests - A GEOMETRID MOTH (Semiothisa santaremaria) light compared to winter and spring months. Survey of koa haole growths in several areas on Oahu revealed low larval counts; 45 on 20 plants at Waimanalo, 8 on 20 plants at Pearl City, zero on 10 plants at Ewa. (Kumashiro, Otsuka).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) activity, actuated by tropical storm precipitation, noted on several residential lots at Poipu, Kauai; 76 live snails collected from these lots and destroyed. (Sugawa).

Weather of the week continued from page 612.

The mercury at Catulla, Texas, climbed to 102 degrees on Wednesday and Thursday afternoons. The southwestern deserts continued hot. Blythe, California, recorded 109 degrees Tuesday afternoon. The east cooled as the week progressed. Minimum temperatures dropped to the 40's in the northern and central Appalachians. Beckley, West Virginia, registered 41 degrees Wednesday morning. The weekend brought early autumn temperatures to much of the eastern half of the Nation. A large High stretched from the Mississippi River Valley to the Atlantic coast. Minimum temperatures east of the Mississippi River Sunday morning ranged from the 40's north of the Ohio River to the 70's along the gulf coast. Weekly mean temperatures over much of the East were 3 to 6 degrees cooler than normal.

LIGHT TRAP COLLECTIONS

State	Locality	Date	Precipitation type	Temp. & humidity	Time of day	Crops												
						Spodoptera	Other											
FLORIDA	Gainesville 9/1-7		BL	11	13	2	25	36	72	44	4	18						
			BL	22					154									
			BL	16	2				179									
			BL	12					103									
KANSAS	(County) Republic 9/5		BL	32		40	20		16	4	16	1						
			BL	1														
KENTUCKY	Bowling Green 9/5 Princeton 8/25-30, 9/1		BL															
			BL															
			BL															
			BL															
MICHIGAN	Adrian 8/30-9/5 Maybee 8/28-9/5 Shelby 8/25-9/2		BL															
			BL															
			BL															
			BL															
MISSISSIPPI	(County) Washington 9/1-7		2BL	20	12	15	176	715				17	167	12	16	8946		
			BL	1														
NEBRASKA	Concord 8/31		BL															
			BL															
NEW HAMPSHIRE	(County) Strafford 9/5		BL															
			BL															
NEW JERSEY	Jones Island 8/31-9/6 Seabrook 8/31-9/6 Vincland 8/31-9/6		BL	36			14											
			BL	90			9											
			BL	28			5											
			BL	57			2											
OHIO	Wooster 9/1-7		BL															
			BL															
			BL															
			BL															
OREGON	(County) Lane 8/31-9/4 Marion 8/31-9/6 Multnomah 8/31-9/4		BL	5														
			BL															
			BL															
			BL															

LIGHT TRAP COLLECTIONS

	Precip- Type 2	Temp- Type 1	Atta- Type 0	Tran- Type 0	Tran- Type 1	Tran- Type 2	Tran- Type 3	Tran- Type 4	Tran- Type 5	Tran- Type 6	Tran- Type 7	Tran- Type 8	Tran- Type 9	Tran- Type 10	Tran- Type 11	Tran- Type 12	Tran- Type 13	Tran- Type 14	Tran- Type 15	Tran- Type 16	Tran- Type 17	Tran- Type 18	Tran- Type 19	Tran- Type 20	
	Temp- Type 2	Atta- Type 1	Tran- Type 0	Tran- Type 1	Tran- Type 2	Tran- Type 3	Tran- Type 4	Tran- Type 5	Tran- Type 6	Tran- Type 7	Tran- Type 8	Tran- Type 9	Tran- Type 10	Tran- Type 11	Tran- Type 12	Tran- Type 13	Tran- Type 14	Tran- Type 15	Tran- Type 16	Tran- Type 17	Tran- Type 18	Tran- Type 19	Tran- Type 20	Tran- Type 21	
	Temp- Type 2	Atta- Type 1	Tran- Type 0	Tran- Type 1	Tran- Type 2	Tran- Type 3	Tran- Type 4	Tran- Type 5	Tran- Type 6	Tran- Type 7	Tran- Type 8	Tran- Type 9	Tran- Type 10	Tran- Type 11	Tran- Type 12	Tran- Type 13	Tran- Type 14	Tran- Type 15	Tran- Type 16	Tran- Type 17	Tran- Type 18	Tran- Type 19	Tran- Type 20	Tran- Type 21	
PENNSYLVANIA (District)																									
Central 8/28-9/4	BL	2	6																						
Southeast 8/28-9/4	BL	6	4																						
Southwest 8/28-9/4	BL	5																							
TENNESSEE (County)																									
Dyer 9/4-8	BL	41	2																						
Franklin 9/4-8	BL	6																							
Madison 9/4-8	BL	17	1																						
TEXAS																									
Waco 8/31-9/7	BL	25	10																						
VIRGINIA																									
Charlotte Court House 9/2-5	BL	33																							
Holland 9/5,6	BL	1																							
Warsaw 9/2-7	BL																								
WEST VIRGINIA (County)																									
Harrison 8/29	BL	2																							
Monongalia 8/22	BL																								
Ohio 8/28	BL	17																							
WISCONSIN																									
Hartford 8/29-9/4	BL																								
Lancaster 8/28-9/5	BL																								
Mazomanie 8/30-9/5	BL																								

KHAPRA BEETLE
(Trogoderma granarium Everts)

Additional Selected References
1967-1969

These references supplement those published in CEIR 19(40):770, 1969. Copies of these bibliographies are available from Pest Survey and Technical Support Staff.

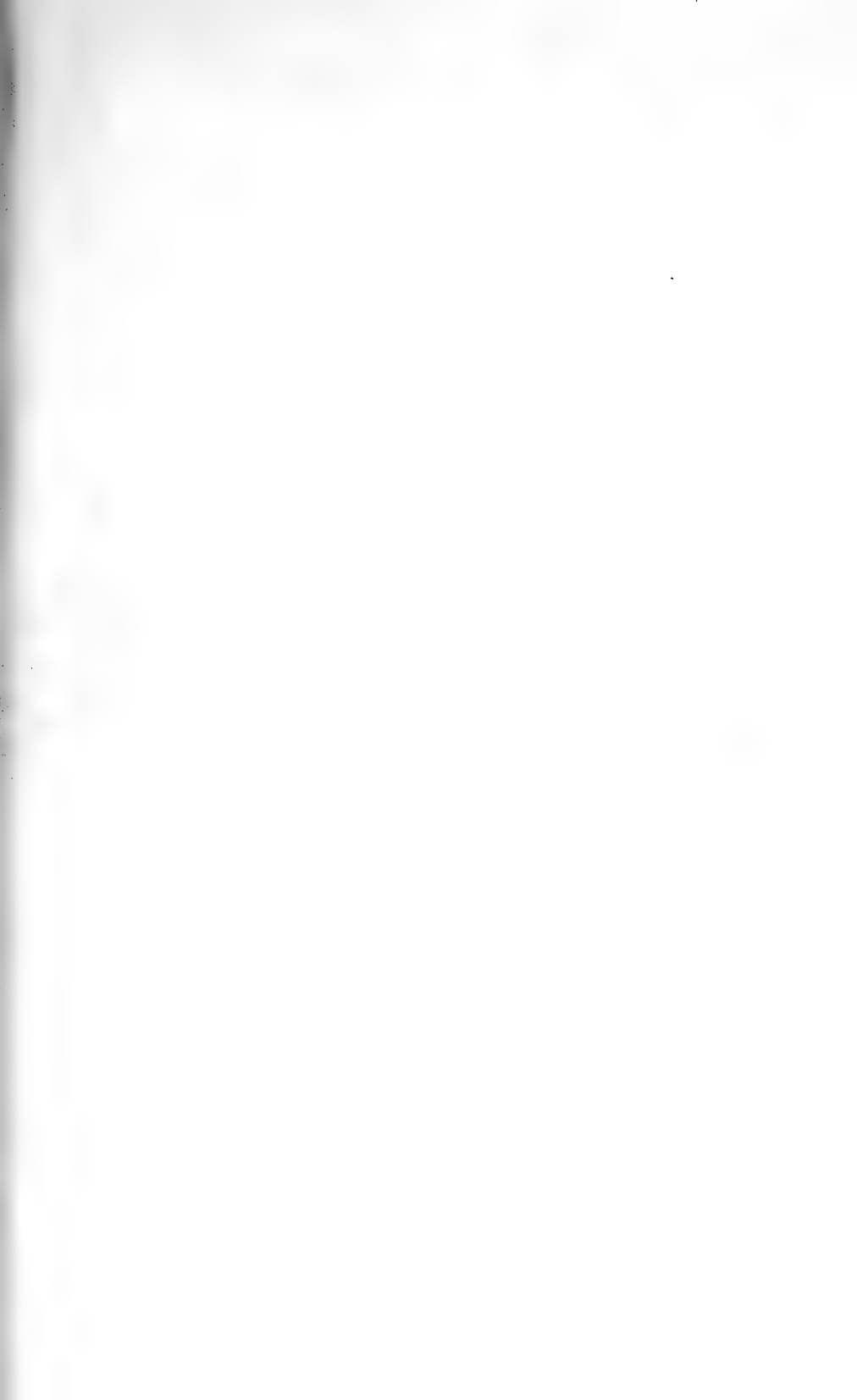
- Adeesan, C., Rahalkar, G. W., and Tamhankar, A. J. 1969. Effect of age and previous mating on the response of khapra beetle males to female sex pheromone. Ent. Expt. et Appl. 12(2):229-234. Ger. Sum.
- Agarwal, H. C. and Pillai, M. K. K. 1967. Laboratory evaluation of certain organophosphorus insecticides against Trogoderma granarium Everts. Indian J. Ent. 29(4):346-348.
- Atwal, A. S., Sidhu, A. S., and Gupta, J. C. 1968. Studies on the growth of populations of Trogoderma granarium Everts and Callosobruchus analis (Fabricius). Indian J. Ent. 30(3):185-191.
- Bhattacharya, A. K. and Pant, N. C. 1968. Dietary efficiency of natural, semisynthetic and synthetic diets with special reference to qualitative amino acid requirements of the khapra beetle, Trogoderma granarium Everts (Coleoptera: Dermestidae). J. Stored Prod. Res. 4(3):249-257.
- Bhattacharya, A. K. and Pant, N. C. 1969. Growth and development of khapra beetle, Trogoderma granarium Everts (Col., Dermestidae) on pulses. Bul. Ent. Res. 59(3):383-388.
- Bhattacharya, A. K. and Pant, N. C. 1969. Nature of growth inhibitors for Trogoderma granarium Everts (Coleoptera: Dermestidae) in lentil (Lens esculenta Moench.) and French bean (Phaseolus vulgaris L.). J. Stored Prod. Res. 5(4):379-388.
- Bhattacharya, A. K. and Pant, N. C. 1969. Nutritional behaviour of Trogoderma granarium Everts (Coleoptera: Dermestidae) on leguminous seeds. J. Stored Prod. Res. 4(4):305-315.
- Deuse, J. 1968. Report. 1. On the discovery of several foci of Trogoderma granarium in Mali and on the provisional measures advised to combat this pest. 2. Review of existing 'anti-Trogoderma' legislation in the English-speaking countries of Africa and proposals for similar legislative measures for French-speaking Africa. Report of a mission 16th Sept.-1 Oct. 1967. Paris Inst. Rech. Agron. Trop. Cult. Vivr. In Fr.
- Esin, T. 1967. Investigations on the use of Phostoxin for the control of larvae of the khapra beetle (T. granarium). Anz. Schädlingsk. 40(1):9-12.

- Haque, H., Anwar, M. S., and Begum, A. 1969. Control of khapra beetle in larval stage by use of malathion. *Agr. Pakistan* 20(3):279-286.
- Ikan, R., Bergmann, E. D., Yinon, U., and Shulov, A. 1969. Identification, synthesis and biological activity of an "assembling scent" from the beetle Trogoderma granarium. *Nature (London)* 223(5203):317.
- Kantack, B. H. and Staples, R. 1969. The biology and ecology of Trogoderma glabrum (Herbst) in stored grains. *Nebr. Agr. Expt. Sta. Res. Bul.* 232. 24 pp.
- Karnavar, G. K. and Nair, K. S. S. 1969. Changes in body weight, fat, glycogen, and protein during diapause of Trogoderma granarium. *J. Insect Physiol.* 15(1):95-103.
- Levinson, H. Z. and Bar Ilan, A. R. 1967. Function and properties of an assembling scent in the khapra beetle Trogoderma granarium. *Riv. di Parassitol.* 28(1):27-42. *Ital. Sum.*
- Pant, J. C., Doharey, R. B., and Pant, N. C. 1969. Tolerance of Trogoderma granarium Everts to higher levels of inorganic salts in the artificial diet. *Indian J. Ent.* 31(1):95-97.
- Punj, G. K. and Girish, G. K. 1969. Relative toxicity of certain fumigants to Trogoderma granarium Everts (Coleoptera, Dermestidae). *J. Stored Prod. Res.* 4(4):339-342.
- Punj, G. K. and Prasad, S. K. 1969. Growth and developmental response of Trogoderma granarium Everts on certain pulses. *Bul. Grain Technol.* 7(2):80-86.
- Rao, K. D. P. and Agarwal, H. C. 1969. Lipids of the larvae and adults of Trogoderma granarium (Coleoptera). *Compar. Biochem. Physiol.* 30(1):161-167.
- Rattan Lal and Attri, B. S. 1967. Effect of food on the susceptibility of Trogoderma granarium Everts (Dermestidae: Coleoptera) to insecticides. *Indian J. Ent.* 29(4):329-338.
- Reddy, D. B. 1969. Distribution of khapra beetle in the South East Asia and Pacific Region. *Inf. Let. FAO Plant Protect. Comm. S. E. Asia No. 70.* 3 pp.
Currently occurring only in India and West Pakistan.
- Sohi, G. S. 1969. Influence of temperature and humidity on the phototropic response of the larvae of Trogoderma granarium Everts (Dermestidae; Coleoptera). *Punjab Agr. Univ. J. Res.* 6(1, Suppl.):233-236.
- Stanic, V. and Shulov, A. 1969. Olfactory response of Trogoderma granarium adults (Col., Dermest.) to odours of wheat, faeces and some faecal components. *J. Stored Prod. Res.* 5(4):299-304.
- Verma, A. N. and Punj, G. K. 1969. Effect of nutrition on susceptibility of larvae of Trogoderma granarium Everts to ethylene oxide. *Bul. Grain Technol.* 7(3):150-153.

- Yinon, U. and Shulov, A. 1967. New findings concerning pheromones produced by Trogoderma granarium (Everts), (Coleoptera, Dermestidae). J. Stored Prod. Res. 3(3):251-254.
- Yinon, U. and Shulov, A. 1969. Bioassay of the response of Tribolium castaneum to repellent substance excreted by Trogoderma granarium. Ent. Expt. et Appl. 12(2):191-205. Ger. Sum.
- Yinon, U. and Shulov, A. 1969. Distribution of Trogoderma granarium (Col. Dermestidae) at constant humidity and in gradient of humidity. J. Stored Prod. Res. 5(4):371-378.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(37):628-630, 1972



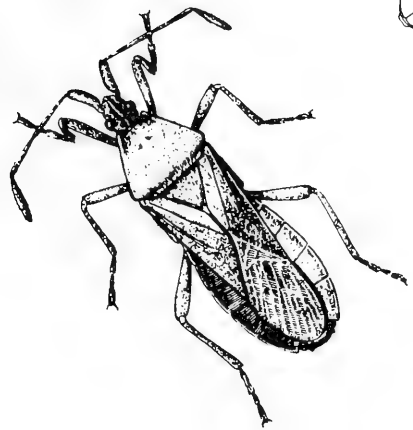
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560

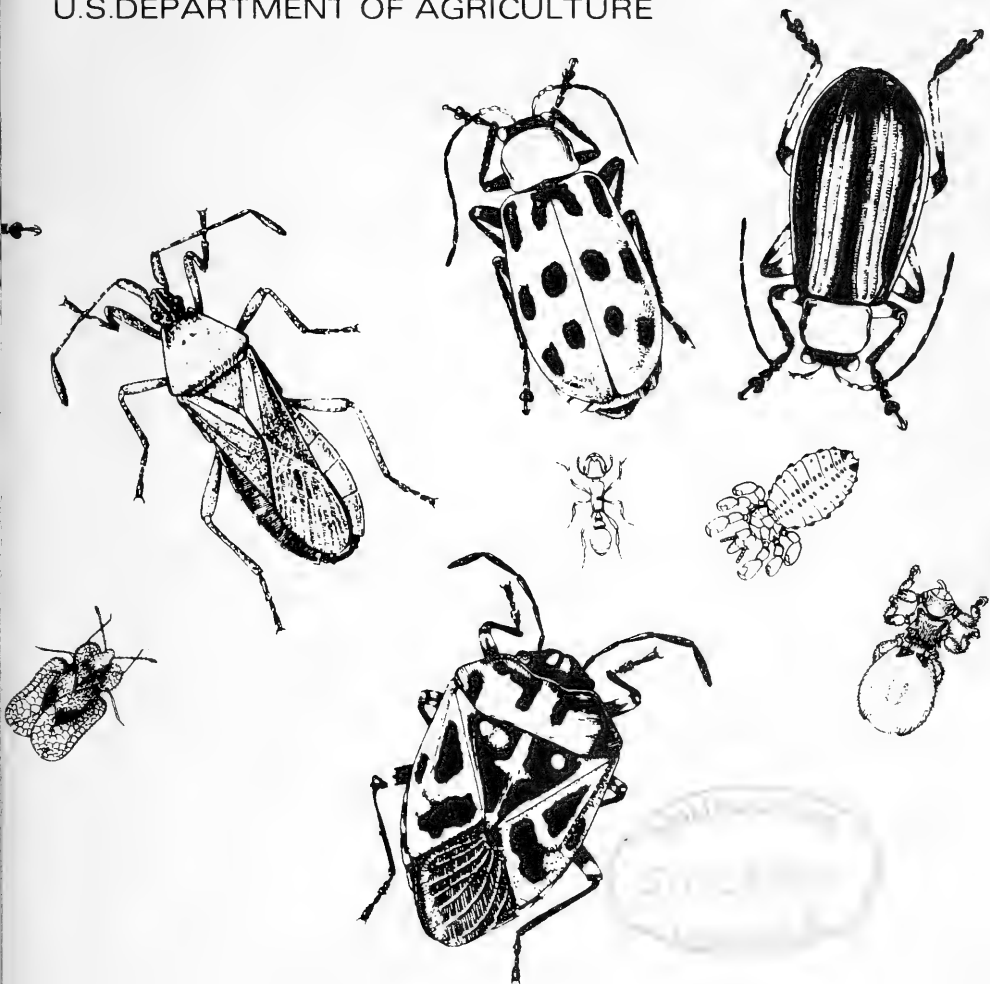


SB
823
C77
Ent.

Cooperative Economic Insect Report

Issued by

PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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 Service 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:

CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG and FALL ARMYWORM heavy but spotty in newly planted small grain in west-central Oklahoma. GREENBUG economic on early winter wheat in south-central South Dakota. (pp. 633-634, 635).

A DELPHACID PLANTHOPPER heavy and damaged improved grasses throughout much of lower Rio Grande Valley in Texas. (p. 635).

ALFALFA CATERPILLAR heavily damaged much alfalfa in Salt River Valley of Arizona. (p. 635).

VELVETBEAN CATERPILLAR ranged light to heavy on soybeans in west-central Alabama and southern Georgia; late soybeans may be badly damaged in Alabama if drought broken by rains sufficient to produce normal crop. (p. 636).

SOUTHERN PINE BEETLE moderate to heavy on pines in northwest South Carolina. MOUNTAIN PINE BEETLE damaged lodgepole pines in Lake Tahoe area of California. COOLEY SPRUCE GALL APHID heavy on blue spruce in Cuba Ranger District of Santa Fe National Forest in New Mexico. Heavy VARIABLE OAKLEAF CATERPILLAR population in Missouri collapsed due to parasitism by an unspecified scelionid wasp. (pp. 639-640).

Detection

New State records include a SCOLYTID in Virginia (p. 640), an ENCYRTID WASP in Maryland (p. 642), and an ELATERID in Hawaii (p. 644).

For new county records see page 643.

Special Reports

Khapra Beetle. Selected References 1947-1966. (pp. 647-653).

Reports in this issue are for week ending September 15 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	633
Insects Affecting	
Corn, Sorghum, Sugarcane...634	Beans and Peas.....637
Small Grains.....635	General Vegetables.....637
Turf, Pastures, Rangeland..635	Deciduous Fruits and Nuts..638
Forage Legumes.....635	Citrus.....638
Soybeans.....636	Small Fruits.....639
Cotton.....636	Forest and Shade Trees....639
Potatoes, Tomatoes,	Man and Animals.....640
Peppers.....637	Households and Structures..641
Beneficial Insects.....	642
Federal and State Plant Protection Programs.....	642
Detection.....	643
Corrections.....	643
Hawaii Insect Report.....	644
Light Trap Collections.....	645
Khapra Beetle. Selected References 1947-1966.....	647
Weather of the Week.....	654

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-SEPTEMBER TO MID-OCTOBER 1972

The National Weather Service's 30-day outlook for mid-September to mid-October calls for temperatures to average below seasonal normals over the western half of the Nation except for near to above normal over the southern Plains. Above normal temperatures are indicated for the eastern third of the Nation except for near normal in the south Atlantic Coast States. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal from the Rockies to the Midwest and the lower Mississippi Valley as well as over portions of the central and southern Plateau. Subnormal totals are indicated for the west coast States and the middle and north Atlantic coast. Elsewhere near normal precipitation is expected.

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

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - CALIFORNIA - Larvae severely damaged field corn in Hanford area, Kings County. One 60-acre field completely stripped. Damage variable in other fields. Infestation probably related to amount of water grass in corn plantings. (Cal. Coop. Rpt.). COLORADO - Larvae of this species and *Spodoptera frugiperda* (fall armyworm) caused some injury to barley in Loma and Fruita areas of Mesa County. (Bulla). KANSAS - Blacklight trap catches of *P. unipuncta* indicate significant moth flights in Barton and Greeley Counties. (Bell).

CORN EARWORM (*Heliothis zea*) - DELAWARE - Adults continued to increase in blacklight traps in Sussex County; averaged 25 per night for 5 locations. (Burbutis, Kelsey). VIRGINIA - Light on soybeans throughout Coastal Plain. (Allen et al.). Moth collections still light, 33 taken past 14 days. Some injury seen in late tomatoes, damage to soybeans less than usual in Accomack and Northampton Counties. (Hofmaster). KENTUCKY - Larvae averaged 1 per head in no-till grain sorghum in Todd County. (Barnett, Raney). ILLINOIS - None found in 110 cornfields surveyed in western and central districts. (Ill. Ins. Rpt.). NORTH CAROLINA - Damage seen in 15 late soybean fields from Duplin County to Robeson County. One 5-acre Robeson County field had 85 percent pod loss. Populations in most fields in area declined below threshold level. (Hunt, Mears). ALABAMA - Only occasional larva observed on pods in soybean fields examined in Sumter, Marengo, and Wilcox Counties. (McQueen).

MISSISSIPPI - *H. zea* light to moderate in soybeans in Walthall and Monroe Counties. (Robinson). TEXAS - Light and generally local in grain sorghum in Motley County. One larva per head found in 10 percent of plants. (Pallmeyer). UTAH - Infested 90 percent of ears on field corn at Newcastle, Iron County; infestations averaged 10 percent in experimental corn in Box Elder, Salt Lake, Utah, Weber, Morgan, and Millard Counties. (McAlister, Knowlton). Infestation in canning sweet corn lighter than normal in Box Elder County. (Duncan).

CORN LEAF APHID (*Rhopalosiphum maidis*) - MAINE - Threatening infestations in some cornfields in many areas decreased past 2 weeks; none found in many fields. Lady beetle larvae searching for food, adults moved to lambsquarters and gardens. (Gall). NEBRASKA - Colonies of this species and *R. fitchii* (apple grain aphid) heavy on ears of field corn at scattered locations in central, east, and northeast crop districts. No controls needed. (Roselle, Keith). IDAHO - Infestations in backyard sweet corn all but eliminated by *Hippodamia convergens* (convergent lady beetle) and *Chrysopa* spp. (green lacewings) in Moscow area, Latah County. (Portman).

GREENBUG (*Schizaphis graminum*) - TEXAS - Light to moderate on grain sorghum in Martin County. (Neeb). OKLAHOMA - Heavy in spots in newly planted small grain in Custer County. (Okla. Coop. Sur.). NEBRASKA - Scattered colonies of 5-35 individuals seen on occasional sorghum plants in Gage, Seward, Butler, and Madison Counties. Some parasitized. (Roselle et al.). SOUTH DAKOTA - Infested all early planted winter wheat in Lyman County. Some fields more heavily infested than others, most economic. Winter wheat in 1-leaf stage in field south of Kennebec, Lyman County, severely infested with 2-5 alate females and 10-30 nymphs per

leaf. Controls applied in some fields. Present in sorghum in same area but noneconomic. (Jones).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Spread from 80 acres of alfalfa in Diamond Valley, Eureka County, (see CEIR 22(35):574) to all alfalfa fields checked in valley; also found in Bean Flat area of county. Ranged 5-20 per sweep. (Lauderdale, Smith).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Larva found in stem of sorghum plant in field in Woodson County; overall infestation not determined. Recent blacklight trap catches indicated substantial second-generation moth flight in Brown County. (Bell). IOWA - Larvae infested 58 percent of plants in 20 cornfields observed in Polk County. Larvae per plant averaged 1.4; about same as 1971. (Iowa Ins. Sur.). WISCONSIN - Larvae heavy in some late sweet corn. In Dodge County, 24 percent of ears in late field infested with larvae ranging from first through third instar. In Dane County, some late fields with 10+ percent of ears infested. In corn near harvest, infestation averaged 4 percent throughout State. Treatment underway in northeastern counties. (Wis. Ins. Sur.). KENTUCKY - Larvae ranged 3-4 per head in no-till grain sorghum in Todd County. (Barnett, Raney). DELAWARE - Adults averaged 8 per night in blacklight traps at 5 locations in Sussex County. (Burbutis, Kelsey).

CORN ROOTWORMS (Diabrotica spp.) - IDAHO - D. virgifera (western corn rootworm) adults averaged about 4 per 40-50 plants and ears in 7 cornfields in vicinities of Dayton, Weston, and Franklin in Franklin County. Scattered incidents of incomplete development of ear tips reported. Root damage insignificant, no lodging observed. (Tovery, Slack). WISCONSIN - D. longicornis (northern corn rootworm) adults numerous, ranged 1-3 adults per ear in some late corn in Manitowoc and Sheboygan Counties. Much silk feeding noted in some fields. (Wis. Ins. Sur.). MICHIGAN - D. virgifera adults collected from field corn in Waverly Township, Van Buren County, September 8 by D. Kaiser. Determined by R.F. Ruppel. This is a new county record. (Ruppel). INDIANA - D. virgifera adult collected in White County September 9 by R. Elliott. This is a new county record. All counties in northwest and north-central districts now infested. (Meyer).

RICE WEEVIL (Sitophilus oryzae) - MISSISSIPPI - Infested about 20 percent of ears in 250 acres of corn in Amite County. Light, but increased in grain sorghum in Noxubee County. (Robinson).

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Nymphs and adults ranged 5-20 per plant in one of 4 cornfields checked in each of Shawnee, Osage, and Wabaunsee Counties. (Bell).

SORGHUM MIDGE (Contarinia sorghicola) - KANSAS - Moderate in heads of late sorghum in Woodson County field; adults emerged. Last report of significant infestations in sorghum in State from Wilson and Montgomery Counties during September 1971. (Bell).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Counts and damage decreased on grain sorghum in El Paso and Pecos Valley areas due to heavy rain, cool nights, and higher than normal relative humidity. (Neeb).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Heavy in spots in newly planted small grain in Custer County. Light, spotted infestations reported in Jackson County. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - NEBRASKA - Averaged about 10 per plant in wheatfield near McCook, Red Willow County. (Campbell).

TURF, PASTURES, RANGELAND

A DELPHACID PLANTHOPPER (Delphacodes propinqua) - TEXAS - Heavy and damaged improved grasses throughout much of lower Rio Grande Valley. Large numbers reported from several locations with heavy deposits of honeydew in damaged fields. Control treatments not too successful. (Deer).

RHODESGRASS SCALE (Antonina graminis) - ARIZONA - Heavy in many St. Augustine and Bermuda grass lawns at Phoenix, Maricopa County. (Ariz. Coop. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larvae fed on Coastal Bermuda grass in Coosa County. Followed usual pattern, damaged grass fertilized with poultry litter. This is first occurrence in county in 4-5 years. Light in grass and late corn in 2 areas of Marengo County. (Sessions, Yates).

FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae caused very heavy damage in many alfalfa fields in Salt River Valley, Maricopa County. Controls necessary. Average counts per 100 sweeps in Yuma County: Yuma Mesa 110, Yuma Valley 20, Gila Valley 320, Dome Valley 260. Averaged 9 per 100 sweeps west of Phoenix, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Moderate to heavy adult flights noted in alfalfa in Sunland Park area of Dona Ana County. (Hare). COLORADO - Larvae light in alfalfa in Arkansas Valley. (Schweissing).

ALFALFA SEED CHALCID (Bruchophagus roddi) - NEVADA - Heavy adult emergence began in Dixie Valley of Churchill and Pershing Counties August 18 with 34-75 percent of curls of roadside and field border alfalfa plants infested. Emergence began in Orovada area, Humboldt County, week of September 8 with up to 75 percent of curls on roadside and field border plants infested. Potential overwintering populations from these plants will be high unless sanitary practices employed. (Lauderdale).

PEA APHID (Acyrtosiphon pisum) - OHIO - Ranged up to 30 per sweep in Mercer County alfalfa, but counts of 1-11 per sweep more common. Parasitized aphids few in number but increasing. (Fox).

GRASSHOPPERS - WISCONSIN - Only pest of alfalfa in State. Populations heavier than normal in eastern Fond du Lac County, about 30 per square yard. Relatively heavy along roadsides and fence rows in Sheboygan and Manitowoc Counties; much feeding on corn silks noted in these counties. Heavy in alfalfa in Green County and in scattered fields in Grant and Iowa Counties. (Wis. Ins. Sur.).

SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - ALABAMA - Leaf feeding by full-grown larvae ranged light to heavy on all fields examined in Sumter, Marengo, and Wilcox Counties. Several fields of late soybeans planted behind small grain showed 35-65 percent leaf loss. Some controls applied in Sumter and Wilcox Counties. Adults flying in all counties. Late soybeans may be badly damaged if extreme drought broken by rains sufficient to produce normal crop. (McQueen). GEORGIA - Ranged light to heavy over southern area. (French). ARKANSAS - First specimens of season taken in few soybean fields in Yell County. (Boyer).

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Damaging populations spotty throughout Coastal Plain with more damage seen in Northern Neck area. Treatment recommended when adults and/or larvae average 5+ per row foot unless soybeans fully matured. (Allen et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ARKANSAS - Fed on soybean pods in Hempstead County. Pod feeding generally light over State. (Boyer). KENTUCKY - Adults averaged 2 per row foot in 120 acres of soybeans in Todd County. (Barnett, Raney).

COTTON

BOLLWORMS (Heliothis spp.) - GEORGIA - Egg and larval counts decreased, probably temporarily, in southern area. (French et al.). ARKANSAS - H. virescens continued heavy in extreme southern area. Heliothis spp. moth activity continued heavy in most areas of State. Egg deposition very heavy on green cotton. Moth activity very light in extreme northeast area. (Boyer). OKLAHOMA - H. zea damaged squares ranged 60-70 percent in many Caddo and Washita County fields. Percent damaged squares by county: Kiowa 0-9, Harmon 0-3, Jackson 0-14. Large numbers of eggs still found in irrigated fields in Jackson County. Square damage ranged 1-9 percent and boll damage ranged 1-20 percent in Bryan County. Light to moderate in Marshall County. In Wagoner and Muskogee Counties, eggs ranged 1-67 per 100 terminals and boll damage ranged 1-8 percent. (Okla. Coop. Sur.).

TEXAS - H. zea moderate in El Paso County. Eggs moderate to heavy in Pecos and Reeves Counties with heavy damage to young bolls and squares. Eggs ranged 15-120 per 100 terminals with 10-15 eggs per terminal on 5 percent of plants in some fields. In Pecos and Reeves Counties, H. zea larvae ranged 3-35 per 100 plants; square and boll counts showed 3-35 percent damage. Midland, Martin and Glasscock Counties reported 10-40 eggs per 100 terminals, 2-12 larvae per 100 plants, and 4-25 percent damaged squares and bolls. Control in Pecos Valley difficult; in many fields only first-instar larvae controlled with sprays. H. virescens increased in fields in Pecos Valley area. About 30-50 percent of bollworm and budworm complex this species. (Neeb). ARIZONA - Controls still necessary in Maricopa, Pinal, and Yuma Counties for Heliothis spp. Damage heavy in treated fields at Thatcher, Graham County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Heavy defoliation reported in spots in several fields in Jackson County. (Okla. Coop. Sur.). TENNESSEE - Larvae defoliated many late maturing fields in western area. In many cases, feeding aided maturing of

cotton. (Gordon, Bruer). ALABAMA - Larvae of Trichoplusia ni and Pseudoplusia includens (soybean looper) caused heavy defoliation of plants in many fields in Sumter and Marengo Counties. Drought caused 25-50 percent leaf drop; loopers caused 35-80 percent of remaining leaves to drop and may have caused some loss of top bolls. (McQueen).

COTTON LEAFPERFORATOR (Bucculatrix thurberiella) - TEXAS - Heavy in isolated fields in Balmorhea area of Reeves County. Counts around field margins ranged 6-8 larvae per cotton leaf. (Green).

SALTMARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Built up in Bowie area of Cochise County. Very light and scattered in Graham County. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Feeding by emerging weevils heavy, with 2-20 punctures per young boll in many fields in western area. (McQueen). OKLAHOMA - Punctured square counts averaged 100 percent in many Caddo and Washita County fields. Percent punctured squares by county: Greer 0-17, Jackson 0-23, Kiowa 0-21, Bryan 1-12; moderate in Marshall County. (Okla. Coop. Sur.). TEXAS - Moderate to heavy in northeastern Glasscock County, heavy in Presidio County. (Neeb).

POTATOES, TOMATOES, PEPPERS

POTATO SCAB GNAT (Pnyxia scabiei) - WASHINGTON - Trace infestation found September 8 in 120 acres of potatoes at Patterson, Benton County. This is a new county record. (Landis, Foepfel).

VARIEGATED CUTWORM (Peridroma saucia) - NEW HAMPSHIRE - Severely damaged tomato crop in untreated field in Hillsboro County; most of crop lost. Holes eaten in fruit. Adults emerged in laboratory September 9 from larvae collected August 11. (Bowman, Morse).

BEANS AND PEAS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - CALIFORNIA - Heavily infested blackeye beans in Arvin area, Kern County; 300 acres of 3 varieties involved. One-half of plants appear affected. Low production from surviving crop expected. In past 5 years, this pest only economic north of Tehachapi Mountains. Damage increased each year in beans, milo, and corn, particularly where milo follows blackeye beans in double cropping. Drought this year eliminated much of double cropping. (Cal. Coop. Rpt.).

GENERAL VEGETABLES

BLACK SWALLOWTAIL (Papilio polyxenes asterius) - SOUTH CAROLINA - Larvae found feeding on celery in Richland County September 8 by O. Huff. Determined by D.K. Pollet. This is a new county record. (McCaskill).

DECIDUOUS FRUITS AND NUTS

FALL WEBWORM (Hyphantria cunea) - TEXAS - Infestations increased on pecan trees throughout Trans-Pecos area. (Neeb). OKLAHOMA - Second-generation larvae moderate to heavy on pecan, walnut, and persimmon in south-central counties and in Coal, Atoka, and Choctaw Counties. Moderate on pecans in Garfield County. (Okla. Coop. Sur.).

PEACHTREE BORER (Sanninoidea exitiosa) - OKLAHOMA - Heavy in untreated peach trees in Marshall County. (Okla. Coop. Sur.).

FRUITTREE LEAFROLLER (Archips argyrospilus) - WASHINGTON - Partial second generations of A. argyrospilus and A. rosanus (a tortricid moth) appeared in unsprayed pear trees at Wenatchee, Chelan County. Male moths taken in pheromone traps through August, larvae seen during July. This is a new county record for A. rosanus. (Burts, Brunner).

BLACK PECAN APHID (Tinocallis caryaefoliae) - TEXAS - Light infestations, 5-10 per leaf, attacked pecan trees in Brazos County. (Green).

CITRUS

Insect Situation in Florida - End of August - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 72 (norm 57) percent of groves; economic in 58 (norm 39) percent. Population decreased briefly but expected to increase in late September and persist above normal and at high level through November. Heavy infestations expected in 30 percent of groves. Highest districts south, central, north, west, and east. TEXAS CITRUS MITE (Eutetranychus banksi) infested 41 (norm 22) percent of groves; economic in 16 (norm 8) percent. Population decreased but was highest on record for August. Although further decrease to low level predicted through September, population will remain higher than average. Highest districts are west and central. CITRUS RED MITE (Panonychus citri) infested 13 (norm 28) percent of groves; economic in 3 (norm 12) percent. In contrast, population is lowest on record for August. Although it will remain very low in all districts, scattered groves will develop important infestations in November. BLACK SCALE (Saissetia oleae) infested 82 (norm 57) percent of groves; economic in 58 (norm 35) percent. August population is highest in 21 years of record but is lower than at mid-July peak. Population will remain above normal and in high range into December despite gradual decrease. Highest districts central, north, west, and east. AN ARMORED SCALE (Unaspis citri) infested 36 percent of groves; economic in 27 percent. Population decreased slightly from record high level at end of July. Gradual increase expected after September. GLOVER SCALE (Lepidosaphes gloverii) infested 58 (norm 48) percent of groves; economic in 5 (norm 8) percent. PURPLE SCALE (L. beckii) infested 40 (norm 42) percent of groves; economic in 1 (norm 2) percent. CHAFF SCALE (Parlatoria pergandii) infested 35 (norm 34) percent of groves; none economic (norm 3 percent). YELLOW SCALE (Aonidiella citrina) infested 25 (norm 40) percent of groves; none economic (norm 6 percent). These four armored scales all below normal abundance and at low to moderate level in all districts. Only scattered groves will harbor important infestations during remainder of 1972. GREEN SCALE

(Coccus viridis) infested 22 (norm 5) percent of groves; moderate to heavy in 14 (norm 1) percent. This scale abnormally numerous but not likely to be important. Decrease to low level predicted in December. WHITEFLIES infested 72 (norm 55) percent of groves; economic in 27 (norm 16) percent. Population of larval and adult forms much above average and in high range. Little change predicted. Highest districts south, central, and west. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

SMALL FRUITS

EUROPEAN RED MITE (Panonychus ulmi) - PENNSYLVANIA - All stages on Concord grapes at North East in Erie County. Ranged 12-300 per leaf; some vineyards seen with 95 percent of foliage bronzed. (Judd).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - SOUTH CAROLINA - Aerial surveys during July of 724,292 acres of forest showed moderate to heavy infestations in 1,007 spots. Infestations found on Oconee, Table Rock, Kings Mountain, and Croft State Parks and in southeast Anderson, southern Cherokee, northeast Union, southern Greenville, northern Laurens, and southeast Spartanburg Counties. Salvage of infested trees through commercial sales by landowners recommended. Where salvage not possible and timber values warrant control, cutting and burning of infested trees or chemical control suggested. Pest appears to be moving very rapidly within infested areas. Peak tree mortality expected in late September. Additional infestations in and around present infestations expected before winter. (Graham).

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) - CALIFORNIA - Large stands of lodgepole pine damaged at South Lake Tahoe, El Dorado County. Pitch tubes ranged 1-40 per tree. Land development and drought condition responsible for upset. This is very high value recreation area and timber loss is important. (Cal. Coop. Rpt.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - NEW MEXICO - Light to heavy on Blue Spruce in Santa Fe National Forest. Heaviest populations noted in Cuba Ranger District. (Heninger, Patterson).

FALL WEBWORM (Hyphantria cunea) - OHIO - Defoliation still problem in east-central and northeastern areas. Damage very severe in Stark, Mahoning, Portage, and Summit Counties. Many requests for aid in control received. (Ball). KENTUCKY - Larvae heavy and caused heavy damage to foliage on several species of trees in Powell County. (Barnett). NEW MEXICO - Heavy on cottonwoods in Jemez Springs area, Sandoval County. Some trees almost completely encased in webs. (Heninger, Patterson).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - NORTH DAKOTA - Completed aerial survey in Dunn and Benson Counties showed decrease in defoliation in all areas. In Fort Totten area, Benson County, defoliation occurred in same area as 1971 but basswood only tree species completely defoliated. In Killdeer Mountain area, Dunn County, only scattered pockets of defoliation seen, complete defoliation confined to birch trees. Small pocket of defoliation

seen in Twin Buttes area, Dunn County. Larvae full grown, some in prepupal stage. (Brandvik, Meyer). MISSOURI - Caused very severe defoliation of oaks in 1971, but only scattered pin oaks showed signs of defoliation in 1972. An undetermined scelionid wasp, an egg parasite, caused complete collapse of Heterocampa mantee population in State. (Gass).

MIMOSA WEBWORM (Homadaula anisocentra) - OKLAHOMA - Moderate to heavy on mimosa in Coalgate, Coal County; Atoka, Atoka County; Hugo, Choctaw County; Tishomingo, Johnston County; and Ardmore, Carter County. Light to moderate in Davis and Sulphur, Murray County; Roff, Pontotoc County; Marietta, Love County; and El Reno, Canadian County. One lightly infested tree found in Chickasha and one other in Minco, Grady County. All are new county records. Moderate to heavy in Bryan, Marshall, Oklahoma, and Cleveland Counties and light in Tulsa County. (Okla. Coop. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OHIO - Preliminary egg mass surveys in Franklin and Hocking Counties indicate 1973 populations in these areas will be as heavy or heavier than in 1972. (Fox).

A TORTRICID MOTH (Platynota stultana) - CALIFORNIA - Larvae and pupae ranged 1-10 per tree in large Christmas-tree planting of Monterey pine at Arvin, Kern County. This continuing infestation severely damaging trees to be harvested this season. (Cal. Coop. Rpt.).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - WEST VIRGINIA - Adult damage light, 5 percent to white oaks in Summers County; adults numerous around lights September 10. Collected and determined by J.D. Hacker. This is a new county record. (Hacker).

A SCOLYTID (Xylosandrus germanus) - VIRGINIA - Adults taken from limb of redbud in Pittsylvania County by B. Hogenson June 6. Determined by D.M. Anderson. This is a new State record. (Allen).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 4,455 confirmed cases reported in continental U.S. during period September 3-9 as follows: Texas 4,177; New Mexico 62; Arizona 127; California 1; Oklahoma 88. Total of 478 cases confirmed in Mexico. Number of sterile flies released in U.S. this period totaled 155,986,000 as follows: Texas 136,888,000; New Mexico 4,470,000; Arizona 14,028,000; California 600,000. Total of 32,060,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MARYLAND - Ranged 10-40 per head on beef and dairy animals in Montgomery, Frederick, and Carroll Counties. (U. Md., Ent. Dept.). OHIO - Populations and annoyance to cattle decreased markedly in western area, compared to infestations during July and August. (Fox). ILLINOIS - Counts of 7.2 per animal noted in southern sections and 30.2 in central section. (Ill. Ins. Rpt.). MISSISSIPPI - Infestations light, probably due to hot weather. Averaged 2 per face on 75 beef cattle in extreme southeastern Pontotoc County. This is a new county record. (Robinson). MISSOURI - Counts in northwest area ranged 6-37 per

animal, averaged 13. (Munson). SOUTH DAKOTA - Musca autumnalis decreased, ranged 0-3 per head (averaged 1) on cows and 0-2 per head (averaged less than 1) on calves. (DeFosse). UTAH - Continued to annoy horses and cattle in farm areas of Weber, Davis, and Cache Counties. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Ranged 30-150 per head on beef steers and 10-100 per head on dairy animals throughout central area. (U. Md., Ent. Dept.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 49 per dairy cow at Hawthorne, Alachua County, and 123 per dairy cow at Lowell, Marion County. (Fla. Coop. Sur.). MISSISSIPPI - Ranged up to 50+ per cow on 300 beef cattle in Monroe County, up to 1,000+ on 75 beef cattle in Pontotoc County. (Robinson). ILLINOIS - Counts of 76 per animal seen in southern sections and 250 in central section. (Ill. Ins. Rpt.). MISSOURI - Light to moderate, ranged 300-1,000+ per animal, in northwest area. (Munson). SOUTH DAKOTA - Ranged 25-300 (averaged 150) per side on cows and 5-35 (averaged 25) on calves. (DeFosse). OKLAHOMA - Ranged 750-800 per head on cattle in Payne County, 1,000-1,500 per head in Major County, and 270-300 per head in Marshall County. Ranged moderate to heavy in Pawnee, Cleveland, Garvin, and McCurtain Counties. (Okla. Coop. Sur.).

MOSQUITOES - MARYLAND - Aedes stimulans larvae taken near Finzel, Cranberry Swamp, Garrett County, May 18. Collected and determined by W.E. Bickley. This is a new county record. (U. Md., Ent. Dept.). MINNESOTA - Most mosquito eggs in Ramsey County in diapause September 12. Light trap counts decreased from summer high of 104,000 in 16 traps for 7-day period to 3,200 for week ending September 8. A. vexans accounted for 70-95 percent of adults trapped during past 42 days. (Minn. Pest Rpt.). UTAH - Mainly A. dorsalis, very annoying in southern areas of Curlew Valley and numerous in Snowville, Park Valley Junction, and Kelton Pass areas of Box Elder County. (Knowlton). ARIZONA - Mosquitoes heavy at Tucson, Pima County; at Safford, Graham County; and at Willcox, Cochise County. (Ariz. Coop. Sur.). CALIFORNIA - Two Psorophora signipennis females collected in light trap by V. Gasparotto, one mile west of Furnace Creek Inn, Inyo County. This is a new county record. This is third locality where this species collected in State. Previously collected in Imperial and Riverside Counties. (Cal. Coop. Rpt.).

A COMBFOOTED SPIDER (Latrodectus variolus) - MICHIGAN - Two females taken from hole in dead tree branch in Baldwin, Lake County, June 14 by R. Lannon. Determined by R.J. Sauer. This is a new county record. (Sauer).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - GEORGIA - Heavy on layer chickens housed on wire or on ground in Clarke County. (Nolan).

HOUSEHOLDS AND STRUCTURES

EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Adult taken in basement of home in Cadillac, Wexford County, September 8 by W.E. Pitts. Determined by R.J. Sauer. Specimen taken in restaurant in Detroit, Wayne County, August 29 by J. Johnson. Determined by T.J. Canthrell. These are new county records. (Sauer).

BENEFICIAL INSECTS

AN ENCYRTID WASP (Ooencyrtus kuwanai) - MARYLAND - Reared from Porthetria dispar (gypsy moth) eggs collected at Perryville, Cecil County, September 7 by R. Rusco and C.W. McComb. Determined¹/₂ by B.D. Burks. This is a new State record. (U. Md., Ent. Dept.).

VEDALIA (Rodolia cardinalis) - ARIZONA - Active in Icerya purchasi (cottony cushion scale) infestations in several citrus groves on Yuma Mesa in Yuma County. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Population 2 percent larvae, 23 percent pupae (80 percent females), and 75 percent emerged September 5 at Custer, Whatcom County. Adult emergence apparently peaked September 13. Many homeowner complaints received regarding large number of adults; most common complaint was nuisance factor of adults clinging to screens and doors or entering homes. (Jackson).

GRASSHOPPERS - UTAH - Moved from adjacent rangelands into alfalfa in foothills from Utah County through Box Elder and Cache Counties. (Knowlton). OREGON - Adult survey showed heavy numbers and severe damage in untreated range areas of Wallowa, Grant, Baker, Malheur, Douglas, Umatilla, Morrow, and Klamath Counties. Infested acreage about same as 1971. Problem most serious in high prairie area near Zumwalt, Wallowa County. Some damage occurred to alfalfa near rangelands in Malheur and Harney Counties, with heaviest damage in irrigated hay and grain fields in Jordan Valley. (Goeden).

GYPSY MOTH (Porthetria dispar) - OHIO - Inspection of Lorain County locality where male moths trapped in early August (see CEIR 22(34):565) revealed one viable egg mass, 2 empty pupal cases (1 male, 1 female), and larval skins. Ooencyrtus kuwanai (an encyrtid wasp), an egg parasite of P. dispar, scheduled for release in area September 19. (Roach).

JAPANESE BEETLE (Popillia japonica) - PENNSYLVANIA - Adults very heavy on favorite hosts in Fayette County. Severe defoliation seen on many trees. (Maust).

MORMON CRICKET (Anabrus simplex) - MONTANA - Infested 160 acres in Camas Prairie area, Sanders County. Egg deposition continued. Averaged about 2 crickets per square yard; low enough to be solitary. Few found near Townsend, Broadwater County. (Knudsen). NEVADA - Averaged 1 per 2-3 square yards on 400 acres in upper Willow Creek area, Santa Rosa Range, Humboldt County. (Richards).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Infested 4-40 percent of bolls in El Paso County. Infested bolls ranged 3-50 percent in Pecos and Reeves Counties. In Glasscock County, less than 5 percent infested bolls reported across county with some isolated spots averaging 10-20 percent infested bolls. Pink bollworm damage resulted in heavy boll rot in many fields in Pecos Valley areas. (Neeb). ARIZONA - Boll infestations heavy in untreated fields at Safford, Graham County. Heavy in cotton southeast of Bowie, Cochise County. Some controls applied for top crop in Yuma County. Boll infestation 66 percent in field east of Chandler, Maricopa County. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSISSIPPI - Collected on soybeans at Montpelier, Clay County, August 9 by W.E. Taylor. ALABAMA - Collected on soybeans at Excel, Monroe County, September 11 by T. Lemons. Determined by V.H. Owens. Confirmed by A.M. Golden. These are new county records. (PP).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - One adult collected from citrus tree at Apopka, Orange County, August 28. Feeding damage moderate on new foliage. This is first infestation found outside regulated area in more than one year. (Fla. Coop. Sur.).

DETECTION

New State Records - AN ELATERID (Cardiophorus stolatus) - HAWAII - Oahu Island. (p.644). AN ENCARTID WASP (Ooencyrtus kuwanai) - MARYLAND - Cecil County. (p. 642). A SCOLYTID (Xylosandrus germanus) - VIRGINIA - Pittsylvania County. (p. 640).

New County Records - ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) WEST VIRGINIA - Summers (p. 640). BLACK SWALLOWTAIL (Papilio polyxenes asterius) SOUTH CAROLINA - Richland (p. 637). A COMB-FOOTED SPIDER (Latrodectus variolus) MICHIGAN - Lake (p. 641). EUROPEAN EARWIG (Forficula auricularia) MICHIGAN - Wayne, Wexford (p. 641). FACE FLY (Musca autumnalis) MISSISSIPPI - Pontotoc (p. 640). MIMOSA WEBWORM (Homadaula anisocentra) OKLAHOMA - Coal, Atoka, Choctaw, Johnston, Carter, Murray, Pontotoc, Love, Canadian, Grady (p. 640). MOSQUITOES - MARYLAND - Aedes stimulans, Garrett. CALIFORNIA - Psorophora signipennis, Inyo (p. 641). POTATO SCAB GNAT (Pnyxia scabiei) WASHINGTON - Benton (p. 637). SOYBEAN CYST NEMATODE (Heterodera glycines) MISSISSIPPI - Clay. ALABAMA - Monroe (p. 643). A TORTRICID MOTH (Archips rosanus) WASHINGTON - Chelan (p. 638). WESTERN CORN ROOTWORM (Diabrotica virgifera) MICHIGAN - Van Buren. INDIANA - White (p. 634).

CORRECTIONS

CEIR 22(35):573 - GREENBUG (Schizaphis graminum) - SOUTH DAKOTA - "Decreased to very low levels on corn." should read "Decreased to very low levels on sorghum." (PP). So far as known, corn is not a host of S. graminum in South Dakota. (Jones).

CEIR 22(36):599 - CHINCH BUG (Blissus leucopterus leucopterus) should read HAIRY CHINCH BUG (Blissus leucopterus hirtus).

HAWAII INSECT REPORT

New State Record - Six specimens of an ELATERID (Cardiophorus stolatus) collected under loose bark or at bases of kiawe trees at Hickam Air Force Base, Oahu, by B. Kumashiro; 2 on June 21, one on July 20, and 3 August 31. Biology of C. stolatus is apparently unknown. Larvae of Cardiophorus spp. mostly predatory and noneconomic, but larvae of a Cardiophorus sp. have been reported destructive to corn in Illinois. Distribution includes India, Ceylon, and Burma. Determined by E.C. Becker. (Kawamura).

General Vegetables - PEPPER WEEVIL (Anthonomus eugenii) and CORN EARWORM (Heliothis zea) light in all stages of fruits in 0.75 acre of sweet peppers at Koko Hend, Oahu. About 5-10 percent of fruits infested with corn earworm larvae, less than 5 percent infested with larvae and adults of pepper weevil. LEAFMINER FLIES (Liriomyza spp.) light in lettuce fields at Koko Head; larval mines restricted to one or two older leaves per head. Adults trace, less than one per head. (Kawamura).

Fruits and Nuts - Light to moderate colonies of COCONUT SCALE (Aspidiotus destructor) infested 30-70 percent of pinnae on 40 percent of fronds of 100+ coconut trees at Hawaii Kai, Oahu. Larvae and adults of several LADY BEETLES (Telsimia nitida, Lindorus lophanthae, and Pseudoscymnus anomolus) moderate on infested pinnae. P. anomolus introduced from Guam in February 1970 to aid in control of A. destructor. Subsequent releases made in several areas on Oahu, including Hawaii Kai; last release at this locale in August 1971. This is first recovery of P. anomolus in State. (Kawamura). During past few months, some backyard and commercial papaya plantings in Kona area of Hawaii found infested with serious viral disease, papaya mosaic. Transmission attributed primarily to GREEN PEACH APHID (Myzus persicae). Infected plants in area will be rogued and destroyed to reduce probability of spread to Puna, where most commercial plantings of papaya occur in Hawaii. (Matayoshi).

Beneficial Insects - Field collected cowpea and snap bean petioles on Kauai infested by Melanagromyza phaseoli (bean fly) revealed heavy parasitism of M. phaseoli by two BRACONID WASPS (Opius importatus and O. phaseoli) and a PTEROMALID WASP (Halicoptera patellana). Parasitism by Opius spp. 84 percent and by H. patellana 3 percent. (Sugawa). Field examination of Melastoma malabathricum at various locations on Hawaii during August showed infestation of fruits and terminals by MELASTOMA BORER (Selca brunella) averaged 40 (ranged 29-51) percent. Each sample included 100 terminals or fruits. (Matayoshi). Larvae and adults of a LADY BEETLE (Chilocorus nigritus) collected while feeding on Saissetia nigra (a soft scale) infesting bamboo plants at University of Hawaii campus, Oahu, during June 1972. C. nigritus purposely introduced from Ceylon in October 1958 and from Guam in August 1971. This is first recovery of C. nigritus in Hawaii. (Tsuda).

LIGHT TRAP COLLECTIONS

	Locality	Date	Precipitation	Temperature °F	Humidity %	Wind direction	Wind speed	Time of day	Type of trap	No. of insects	Crops														
											Apple	Apricot	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry	Blackberry
FLORIDA	Gainesville	9/8-14							BL	37	3	35	2	49	1	2	37	66	44	5	8				
KANSAS	Great Bend	8/31-9/6							BL	12				92		56	225	2	2	10					
	Hiawatha	9/8							BL	40				40		32	32								
	Tribune	8/31, 9/6, 7							BL		8	144		58		21	144			1					
KENTUCKY	Monticello	9/13							BL	4				29						2					
	Princeton	9/6-13							BL						2	210									
MICHIGAN	Adrian	9/6-12							BL																
	Maybee	9/4-9							BL																
	Shelby	9/3-8							BL																
NEBRASKA	Scotts Bluff	8/30-9/6							BL	1															
NEW JERSEY	Jones Island	9/7-13							BL	125				8											
	Seabrook	9/7-13							BL	128				58											
	Vineland	9/7-13							BL	41				13											
OHIO	Wooster	9/8-14							BL	46				7											
OREGON (County)	Marion	9/7-13							BL	7															
	Multnomah	9/5-13							BL																
PENNSYLVANIA (District)	Central	9/5-13							BL	9															
	Southeast	9/5-13							BL	29															
	Southwest	9/5-13							BL	8															
TENNESSEE (County)	Dyer	9/11-15							BL	8	1			5	485										
	Franklin	9/11-15							BL					2	2										
	Madison	9/11-15							BL	11				5	360										

1
64
5
1

KHAPRA BEETLE
(Trogoderma granarium Everts)

Selected References
1947-1966

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

- Anwar, M. S. 1957. A comparative study on the effectiveness of certain chlorohydro-carbon mixtures against Trogoderma granarium Everts., and other grain infesting insects in relation to 'concentration X time' factors. Agr. Pakistan 8(2):171-182.
- Anwar, M. S. 1961. Insecticidal value of pyrethrum powder in controlling Trogoderma khapra Arr., and other important pests of stored grains. Agr. Pakistan 12(2):238-246.
- Armitage, H. M. 1955. Fumigation - eradication test on khapra beetle. Down to Earth 10(4):2-3.
- Armitage, H. M. 1955. Khapra beetle suppression. A progress report. Calif. Dept. Agr. Bul. 44:150-154.
- Armitage, H. M. 1956. The khapra beetle suppression program in the United States and Mexico. Internat'l. Cong. Ent. Proc. 4(10): 89-98. Pub. 1958.
- Badawy, A. 1964. Some factors affecting the fecundity and longevity of Trogoderma granarium granarium Everts. (Coleoptera: Dermestidae). Soc. Ent. Egypte Bul. 48:281-290. Pub. 1965.
- Badawy, A. and Hassan, H. M. 1964. Studies on a natural infestation of the khapra beetle, Trogoderma granarium granarium Everts, in stored wheat in the Sudan (Coleoptera: Dermestidae). Soc. Ent. Egypte Bul. 48:273-280. Pub. 1965.
- Bailey, S. W. 1958. The position of khapra beetle in Australia. FAO Plant Protect. Bul. 6(5):72-73.
- Balu, V. and Pingale, S. V. 1956. Recent developments in the control of insect damage to stored grains in India. J. Sci. and Indus. Res. 15A(9):403-405.
- Beal, R. S., Jr., and Spitler, G. H. 1959. Report on crossbreeding experiments in Trogoderma (Coleoptera, Dermestidae). Ent. Soc. Wash. Proc. 61(1):1-6.
- Biological Sciences Branch and Plant Pest Control Branch. 1955. A situation report. The khapra beetle. U.S. Agr. Marketing Serv. and Agr. Res. Serv. ARS-22-17. 8 pp.
- Bosque Bobadilla, R. Del. 1958. El problema del khapra en Mexico. Chapingo 11(67/69):65-75.

- Burges, H. D. 1957. Studies on the dermestid beetle Trogoderma granarium Everts. I. Identification and duration of the developmental stages. Ent. Mon. Mag. 93(1116):105-110.
- Burges, H. D. 1959. Dormancy of the khapra beetle: quiescence or diapause. Nature 184(4700):1741-1742.
- Burges, H. D. 1959. Studies on the dermestid beetle, Trogoderma granarium Everts. II. The occurrence of diapause larvae at a constant temperature, and their behaviour. Bul. Ent. Res. 50(2):407-422.
- Burges, H. D. 1959. Studies on the dermestid beetle Trogoderma granarium Everts. III. Ecology in malt stores. Ann. Appl. Biol. 47(3):445-462.
- Burges, H. D. 1960. Studies on the dermestid beetle Trogoderma granarium Everts. IV. Feeding, growth, and respiration with particular reference to diapause larvae. J. Insect Physiol. 5(3/4):317-334.
- Burges, H. D. 1962. Studies on the dermestid beetle Trogoderma granarium Everts. V.--Reactions of diapause larvae to temperature. Bul. Ent. Res. 53(1):193-213.
- Burges, H. D. 1963. Studies on the dermestid beetle Trogoderma granarium Everts. VI.--Factors inducing diapause. Bul. Ent. Res. 54(3):571-587.
- California Legislature Joint Interim Committee on Agricultural and Livestock Problems. 1955. Special report on the khapra beetle Trogoderma granarium. Sacramento. 106 pp.
- Carncross, I. B. 1961. How we controlled khapra beetles in burlap-wrapped steel from Europe. Pest Control 29(10):46, 50-52.
- Carney, G. C. 1959. Differential response of male and female adults of Trogoderma granarium Everts towards sterilizing doses of gamma-radiation. Nature (London) 183(4657):338-339.
- Chatterji, S. 1955. Relative resistance of some national pusa varieties of wheat to Trogoderma granaria Everts. Indian J. Ent. 17(1):125-127.
- Chatterji, S. and Sarup, P. 1961. An unusual mode of egg-laying in Trogoderma granarium Everts (Dermestidae: Coleoptera), a pest of stored cereals. Cur. Sci. 30(6):230-231.
- Chatterji, S., Srivastava, P. D., and Sarup, P. 1962. Qualitative studies on the free amino acid constituents of different stages and sexes of Trogoderma granarium Everts (Dermestidae: Coleoptera). Calcutta Zool. Soc. Proc. 15(1):15-17.
- Cobb, R. D. 1956. The effects of methyl bromide fumigation on seed germination. Assoc. Off. Seed Anal. Proc. 46:55-61.
- Cotterel, G. C. 1950. The insect infestation of ground-nuts in Kano and their control. Pyrethrum Post 2(1):279-293.

- Cotton, R. T. 1954. Khapra beetle survey. U.S. Agr. Res. Ser., Plant Pest Control Branch. Oakland. 3 pp. Mimeo.
- Cotton, R. T. 1954. The khapra beetle--a new threat to grain handlers. Northwest. Miller (Milling Prod. Sect.) 252(11) Sect. 2:6a-7a.
- Cotton, R. T. 1955. A review of known information about the khapra beetle. Nowest. Miller (Milling Prod. Sect.) 253(10): 3a-5a.
- Cotton, R. T. 1955. What we are doing about the khapra beetle. Ent. Soc. Amer. N. Cent. Br. Proc. 10:70-71.
- Cotton, R. T. 1960. Let's kill the khapra beetle invader. Northwest. Miller 264(8):42-44.
- Cyanagrams. 1955. The khapra beetle. Cyanagrams 4(6):22-25.
- Dahl, C. 1960. The khapra beetle. Houdini of the grain bins. Co-op Grain Quart. 18(3):48-55.
- Dal Monte, G. 1954. A new enemy in our granaries? Molini d'Italia 5(5):198-201. In Ital.
- Dal Monte, G. 1960. The danger of diffusion of Trogoderma granarium Everts in Italy. Internatl. Cong. Ent. Trans., 11th Cong., v.2(sect. 7/14):313-316. In Ital. Pub. 1962.
- Das, G. M. 1956. Insects found inside tea chests on arrival in the U.K. Two and a Bud 3(2):10-11.
- Davatchi, A., Zahedi, K., and Mirchah-Valad, E. 1955. The effect of some new insecticides on Sitophilus (Calandra) granaria L., and Trogoderma granarium Everts. Tehran Univ. Appl. Ent. Bul. 6. 22 pp.
- Deuse, J. 1966. Report on the discovery of several foci of infestation by Trogoderma granarium in Senegal and on the provisional measures taken to combat this pest. Report of a mission 30th June-5th October 1966. Paris, Inst. Rech. Agron. Trop. 28 pp. In Fr.
- Duerden, J. C. 1955. Infestation of undecorticated groundnuts by Trogoderma granarium Everts. Colon. Plant and Anim. Prod. 5(3):208-210.
- Faber, W. 1953. Der khapra Käfer, ein für Österreich neuer vorratsschädling. Pflanzenarzt 6(11):1-2.
- Girish, G. K. 1966. Sexual difference in pupae of T. granarium to certain fumigants. Ann. Epiphyt. 17(4):437-440. In Fr., Engl. Sum.
- Harper, R. W. 1955. Khapra beetle and Mexican fruit fly. Insect problems new to California. Calif. Dept. Agr. Bul. 44:17-28.

- Hayward, L. A. W. 1954. The field fumigation of groundnuts in bulk. *J. Sci. Food and Agr.* 5(4):192-194.
- Hayward, L. A. W. 1955. Losses associated with groundnuts infested with Trogoderma granarium Everts. *J. Sci. Food and Agr.* 6(6): 337-340.
- Henderson, L. S. 1955. The khapra beetle--current status. *Chem. Spec. Mfr. Assoc. Proc. Mid-Year Mtg.* 41:127-128.
- Howe, R. W. 1956. A theoretical evaluation of the potential range and importance of Trogoderma granarium Everts in North America (Col. Dermestidae). *Internatl. Cong. Ent. Proc.* 4(10):23-28. Pub. 1958.
- Hoyt, A. S. 1955. The khapra beetle can be liquidated. *Northwest. Miller* 254(16):16, 21.
- Khalifa, A. 1960. On open-air and underground grain storage in the Sudan. *Soc. Ent. d'Egypte Bul.* 53(44):129-142.
- Khalifa, A. 1962. The relative susceptibility of some varieties of sorghum to Trogoderma attack. *Empire J. Expt. Agr.* 30(118): 132-136.
- Khalifa, A. and Badawy, A. 1960. The systematics of Trogoderma afrum Priesner and T. granarium Everts (Coleoptera: Dermestidae). *Roy. Ent. Soc. London Proc. Ser. B, Taxonomy* 29(11/12):145-152.
- Khalifa, A. and Badawy, A. 1961. The identity of the Trogoderma of the Sudan. *Soc. Ent. d'Egypte Bul.* 45:245-249.
- Khalifa, A. and Badawy, A. 1961. Food preference of Trogoderma granarium granarium Everts, Trogoderma granarium afrum Priesner and Trogoderma irroratum Reitter and the effect of diet on their biology (Coleoptera: Dermestidae). *Soc. Ent. d'Egypte Bul.* 45:251-261.
- Latif, A. and Khan, A. W. 1952. Is gammexane dust effective against Trogoderma khapra Arr.? *Pakistan Sci. Conf. Proc.* 4(3):74-75. (Abs.).
- Lester, L. 1955. Commissioners hear khapra beetle problem. *Calif. Farmer, South. Ed.* 202(1):44.
- Lindgren, D. L. 1955. Watch for the khapra beetle in stored foods. *Calif. Univ. Agr. Ext. Leaf.* 51. 8p.-folder.
- Lindgren, D. L., Vincent, L. E., and Krohne, H. E. 1955. The khapra beetle, Trogoderma granarium Everts. *Hilgardia* 24(1): 1-36.
- Lindgren, D. L., Vincent, L. E., and Krohne, H. E. 1954. Khapra beetle in California. Eastern hemisphere insect destructive to stored grain, cereal products and foodstuffs established in state. *Calif. Agr.* 8(9):7, 15.

- Lindgren, D. L., Vincent, L. E., and Krohne, H. E. 1955. Khapra beetle control studies. Preliminary results of tests with fumigants and dust give promise of effective treatments against destructive pest. Calif. Agr. 9(3):8-9.
- MacGregor Loaeza, R. 1959. Trabajos y resultados logrados contra el gorgojo khapra Trogoderma granarium Everts en Guadalajara, Jal. Fitofilo 12(23):5-12.
- Markin, A. K. and Kucherova, S. G. 1962. Khapra beetle. Zashch. Rast. ot Vred. i Boleznei 11:54-55. In Rus.
- Menon, M. G. R. and Sarup, P. 1958. A unique instance of an antennal freak in Trogoderma granarium Everts (Coleoptera: Dermestidae). Indian J. Ent. 20(1):67-68.
- Mexico Direccion General De Defensa Agricola Oficina De Entomologia. 1955. Plaga de granos almacenados. Gorgojo de khapra (Trogoderma granarium Everts). Fitofilo 8(9):66-70.
- Monte, G. D. 1955. The adventurous march of the Trogoderma in the world. Molini d'Italia 6(6):248-250. In Ital.
- Narayanan, E. S. and Bhambhani, H. J. 1956. Effect of reduced pressure on Tribolium castaneum Herbst. (Tenebrionidae: Coleoptera) and Trogoderma granaria Everts (Dermestidae: Coleoptera). Indian J. Ent. 18(2):196-198.
- Nielson, M. W. 1958. An early record of the khapra beetle in Arizona. Pan-Pacific Ent. 34(1):44.
- Norato, G. 1956/1957. Report on two parasites of grain recently introduced into Sicily. Palermo Univ. Ist. di Ent. Agr. Bol. 2(8):245-249. In Ital.
- Padget, L. J. 1954. Report to the Western Plant Board on the detection survey for khapra beetle in the Western States. U.S. Agr. Res. Serv., Plant Pest Control Branch. Oakland. 7 pp. Mimeo.
- Pant, N. C. 1953. Nutritional requirements of Trogoderma granaria Everts. (Coleoptera, Dermestidae). Cur. Sci. 22(12):379-380.
- Pant, N. C. 1956. Nutritional studies on Trogoderma granarium Everts. Basic food and vitamin requirements. Indian J. Ent. 18(3):259-266.
- Pant, N. C., Nayar, J. K., and Gupta, P. 1958. On the significance of amino acids in the larval development of khapra-beetle, Trogoderma granarium Everts. (Coleoptera: Dermestidae). Experientia 14(5):176-177.
- Pant, N. C. and Pant, J. C. 1960. Nutritional studies on Trogoderma granarium Everts. IV. Further studies on vitamin requirements of larvae grown on different casein samples. Indian J. Ent. 22(2):115-120.

- Pant, N. C. and Uberoi, N. K. 1958. On the carbohydrate utilization by the larvae of Trogoderma granarium Everts. (Dermestidae: Coleoptera). Experientia 14(2):71-72.
- Plant Pest Control Branch. 1954. Khapra beetle (Trogoderma granarium). U.S. Agr. Res. Serv. 2 pp.
- Plant Pest Control Division. 1961. The khapra beetle. A pest of stored grains and cereal products. U.S. Dept. Agr. PA-436. 8p.-folder.
- Pradhan, S. and Sarup, P. 1960. Relative toxicity of insecticidal films to adults of Trogoderma granarium Everts., Oryzaephilus surinamensis Linn. & Laemophloeus minutus Oliv. 19C(6):135-139.
- Pradhan, S. and Sharma, G. C. 1956. Control of khapra (Trogoderma granarium Everts). Cur. Sci. 25(1):22.
- Price, M. D. 1948. The khapra beetle (Trogoderma granarium Everts) Inst. Brewing J. 54(4):213-217.
Discussion pp. 217-218
- Reynolds, E. M. and Sylvester, N. K. 1961. The inheritance of a pearl-eyed mutation of Trogoderma granarium Everts (Col., Dermestidae). Ent. Mon. Mag. 97(1169/1171):221-224.
- Rossi, L. 1958. They have come from the Orient to eat our grain. Selez. di Tec. Molitoria 9(7):116-120. In Ital.
- Shantaram, H. 1957. The extension of larval duration in Trogoderma granarium, Everts after DDT treatment. Natl. Inst. Sci. India Proc. 23(5/6, pt. B):145-151.
- Shantaram, H. 1958. Effect of insecticides on the oviposition of survivors of Trogoderma granarium, Everts. (Dermestidae, Coleoptera). J. Bill. Sci. 1(2):71-74.
- Sharifi, S-D. 1958. Contributions to the biology of Trogoderma granarium. Summary and conclusions of my unpublished thesis: Etude biologique et ecologique de Trogoderma granarium Everts (Coleoptera-Dermestidae): Dermeste des grains, khapra beetle. Stat. Skadedyrlab. Arsberet. Ann. Rpt. 1955/1956. pp. 64-68. Denmark.
- Shepherd, D. R. 1957. Khapra beetle eradication. FAO Plant Protect Bul. 5(5):75-77.
- Shulov, A. 1955. A contribution to the ecology of Trogoderma granaria Everts. Indian Acad. Sci. Proc. Sect. Bul. 42:1-13.
- Shulov, A. S. 1966. Influence of environmental conditions on population dynamics of the khapra beetle; final technical report. Jerusalem, Hebrew University of Jerusalem. 195 pp.
- Sohi, G. S. 1947. Studies on stored grain pests in the Punjab--VIII. Effect of constant light and darkness on the development and reproduction of and amount of food consumed by Trogoderma granarium Everts. Indian J. Ent. 9(2):143-147.

- Stanford, C. L. 1956. The khapra beetle. U.S.D.A. acts to control new grain destroyer. Cereal Sci. Today 1(4):134-135.
- Stored-Product Insects Branch, Agricultural Marketing Service. 1960. A summary of information about the khapra beetle. U.S. Dept. Agr., Agr. Marketing Serv. AMS-390. 11 pp.
- Stored-Product Insects Section, Agricultural Marketing Service. 1956. Manual of approved treatment procedures to be used under the khapra beetle quarantine. Agr. Marketing Serv., U.S. Dept. Agr. 12 pp.
- Strong, R. G. and Okumura, G. T. 1966. Trogoderma species found in California; distribution, relative abundance, and food habits. Calif. Dept. Agr. Bul. 55(1):23-30. Map.
- Swaine, G. and Mutter, N. E. S. 1961. Trogoderma. Tanganyika Dept. Agr. Bul. 7. 4 pp.
- Thomas, P. M., Cameron, S., and Bhardwaj, G. N. 1959. Khapra. Allahabad Farmer 33(5):398-401.
- U.S. Agricultural Marketing Service. 1955. Have you seen this in your grain. U.S. Dept. Agr. PA-261. 4 pp.
- U.S. Department of Agriculture, Office of Information. 1960. Khapra beetle threatens Nation's stored grain and seed. U.S. Dept. Agr., Office of Information Picture Story 126. 4 pp.
- Ward, A. 1965. The khapra beetle, Trogoderma granarium and two other species of Trogoderma (Coleoptera; Dermestidae) inter-cepted entering New Zealand. N.Z. Ent. 3(4):39-41.
- Whellan, J. A. 1956. A grain pest new to Rhodesia. Rhodesia Agr. J. 53(1):41-50.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(38):647-653, 1972

WEATHER OF THE WEEK ENDING SEPTEMBER 18

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Highs were conspicuous on the weather map early in the week. One High was centered over the northern Great Plains, another High covered the eastern third of the Nation. A slow moving front stretched from a Low centered in the vicinity of Hudson Bay across Lake Superior to the central Great Plains and westward to another Low centered in northern Utah. Scattered showers and thunderstorms, some heavy, rumbled in the vicinity of the front. Especially heavy rains fell in eastern Nebraska and western Iowa. Storm totals exceeding 5 inches were common in that area; some localities received more than 10 inches Sunday evening and early Monday. One of the largest totals that has come to our attention was 21 inches at Earling, Iowa, about 40 miles northeast of Omaha, Nebraska. Continued heavy rains in Shelby County, Iowa, caused record river stages along the west and east forks of the Nishna-
botna River. Heavy rains in Nebraska, Iowa, Kansas, and Missouri caused important rises on the main stem of the Missouri River. Although the heaviest thundershowers occurred in the Nebraska and Iowa vicinity, heavy showers occurred elsewhere along the front which, by midweek, stretched from the Texas Panhandle to New England. Heavy rains swelled creeks and rivers in Iowa, southeastern Minnesota, and northern Illinois. Hail as large as baseballs fell in the Sidney, Iowa, vicinity early Wednesday evening. Much of the rain which occurred late in the week fell on saturated soil where it was not needed. As the weekend approached, a slow moving front was approaching the gulf and southern Atlantic coast. Rain was sparse and sunny skies prevailed over most of the Nation. Generous rains fell over the weekend in the Deep South. Lighter showers occurred from Wisconsin to Pennsylvania.

TEMPERATURE: Early in the week a High centered over the northern Great Plains dropped early morning temperatures into the 40's from Montana to Upper Michigan and held afternoon temperatures in the 60's and 70's in the vicinity of the Great Lakes. Another High was spread over the eastern third of the Nation. It brought warm, humid air to that area. Afternoon temperatures in the tropical air ranged mostly in the 80's and 90's. A slow moving cold front marked the battle line of cold and warm air masses. Cold air pushed the front southward and eastward and as the weekend approached, comfortable weather prevailed over most of the Nation. Afternoon temperatures reached 100 degrees on some days in the desert Southwest. Buckeye, California, registered 105 degrees Thursday afternoon. Temperatures dropped to 32 degrees or lower at some mountain stations in the West on 1 or 2 mornings. Big Piney, Wyoming, recorded 15 degrees Thursday morning, Bondurant, Wyoming, registered 12 degrees. Pleasant, sunny weather continued over the weekend over most of the Nation. Maximums ranged from near 60 degrees along the Canadian border to the 90's along the Gulf of Mexico. Afternoon temperatures reached the 90's over the central Great Plains on Saturday and Sunday -- 97 degrees at Omaha Nebraska, Sunday. The Deep South was equally as warm but higher humidity made the air feel "sticky." In general, weekly mean temperatures averaged cooler than normal west of the Rocky Mountains and warmer than normal east of the Rockies. Parts of the central Great Plains averaged 6 to 8 degrees warmer than normal.



U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C77 Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 Service 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:

CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

CORN EARWORM, in combination with other noctuids, damaged several thousand acres of soybeans and several hundred acres of field peas in Alabama. GREENBUG heavy on winter wheat in south-central South Dakota. (p. 657).

BOLL WEEVIL infestation in southern Georgia lowest for this date in several years. BANDEDWING WHITEFLY still threat to green cotton in area of Mississippi. (pp. 660, 661).

WALNUT CATERPILLAR, HICKORY SHUCKWORM, and BLACK PECAN APHID problem on pecans in south-central Texas. (p. 662).

WHITE FIR NEEDLEMINER heavy on 10,000 acres of white fir on Apache National Forest in Arizona. (p. 662).

STABLE FLY heavy on cattle in several areas of Wisconsin. (p. 663).

Prediction

GRASSHOPPERS pose potential threat on more than 6,000,000 acres of rangeland in several Western States. (pp. 664-665).

Detection

For new county records see page 665.

Special Reports

Alfalfa Weevil. Selected References 1970-1971. (pp. 670-674).

Reports in this issue are for week ending September 22 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	657
Insects Affecting	
Corn, Sorghum, Sugarcane....	658
Small Grains.....	659
Turf, Pastures, Rangeland...	659
Forage Legumes.....	659
Soybeans.....	660
Cotton.....	660
Potatoes, Tomatoes, Peppers.	661
Beans and Peas.....	661
Cole Crops.....	661
Deciduous Fruits and Nuts..	662
Small Fruits.....	662
Forest and Shade Trees....	662
Man and Animals.....	663
Stored Products.....	664
Beneficial Insects.....	664
Federal and State Plant Protection Programs.....	664
Detection.....	665
Corrections.....	665
Hawaii Insect Report.....	666
Light Trap Collections.....	667
Alfalfa Weevil. Selected References 1970-1971.....	669

WEATHER OF THE WEEK ENDING SEPTEMBER 25

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Widely scattered thunderstorms occurred in the humid tropical air that streamed northward in the warm sector of the storm which was centered in southern Manitoba. Thunderstorms also occurred along fronts associated with storm. Torrential rains fell in northern Ohio Sunday night and early morning September 18. A storm in the Pacific Northwest brought rain to the coastal areas, nearby hills, and snow in the higher Cascades. Stampede Pass, Washington, measured 5 inches of snow on the ground Wednesday morning. A long band of thunder storms marked the advance of the strong cold front Wednesday forenoon. A front at the time reached from Lake Superior to the Texas Panhandle and was moving south-eastward. Heavy rains, about 5 inches, drenched Duluth, Minnesota, causing local flooding. Hail and high winds occurred in Wisconsin and Minnesota. A large High pushed into the northern Great Plains shortly after midweek ending the rainy weather in that area. However, as the leading edge of the cold air migrated southeastward, it set off other thunderstorms. Heavy rains caused a light overflow of Rock River in northern Illinois Thursday. In the Texas Big Bend area, heavy rains caused the Rio Grande to rise above flood level. While a band of thunderstorms moved across the Great Plains, other air mass thunderstorms dotted the Deep South in hot sultry air that covered that region. Light to moderate showers fell from the Great Lakes to eastern Texas over the weekend. Weekly totals exceeded 5 inches in the extreme Northwest where the rainy season has definitely begun. Generous totals also occurred in northern Mississippi, nearby portions of neighboring States, and extreme southern Florida. The driest spots included California, southern New Mexico, southern Georgia, central and northeastern Wyoming, and western and central South Dakota.

Weather of the week continued on page 674.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - ILLINOIS - Infestations in corn ear tips in east-southeast and southeast districts ranged 0-10 (averaged 5) percent. Ranged 0-20 (averaged 8) percent in southwest and west-southwest districts. (Ill. Ins. Rpt.). KANSAS - Larvae, mostly late instars, averaged 1.2 per head in soft dough stage sorghum in Linn County field; none seen in second field. None found in Miami County field; trace in one Johnson County field; second and third instars infested 5 percent of heads in Atchison County field; trace found in 2 fields each in Brown and Jackson Counties. Recent blacklight trap catches showed significant moth flights in Brown, Barton, and Finney Counties. (Bell). OKLAHOMA - Still present in several Payne County crops. Averaged 1 per 3 heads in grain sorghum, 2 per plant in peanuts, and light in alfalfa. (Okla. Coop. Sur.).

MISSISSIPPI - Averaged 1.5 per row foot in 80 acres of grain sorghum in Yalobusha County. (Sartor). ALABAMA - H. zea, Anticarsia gemmatalis (velvetbean caterpillar), and Pseudoplusia includens (soybean looper) damaged several thousand acres of soybeans in Baldwin and Mobile Counties. Heavy in several fields in Covington County. Two H. zea specimens taken in Talladega County where 15 spot surveys made. Occasional P. includens larva seen with fungus disease. (Turner et al.). H. zea and Trichoplusiani (cabbage looper) damaged several hundred acres of commercial field peas in Geneva County. (Reynolds). VIRGINIA - H. zea moth collections in Accomack and Northampton Counties not high but consistent; about 10 per night taken past 7 days. Some small larvae observed in soybeans; several growers advised to treat. (Hofmaster). Very light in Middlesex County. (Edwards).

MARYLAND - H. zea larvae caused light damage to 60 acres of soybeans near Hurlock, Dorchester County, and Hebron, Wicomico County. Damaged pods ranged 3-5 per 20 row feet. Other fields on Eastern Shore remain below this damage level. (U. Md., Ent. Dept.). DELAWARE - Adults averaged 24 per night in blacklight trap collections for 5 locations in Sussex County. Infestations in untreated late season sweet corn averaged nearly 100 percent in this area. (Burbutis, Kelsey).

GREENBUG (Schizaphis graminum) - SOUTH DAKOTA - Very heavy on all stages of winter wheat in Tripp and Lyman Counties. Averaged 2,250 per 3 linear row feet in untreated winter wheat field south of Kennebec, Lyman County. Winter wheat just emerged from ground reported killed by feeding damage below soil surface. (Jones). KANSAS - Trace in volunteer wheat in Rice and Barton Counties, and in seeded wheat in Stafford County. (Bell). OKLAHOMA - Occasional specimens seen in seedling wheat in Major and Garfield Counties and in volunteer wheat in Woods County. (Okla. Coop. Sur.). WASHINGTON - Light on small plantings of sorghum and Sudan grass in Franklin and Benton Counties in late August. Scattered colonies on earliest planted wheat now present in same areas. (Klostermeyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEBRASKA - Light in four seedling alfalfa fields in Dawson and Keith Counties. Ranged up to 20 per 20 sweeps in one field, negligible in 15 other established alfalfa fields. (Manglitz, Keith). NORTH DAKOTA - Adults collected from alfalfa at rate of 4 per 100 sweeps in Dunn County. This is a new county record. (Brandvik).

TOBACCO BUDWORM (Heliothis virescens) - MISSISSIPPI - Eggs averaged 7 per terminal in 20 acres of pigeon peas (experimental cover crop) in Perry County. (Sartor).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Second-instar to full-grown larvae infested 95 percent of stalks in field of late sorghum in Linn County; population mixture of second and third generation. None found in second field of more mature sorghum. Trace third-generation infestation noted in sorghum field in Miami County; 15 percent of plants infested in Johnson County field (mostly third generation). Trace infestations found in sorghum in Brown, Atchison, and Jackson Counties. Also taken in Wallace and Gove Counties. Collected and determined by M. Shuman. These are new county records. (Bell). MINNESOTA - Second generation light in south-central and southeast districts. Plants with feeding damage averaged 53.6 percent; borers per 100 plants averaged 20.4. Most borers in fourth instar. Infestations found in ear tips. Very few shank infestations noted; this contrasts sharply from second generation of 1971. (Minn. Pest Rpt.),

ILLINOIS - Populations of O. nubilalis in field corn seem lighter than normal in 12 counties in southern third of State; 90 percent fifth instar. (Ill. Ins. Rpt.). DELAWARE - Adults decreased in blacklight trap collections, averaged 5 per night for 5 locations in Sussex County. (Burbutis, Kelsey). NORTH CAROLINA - Reduced yields of late corn in conjunction with low soil moisture. Up to 13 larvae per stalk seen in Robeson County. Lodging became serious problem in some heavily infested fields; however, generally below 5 percent of stalks infested. Harvest underway throughout Coastal Plain and Piedmont. (Hunt).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ILLINOIS - Occasional infestations in field corn found in Saline, Alexander, and Pulaski Counties. Alexander County field averaged nearly 65 percent of plants infested; many toppled to ground. (Ill. Ins. Rpt.). ALABAMA - Damage moderate in 20-acre cornfield in Limestone County; damage heavy in several fields in Blount County. Last-generation larvae girdled stalks just above ground; toppled to ground. (Patterson, Loyd).

SORGHUM WEBWORM (Celama sorghiella) - KENTUCKY - Larvae averaged 5 per head on late planted grain sorghum in Butler County. (Barnett, Raney).

CORN ROOTWORMS (Diabrotica spp.) - IDAHO - D. virgifera (western corn rootworm) continued active on mature corn in Franklin County. (Sandvol). WISCONSIN - Specimen of D. virgifera taken from corn in Barron County. Determined by R.E. White. This is a new county record. (Wis. Ins. Sur.). NORTH CAROLINA - D. undecimpunctata howardi (southern corn rootworm) caused heaviest damage to peanuts in Halifax and Northampton Counties. Damage completed. Little reduction in loss to be achieved by treating this late. (Hunt).

SORGHUM MIDGE (Contarinia sorghicola) - KANSAS - Adults ranged 2-10 per blooming head in late sorghum in Allen and Linn Counties; up to 50 per head in one field in Miami County. Trace numbers seen on blooming sorghum in one field each in Johnson and

Atchison Counties. Adults averaged 3-4 per blooming head on Johnson grass in Allen County. (Bell). MISSISSIPPI - Averaged 10 per head in one grain sorghum field in Oktibbeha County. (Robinson).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Heavy in seedling wheat in Payne, Noble, Kay, and Jackson Counties. Damaged wheat in Tulsa County. Larvae ranged first to third instar in Kay County and first to fifth instar in Payne County. Light in Grant, Garfield, and Woodward Counties. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

SOUTHERN CHINCH BUG (Blissus insularis) - TEXAS - Still problem in some lawns throughout Coastal Bend area and in Brazos and Burleson Counties. Some controls applied. (Cole, Green). CALIFORNIA - Infested Saint Augustine grass lawn at Stockton, San Joaquin County. Collected by C. Witherspoon and L. Hawkins. Determined by A. Hardy. This is a new county record. Pest now occurs in Orange, Los Angeles, Riverside, Sacramento, and San Joaquin Counties. (Cal. Coop. Rpt.).

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Larvae damaged several fields of grass hay in Washington County. (Estes).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - UTAH - Very heavy in Chrysothamnus (rabbitbrush) blossoms in Snowville area of Box Elder County, and in Logan, Green, and Box Elder Canyons of Cache County. (Knowlton).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NORTH DAKOTA - Half-grown larvae averaged 8 per 100 sweeps in third-crop, irrigated alfalfa in McKenzie County. Adults averaged 56 per 100 sweeps in same fields. (Brandvik). NEBRASKA - Eleven adults and 17 larvae per 100 sweeps taken in 16 Dawson County alfalfa fields. (Manglitz, Keith). WISCONSIN - Specimens taken from alfalfa during late June in Pierce, Chippewa, Dunn, Eau Claire, Polk, Barron, and St. Croix Counties. Determined by R.E. Warner. These are new county records. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEBRASKA - Ranged 2-20 per 20 sweeps in 16 Dawson County alfalfa fields. (Manglitz, Keith).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - MASSACHUSETTS - Infestations in a mature untreated Berkshire County alfalfa field dropped from 16 percent to 5 percent in 14 days. Most mines in lower, older leaflets. (Jensen).

ALFALFA CATERPILLAR (Colias eurythema) - NEW MEXICO - Heavy adult flights seen on alfalfa in northern Eddy County around Artesia. (N.M. Coop. Rpt.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults and larvae caused moderate to heavy defoliation (30-60 percent) in several hundred acres in Wicomico, Somerset, and Worcester Counties. Damage considered noneconomic as most beans filled before defoliation became moderate. (U. Md., Ent. Dept.). VIRGINIA - Built up in Middlesex County on late and early soybeans; many fields sprayed. (Edwards).

BEAN LEAF BEETLE (Cerotoma trifurcata) - OKLAHOMA - Heavy in Wagoner County soybeans. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - MISSISSIPPI - Ranged light to heavy in 2,000 acres in Issaquena County; light in 850 acres in Clay County. (Robinson). OKLAHOMA - Damaged soybeans in Wagoner County. (Okla. Coop. Sur.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - KENTUCKY - Averaged 42 per 360 row feet in Henderson County. (Barnett, Raney).

COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Punctured square counts ranged 0-21 percent in south-western area, adults common in blooms. Counts ranged 1-26 percent in Muskogee County; still averaged 100 percent in remaining squares in Caddo and Washita Counties. (Okla. Coop. Sur.). TEXAS - Weevils active in fields on east side of St. Lawrence area, Glasscock County. Punctured squares ranged 10-15 percent. No weevil activity detected on north side of St. Lawrence area. Producers in northern Glasscock County and east of Garden City plan to initiate diapause control program. (Neeb). GEORGIA - Infestation lowest for this date in several years in southern area. (Womack).

BOLLWORMS (Heliothis spp.) - ARKANSAS - H. virescens heavy in extreme southeast area since early August. Moths appeared on sugar line in Jackson County in early September. Heliothis spp. moth flight very heavy in Jackson County September 15 and 19. None to very few moths observed on sugar lines in Mississippi County all season in extreme northeast area. Heliothis spp. larvae appeared in late cotton in this area. (Boyer). OKLAHOMA - Counts of Heliothis spp. damaged squares ranged 0-12 percent in southwestern area, 14 percent in Caddo and Washita Counties. Damaged boll counts ranged 1-20 percent in Wagoner, Muskogee, and Bryan Counties. Eggs and small larvae still common in terminals in most areas. (Okla. Coop. Sur.).

TEXAS - H. zea ranged moderate to heavy across cotton area. Damage 5-20 percent in El Paso County. Pecos and Reeves Counties report heavy egg pressure, 5-25 larvae per 100 plants, and 4-20 percent damage to squares and bolls. Heavy activity across Glasscock County, 10-20 percent damaged fruit. Midland, Martin, Upton, and Reagan Counties report 15-50 eggs per 100 plant terminals, 3-15 larvae per 100 plants, and 5-25 percent damaged squares and bolls. (Neeb). MISSISSIPPI - Heliothis spp. infestations ranged 0-8 percent in 500 acres in Issaquena County; eggs 60 percent and larvae 3 percent in 100 acres in Lowndes County. (Robinson). GEORGIA - Egg laying and infestations decreased in southern area. (Womack).

CABBAGE LOOPER (*Trichoplusia ni*) - ALABAMA - Larvae moved further north in State in heavier numbers than in over 10 years. Present in most cotton, but damage questionable. Virus condition in larvae apparently exerted less control than in most years. (McQueen).

BEE T ARMYWORM (*Spodoptera exigua*) - MISSISSIPPI - Light to heavy in 500 acres of cotton in Issaquena County; 16 larvae recovered from 1 white bloom. (Robinson).

BANDED WING WHITEFLY (*Trialeurodes abutilonea*) - MISSISSIPPI - Moderate to heavy in 1,000 acres in Issaquena County; still threat in Coahoma County green cotton. (Robinson).

POTATOES, TOMATOES, PEPPERS

VINEGAR FLIES (*Drosophila* spp.) - MARYLAND - Increased in late season tomatoes. Damaged about 10 percent of fruit in most fields contaminated with eggs and larvae. (U. Md., Ent. Dept.).

BEANS AND PEAS

SOYBEAN LOOPER (*Pseudoplusia includens*) - TENNESSEE - Immatures infested snap beans in Crossville area, Cumberland County. Will cause beans to be rejected at processing plant. (Mullett, Burgess).

CABBAGE LOOPER (*Trichoplusia ni*) - KENTUCKY - Second and third-instar larvae in scattered "hot spots" damaged 525 acres of snap beans in Wayne County. (Barnett, Gregory).

COLE CROPS

CABBAGE LOOPER (*Trichoplusia ni*) - MISSISSIPPI - Heavy in 25 acres of greens and collards in Leake County. Some plants killed. (Robinson).

CABBAGE WEBWORM (*Hellula rogatalis*) - ALABAMA - Larval feeding destroyed collards on 20-acre commercial planting in Jefferson County. (Smith).

DECIDUOUS FRUITS AND NUTS

WALNUT CATERPILLAR (Datana integerrima) - MISSISSIPPI - Caused partial defoliation of hickory in Winston County. (Robinson). TEXAS - Heavy on pecans in eastern and south-central areas. Second-generation larvae defoliated most pecan trees in Liberty County during early September. Almost daily showers in Liberty County and other surrounding eastern counties hampered control. Infestations seen in Guadalupe, Gonzales, De Witt, Goliad, and Victoria Counties. (Tiller, Cole). OKLAHOMA - Heavy in Bryan and Pontotoc Counties; averaged about 1 colony per 5 trees in Payne County. (Okla. Coop. Sur.).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Heavy infestations defoliated pecans in Crockett, Ward, and Winkler Counties of Trans-Pecos area. Some infestations in far western areas resulted in complete webbing of trees. Increased infestations damaged pecans in Brazos County. (Neeb, Green).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Damage appeared as pecans matured throughout most south-central areas. Infested counties include Guadalupe, Gonzales, De Witt, Goliad, and Victoria. (Cole).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Adult emergence decreased in Payne County; still emerging in Tulsa County. (Okla. Coop. Sur.).

BLACK PECAN APHID (Tinocallis caryaefoliae) - TEXAS - Damaged pecans in Gonzales, De Witt, and Victoria Counties. (Cole). ALABAMA - This species and Monellia spp. (yellow aphids) built up to damaging populations on commercial pecan trees in Elmore, Lowndes, Lee, Baldwin, Bullock, Washington, and Covington Counties. (Morris et al.).

BLACKMARGINED APHID (Monellia costalis) - MISSISSIPPI - Controls applied on pecans in Coahoma County. (Robinson).

SMALL FRUITS

GRAPE BERRY MOTH (Paralobesia viteana) - OHIO - Second-generation larvae found in untreated or improperly treated vineyards. Eggs and all larval stages found in Lake County September 8; only parasitized eggs found 14 days later. No second-brood buildup found in adequately treated vineyards. (Still).

FOREST AND SHADE TREES

WHITE FIR NEEDLEMINER (Epinotia meritana) - ARIZONA - Caused heavy defoliation on 10,000 acres of white fir on Apache National Forest 30 miles south of Springerville, Apache County. Estimated 50 percent of needles mined. (Ariz. Coop. Rpt.).

A GEOMETRID MOTH (Lambdina pellucidaria) - MASSACHUSETTS - Larvae moderate on pines in southeastern part of State. (Mankowski).

FALL WEBWORM (Hyphantria cunea) - OHIO - Statewide survey showed heaviest infestations in eastern part of State where serious

defoliation occurred in many east-central and northeastern counties. In western areas, infestation generally light. Defoliation of no major concern except in some small isolated areas. (Fox). NEW MEXICO - Heavy on cottonwood, mulberry, poplar, and other species of shade trees in southern areas. (N. M. Coop. Rpt.).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - ARKANSAS - Heavy populations did not develop in 1972 as during past two years. Species apparently returned to more normal pattern. (Boyer). MISSOURI - Ornamental oaks defoliated in spots around cities in southeast area. Light feeding seen on wild oaks. (Munson).

MAPLE LEAFCUTTER (Paraclemensia acerifoliella) - NEW HAMPSHIRE - Damaged sugar maples on estimated 50 acres in Sullivan County. (Mason, Morse).

MIMOSA WEBWORM (Homadaula anisocentra) - OKLAHOMA - Light on mimosa in Morrison, Noble County. This is a new county record. (Okla. Coop. Sur.).

ORANGESTRIPED OAKWORM (Anisota senatoria) - MICHIGAN - Larvae locally heavy on individual specimen trees in Calhoun and Kalamazoo Counties. (Sauer).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 4,669 confirmed cases reported in continental U.S. during period September 10-16 as follows: Texas 4,200; New Mexico 159; Arizona 201; Oklahoma 109. Total of 1,247 confirmed cases reported in Mexico. Number of sterile flies released in U.S. this period totaled 171,626,000 as follows: Texas 150,148,000; New Mexico 5,140,000; Arizona 15,688,000; California 650,000. Total of 28,220,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - KENTUCKY - Adult average per animal on mixed breeds of cattle by county: Jessamine 10.8, Fayette 15.0, Bourbon 7.5 and Scott (one location) 18.5. (Barnett). ILLINOIS - Averaged 5.6 per animal on untreated pastured beef and dairy cattle in northern area. (Ill. Ins. Rpt.).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Averaged 22.4 per animal on untreated pastured beef and dairy cattle in northern area. Unusually heavy; summer populations ranged 6-10 per animal. (Ill. Ins. Rpt.). WISCONSIN - Moderate to heavy on cattle in Chippewa, Columbia, Rock, Wood, Walworth, and Bayfield Counties. (Wis. Ins. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Ranged 75-100 per cow in Issaquena County, 1,000+ on 15 head in Monroe County (Robinson). OKLAHOMA - Averaged 300 per head on cattle in Payne County. Heavy in Craig and Pontotoc Counties, moderate to heavy in Woodward County, and moderate in Pawnee County. (Okla. Coop. Sur.). ILLINOIS - Averaged 28 per animal on untreated pastured beef and dairy cattle in northern area. (Ill. Ins. Rpt.).

MOSQUITOES - OHIO - Aedes vexans and Culex p. pipiens annoying in various areas throughout northern section. Potential for continued

breeding extremely favorable due to heavy rains. Annoyance by adult mosquitoes emerging from flooded areas will depend on favorable temperatures at dusk. (Rings). WISCONSIN - Mosquito populations heaviest ever. Heavy rainfall added to existing problem of standing water in low areas. Expected to remain major nuisance until freezing weather. Annoyance to humans and cattle heavy in all areas. (Wis. Ins. Sur.). MINNESOTA - Aedes vexans still dominant species in light trap and bite collections in Metropolitan Mosquito Control District; accounted for 80 and 40 percent, respectively, of catches. Culex p. pipiens, C. restuans, C. salinarius, C. tarsalis, and C. territans present in small numbers in trap collections. Two egg samples from Ramsey County showed 93 percent diapause when submersed in laboratory. (Minn. Pest Rpt.).

UTAH - Mosquitoes, mainly A. dorsalis, very heavy and annoying from Locomotive Springs north through Curlew and Hansel Valleys, past Snowville in Box Elder County. Annoying also in Cache and Davis Counties. Mosquitoes annoying horses near Collinston, Box Elder County. (Knowlton). CALIFORNIA - Heavy in Sacramento, Sacramento County, and adjacent areas. Draining of rice paddies in rice-growing areas resulted in heavy populations. (Cal. Coop. Rpt.).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEVADA - Heavy in Las Vegas area, Clark County, with much treating underway. (Zoller).

STORED PRODUCTS

INDIAN MEAL MOTH (Plodia interpunctella) - OHIO - Moderate to heavy in bin of wheat in Pickaway County elevator. Considered most troublesome of grain infesting moths. (Fox, September 15).

BENEFICIAL INSECTS

AN ENCYRTID WASP (Ooencyrtus kuwanai) - SOUTH CAROLINA - Total of 20,000 specimens of this egg parasite of Porthetria dispar (gypsy moth) released in Horry County where male moths trapped earlier this season. (McKee).

LADY BEETLES - COLORADO - Various species heavy in Pueblo County alfalfa fields. (Colo. Ins. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Survey of pasture near Custer, Whatcom County, showed development on September 11 to be 3.48 percent pupae and 96.6 adults. (Jackson).

GRASSHOPPERS - NEW MEXICO - Heavy on rangeland in Lincoln, Chaves, Eddy, and Lea Counties. Over 3,000,000 acres heavily infested. (N. M. Coop. Rpt.). COLORADO - Adult surveys reveal 53,140 acres of cropland and 580,120 acres of rangeland infested in eastern areas. Pueblo and Fremont Counties have largest area of threatening infestations. (Colo. Ins. Sur.). MONTANA - Adult survey showed counts of 8+ per square yard on total of 187,300 acres in 14 counties. Melanoplus sanguinipes, M. bivittatus, Camnula pellucida, and M. packardii dominant species. (Pratt).

IDAHO - Fall adult grasshopper surveys indicate potential control may be needed on 2,130,000 acres of which 749,160 acres are private and State land and 1,381,000 acres public domain. About 750,000 acres are in Lincoln, Blaine, and Minidoka Counties. Numerous aerial migrations observed all season. (Pollard).
WASHINGTON - Adult survey showed statewide economic populations (8 or more per yard) on total of 1,044,780 acres. Suggests serious potential problems in 1973 growing season. (PP).

MORMON CRICKET (Anabrus simplex) - MONTANA - Scattered crickets found in Rosebud, Meagher, Stillwater, and Lake Counties. Small bands found in Sanders and Powell Counties. (Pratt).

GYPSY MOTH (Porthetria dispar) - See "AN ENCYRTID WASP" under BENEFICIAL INSECTS page 664.

JAPANESE BEETLE (Popillia japonica) - TENNESSEE - Adult trapped at rest stop on U.S. Interstate Route 40 in Benton County September 20, 1972. (Steele). Previously collected in this county in 1971. (PP).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Infested bolls ranged 5-45 percent in El Paso County. Light to moderate moth activity indicated by hexalure trap catches in Pecos Valley and in Upton and Glasscock Counties. Boll infestations in Pecos Valley area ranged 5-55 percent. Glasscock County reported 5-15 percent infested bolls. (Neeb). NEW MEXICO - Checks in extreme southern Dona Ana County revealed one or two fields with larvae in bolls ranging up to 30 percent. (N. M. Coop. Rpt.). ARIZONA - Infested 85 percent of bolls in 60 acres of long staple cotton at Safford, Graham County. Controls applied in Graham, Maricopa, Pinal, and Yuma Counties. (Ariz. Coop. Sur.).

DETECTION

New County Records - ALFALFA WEEVIL (Hypera postica) WISCONSIN - Pierce, Chippewa, Dunn, Eau Claire, Polk, Barron, St. Croix (p. 659). EUROPEAN CORN BORER (Ostrinia nubilalis) KANSAS - Wallace, Gove (p. 658). MIMOSA WEBWORM (Homadaula anisocentra) OKLAHOMA - Noble (p. 663). SOUTHERN CHINCH BUG (Blissus insularis) CALIFORNIA - San Joaquin (p. 659). SPOTTED ALFALFA APHID (Therioaphis maculata) NORTH DAKOTA - Dunn (p. 657). WESTERN CORN ROOTWORM (Diabrotica virgifera) WISCONSIN - Barron (p. 658).

CORRECTIONS

CEIR 22(36):607 - JAPANESE BEETLE (Popillia japonica) - IOWA - should read: "...Black Hawk County collection is first time this pest trapped in State since 1958..."

HAWAII INSECT REPORT

Corn - CORN PLANTHOPPER (Peregrinus maidis) and CORN LEAF APHID (Rhopalosiphum maidis) light to moderate in 3 acres of nearly mature sweet corn at Waimanalo, Oahu. Predators nil. CHINESE ROSE BEETLE (Adoretus sinicus) damage heavy to many plants up to 15 yards in from perimeter of this planting; damage nil in midfield. (Kawamura).

General Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) light to moderate in 0.3 acre of bitter melon at Waimanalo, Oahu; trace in 5,000 square-foot planting of same crop at Pearl City. TARO LEAFHOPPER (Tarophagus proserpina) light in 5 acres of taro at Waipahu, Oahu; averaged less than 4 nymphs or adults per plant. A MIRID BUG (Cyrtorhinus fulvus), an egg predator, light in terminal leaf sheaths. WATERLILY APHID (Rhopalosiphum nymphaeae) generally light; small, isolated moderate populations in some paddies. CABBAGE WEBWORM (Hellula rogatalis) light in 0.1 acre of daikon at Waimanalo, Oahu; about 13 percent of terminals with one or more larvae. Infestation heavy in 0.1 acre of same crop at Pearl City; about 80 percent of young plants infested. (Kawamura). LEAFMINER FLIES (Liriomyza spp.) and BEEF ARMYWORM (Spodoptera exigua) light in green onion fields at Waimanalo and Pearl City, Oahu; average of less than 15 percent of leaves lightly affected by one or both species. (Kawamura). Larval mines of Liriomyza spp. heavy in one acre of young cucumber plants at Wailua, Kauai. (Ikehara, Kawamura).

Fruits and Nuts - FLORIDA RED SCALE (Chrysomphalus aonidum) light on 20 coconut trees at Kahului, Maui; 25 percent of leaves infested with average of 2.5 scales per leaf. (Miyahira). COCONUT SCALE (Aspidiotus destructor) generally light to moderate in small commercial planting of bananas at Pearl City, Oahu; heavy on few older leaves. Nymphs and adults of Lindorus lophanthae and Telsimia nitida (lady beetles) moderate on infested leaves. No specimens of Pseudoscymnus anomolus (a lady beetle) noted in planting. P. anomolus introduced from Guam and released in February 1971 in this area. Releases also made at Hawaii Kai where recovery made for first time during second week of September. (Kawamura).

Ornamentals - A LEAFCUTTING BEE (Megachile sp.) caused heavy foliar damage to Cassia sp., Eucalyptus sp., and Thespiea populnea saplings in nursery at Kahului, Maui. Similar damage to yard rose bushes in same area. (Miyahira).

Miscellaneous Pests - VAGRANT GRASSHOPPER (Schistocerca vaga) caused heavy foliar damage to yard planting of Podocarpus sp. and Hibiscus sp. at Salt Lake, Oahu; 5 nymphs observed feeding on Hibiscus sp. S. vaga first reported on Oahu in August 1964 but has remained noneconomic, feeding mainly on wasteland kiawe and slender mimosa. During the past few months isolated, unconfirmed reports of feeding on Citrus have been received. (Kajiwara).

ALFALFA WEEVIL
Hypera postica (Gyllenhal)

Selected References
1970-1971

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

- Armbrust, E. J., Roberts, S. J., and White, C. E. 1970. Feeding Behavior of alfalfa weevil larvae parasitized by Bathyplectes curculionis. J. Econ. Ent. 63(5):1689-1690.
- Armbrust, E. J., White, C. E., and Roberts, S. J. 1970. Mating preference of eastern and western United States strains of the alfalfa weevil. J. Econ. Ent. 63(2):674-675.
- Armbrust, E. J. and Wilson, M. C. 1970. Effect of weather on the toxicity and persistence of some insecticides on alfalfa foliage. J. Econ. Ent. 63(1):189-192.
- Barnes, D. K. and Coauthors. 1970. The development and performance of Team alfalfa: a multiple pest resistant alfalfa with moderate resistance to the alfalfa weevil. U.S. Agr. Res. Serv. ARS 34-115. 41 pp.
- Bland, R. G. 1971. Photoperiod-diapause relationships in the alfalfa weevil, Hypera postica. Ent. Soc. Amer. Ann. 64(5): 1163-1166.
- Brazzel, J. R. (Convener). 1970. Second conference on test methods for resistance in insects of agricultural importance. Standard method for detection of insecticide resistance in Heliothis zea (Boddie) and H. virescens (F.). Tentative methods for detection in Diabrotica and Hypera. College Park, Maryland. April 1-4, 1969. Ent. Soc. Amer. Bul. 16(3):147-153.
- Burgess, E. E. and Bennett, S. E. 1971. Mortality and abnormalities caused by gamma irradiation of alfalfa weevil larvae. Ent. Soc. Amer. Ann. 64(1):88-90.
- Burks, B. D. 1971. The name Tetrastichus incertus (Ratzeburg) as employed for an introduced parasite of the alfalfa weevil, Hypera postica (Gyllenhal). Ent. Soc. Wash. Proc. 73(4):429-431.
- Byrne, H. D. and Ritterhausen, E. L. 1970. A technique for evaluation of alfalfa populations for resistance to alfalfa weevil larvae. J. Econ. Ent. 63(2):652-653.
- Byrne, H. D. and Rittershausen, E. L. 1970. Screening of clones of alfalfa for resistance to alfalfa weevil larvae. J. Econ. Ent. 63(2):682-683.
- Carpenter, G. P. 1970. Alfalfa weevil control in Idaho by early treatment of the first crop. J. Econ. Ent. 63(5):1602-1604.

- Davis, D. W. 1970. Insecticidal control of the alfalfa weevil in northern Utah and some resulting effects on the weevil parasite Bathyplectes curculionis. J. Econ. Ent. 63(1):119-125.
- Day, W. H. 1971. Reproductive status and survival of alfalfa weevil adults: effects of certain foods and temperatures. Ent. Soc. Amer. Ann. 64(1):208-212.
- Day, W. H. 1970. The survival value of its jumping cocoons to Bathyplectes anurus, a parasite of the alfalfa weevil. J. Econ. Ent. 63(2):586-589.
- Day, W. H., Coles, L. W., Stewart, J. A., and Fuester, R. W. 1971. Distribution of Microctonus aethiops and M. colesi, parasites of the alfalfa weevil, in the eastern United States. J. Econ. Ent. 64(1):190-193.
- Dively, G. P., II. 1970. Overwintering alfalfa weevil eggs in three stages of alfalfa grown in New Jersey. Ent. Soc. Amer. Ann. 63(5):1213-1216.
- Dorsey, C. K. 1971. Comparative effectiveness of topically applied chemicals in killing adult alfalfa weevils. W. Va. Univ. Agr. Expt. Sta. Cur. Rpt. 57. 10 pp.
- Dysart, R. J. and Coles, L. W. 1971. Bathyplectes stenostigma, a parasite of the alfalfa weevil in Europe. Ent. Soc. Amer. Ann. 64(6):1361-1367.
- Fahey, J. E., Wilson, M. C., and Armbrust, E. J. 1970. Residues of supracide and carbofuran in green and dehydrated alfalfa. J. Econ. Ent. 63(2):589-591.
Supracide, a promising insecticide for alfalfa weevil control.
- Flessel, J. K. and Niemczyk, H. D. 1970. Alfalfa weevil parasites in Ohio. Pesticide News 23(4):114.
- Flessel, J. K. and Niemczyk, H. D. 1971. Theoretical values of fully grown first-cutting alfalfa lost to alfalfa weevil larvae. J. Econ. Ent. 64(1):328-329.
- Fuester, R. W. 1970. Separation of first-stage larvae of two species of Microctonus (Hymenoptera: Braconidae) which attack the alfalfa weevil. Ent. Soc. Amer. Ann. 63(6):1777-1778.
- Goonewardene, H. F. and Filmer, R. S. 1971. A technique for evaluation of field control of the alfalfa weevil using a fixed population. J. Econ. Ent. 64(1):327-328.

- Hanson, C. H. and Ratcliffe, R. H. 1970. Alfalfa weevil menace: is relief in sight? *Crops Soils* 23(1):10-12.
- Horn, D. J. 1970. Oviposition behavior of Tetrastichus incertus, a parasite of the alfalfa weevil. *J. Econ. Ent.* 63(1):303-304.
- Horn, D. J. 1971. The relationship between a parasite, Tetrastichus incertus (Hymenoptera: Eulophidae), and its host, the alfalfa weevil, Hypera postica (Coleoptera: Curculionidae), in New York. *Canad. Ent.* 103(1):83-94.
- Hower, A. A., Jr. 1971. An abnormality in the reproductive system of field-collected alfalfa weevils, Hypera postica. *Ent. Soc. Amer. Ann.* 64(4):951-952.
- Hower, A. A., Jr., and Ferrer, F. R. 1970. An artificial oviposition technique for the alfalfa weevil. *J. Econ. Ent.* 63(3):761-764.
- Keller, C. J., Taylor, N. L., VanMeter, C. L., and Pass, B. C. 1970. Feeding response of the adult alfalfa weevil to plant species phylogenetically related to alfalfa. *J. Econ. Ent.* 63(1):302-303.
- Koehler, P. G. 1971. An association between the alfalfa weevil's larval growth response and adult feeding response to its host plant. *Ent. Soc. Amer. Ann.* 64(6):1230-1233.
- Koehler, P. and Rittershausen, E. 1971. A net for the mass collection of alfalfa weevils. *Ent. Soc. Amer. Ann.* 64(1):299.
- LeCato, G. L., III, and Pienkowski, R. L. 1970. Effects of temperature and presence of males on laboratory oviposition by the alfalfa weevil. *J. Econ. Ent.* 63(3):897-900.
- LeCato, G. L., III, and Pienkowski, R. L. 1970. Frequency and duration of mounting and copulation by the alfalfa weevil in the laboratory. *Ent. Soc. Amer. Ann.* 63(6):1548-1552.
- LeCato, G. L., III, and Pienkowski, R. L. 1970. Laboratory mating behavior of the alfalfa weevil, Hypera postica. *Ent. Soc. Amer. Ann.* 63(4):1000-1007.
- LeCato, G. L., III, and Pienkowski, R. L. 1970. Sexual responsiveness of the male alfalfa weevil, Hypera postica, as affected by prior contact with other alfalfa weevils. *Ent. Expt. et Appl.* 13(4):462-466.
- LeCato, G. L., III, and Pienkowski, R. L. 1970. Temperature effects on laboratory mating behavior of the alfalfa weevil. *J. Econ. Ent.* 63(3):928-930.
- MacCollom, G. B. 1970. U.S. losses are \$56 million. We fight to stop the alfalfa beetle. *Vt. Farm Home Sci.* 12(2):3, 18.

- Mailloux, G. and Pilon, J. G. 1970. Patasson luna (Girault) (Hymenoptera: Mymaridae) and Bathyplectes curculionis (Thomson) (Hymenoptera: Ichneumonidae), two parasites of Hypera postica (Gyllenhal) (Coleoptera: Curculionidae) in Quebec. *Canad. J. Zool.* 48(3):607-608.
- Marks, J. 1970. Alfalfa weevil "stoppers". *Hoard's Dairyman* 115(9):532-533.
- Miller, M. C. 1970. Biological control of the alfalfa weevil in Massachusetts. *J. Econ. Ent.* 63(2):440-443.
- Miller, M. C. 1970. Studies of interspecific competition between Tetrastichus incertus and Bathyplectes curculionis, larval endoparasites of the alfalfa weevil. *J. Econ. Ent.* 63(3):719-721.
- Morse, R. A. 1970. Less spraying for alfalfa weevil in East. *Gleanings Bee Cult.* 98(8):479, 507.
- Neal, J. W., Jr., Bickley, W. E., and Blickenstaff, C. C. 1970. Recovery of the braconid parasite Microctonus aethiops from the alfalfa weevil after hormonal treatment. *J. Econ. Ent.* 63(2):681-682.
- Neal, J. W., Jr., Hollaway, W. T., and Bickley, W. E. 1971. Response of Microctonus aethiops and M. colesi, parasites of the alfalfa weevil, to a mixture of *cis-trans-* and *trans-trans-*10,11,-epoxyfarnesenic acid methyl ester. *J. Econ. Ent.* 64(1):338-339.
- Niemczyk, H. D. and Flessel, J. K. 1970. Further testing of insecticides for a preventive program for control of alfalfa weevil. *J. Econ. Ent.* 63(4):1330-1332.
- Niemczyk, H. D. and Flessel, J. K. 1970. Population dynamics of alfalfa weevil eggs in Ohio. *J. Econ. Ent.* 63(1):242-247.
- Parker, B. L. 1970. Measuring alfalfa weevil larval populations by volume. *J. Econ. Ent.* 63(5):1663-1665.
- Pitre, H. N., Watson, V. H., and Ward, C. Y. 1970. Field evaluation of alfalfa cultivars for resistance to alfalfa weevil in Mississippi--a preliminary study. *Agron J.* 62(5):678-679.
- Richardson, R. L., Nelson, D. E., York, A. C., and Gyrisco, G. G. 1971. Biological control of the alfalfa weevil Hypera postica (Coleoptera: Curculionidae) in New York. *Canad. Ent.* 103(12):1653-1658.
- Roberts, S. J., DeWitt, J. R., and Armbrust, E. J. 1970. Predicting spring hatch of the alfalfa weevil. *J. Econ. Ent.* 63(3):921-923.
- Schroder, R. F. W. 1970. A modified suction machine for sampling populations of alfalfa weevils on alfalfa. *J. Econ. Ent.* 63(4):1329-1330.

- Shade, R. E., Axtell, J. D., and Wilson, M. C. 1971. A relationship between plant height of alfalfa and the rate of alfalfa weevil larval development. *J. Econ. Ent.* 64(2):437-438.
- Sherburne, J. A., Bland, R. G., Coon, F. A., and Gyrisco, G. G. 1970. Flight behavior and direction of migrating alfalfa weevils. *J. Econ. Ent.* 63(3):1010-1011.
- Stehr, F. W. and Casagrande, R. A. 1971. Establishment of Microctonus aethiops, a parasite of adult alfalfa weevils, in Michigan. *J. Econ. Ent.* 64(1):340-341.
- Summers, C. G., Byrne, H. D., and Pimentel, D. 1971. Spring timing applications for control of the alfalfa weevil in New York. *J. Econ. Ent.* 64(2):478-480.
- Tombes, A. S. and Smith, D. S. 1970. Ultrastructural studies on corpora cardiaca-allata complex of adult alfalfa weevil, Hypera postica. *J. Morphol.* 132(2):137-148.
- Tysowsky, M. and Dorsey, C. K. 1970. Hibernation and estivation habits of the alfalfa weevil in West Virginia. *J. Econ. Ent.* 63(2):347-350.
- Van Meter, C. L. and Pass, B. C. 1970. Susceptibility of adult alfalfa weevils of low lipid content to selected insecticides. *J. Econ. Ent.* 63(4):1268-1271.
- Walstrom, R. J., Jones, P. A., and Gastler, G. F. 1970. Effect of phorate for partial control of alfalfa weevil on nutritional values of alfalfa hay. *J. Econ. Ent.* 63(4):1374-1375.
- Wilson, M. C. and Armbrust, E. J. 1970. Approach to integrated control of the alfalfa weevil. *J. Econ. Ent.* 63(2):554-557.

Weather of the week continued from page 656.

TEMPERATURE: A low was centered over southern Manitoba early in the week. A front trailed southward up the Red River of the North. A cold front extended from near Grand Forks, North Dakota, toward Colorado and a warm front stretched from the Grand Forks vicinity to South Carolina. Hot, humid air covered a warm sector of the Low. Afternoon temperatures reached the 90's over much of the warm sector. Grand Island, Nebraska, registered 100 degrees Monday afternoon and Aberdeen, South Dakota, 98 degrees Tuesday. A high relative humidity made the air feel more uncomfortable. A quick change in the weather occurred Wednesday as cold air advanced over the northern and central Great Plains. Afternoon temperatures at Jamestown, North Dakota, were: Tuesday 94 degrees, Wednesday 70 degrees, and Thursday 60 degrees. Temperature changes over the South were less drastic. Daily maximums at Memphis, Tennessee, Tuesday to Thursday were 96, 91, and 88 degrees. The desert Southwest continued hot. Thermal and Blythe, both in California, registered 104 degrees Thursday. Subfreezing weather occurred in spots in the northern and central Rocky Mountains and parts of the Great Basin on some mornings. Big Piney, Wyoming, recorded 13 degrees Thursday morning. The weekend was cool over most of the Nation. Subfreezing temperatures occurred over the northern Rocky Mountains and the western edge of the northern Great Plains. Afternoon temperatures remained in the 40's and 50's over most of Montana and North Dakota Sunday. Although autumn made a good beginning over the North, summer weather continued in the South. Parts of Mississippi averaged more than 5 degrees above normal. Maximum temperatures in Mississippi were mostly in the high 90's early in the week, low 90's over the weekend.



U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



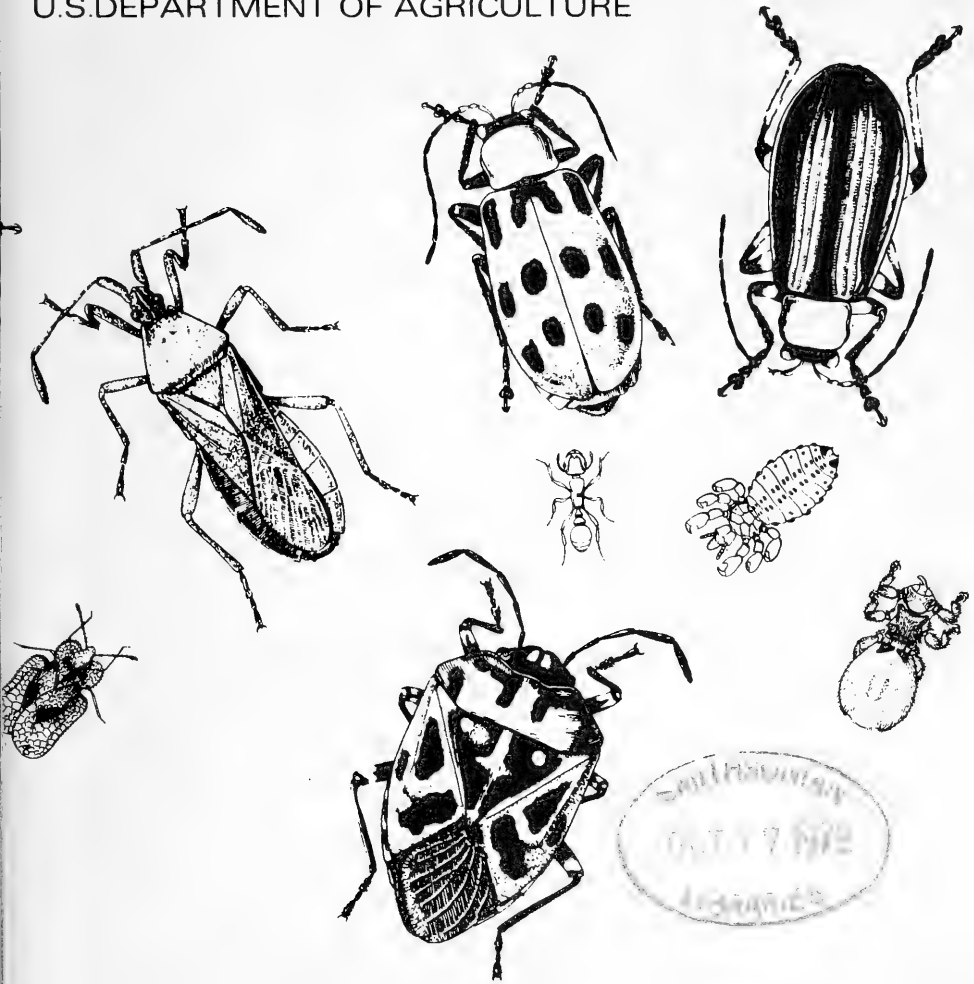
0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C77
Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 Service 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:

CEIR

Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

SOUTHERN CORNSTALK BORER reported for first time in Kansas since 1920. (p. 677).

FALL ARMYWORM heavy in wheat in western two-thirds of Oklahoma; many fields destroyed, will be replanted. Many fields treated. Also economic in some small grains in scattered areas of Arkansas and heavy in southwest Missouri. Fall armyworm heavy in Bermuda grass pastures in Oklahoma; increased in pastures with controls applied in central, southwest, and northwest Arkansas; controls applied to newly seeded grasses in southwest Missouri. (p. 678).

ALFALFA WEEVIL caused estimated loss of 4 million dollars to forage and seed alfalfa crops in Utah during 1972. (p. 679).

SCREWWORM infestation continues at high level in Texas; 2 confirmed cases reported from Kansas. (p. 683).

Detection

A STILT BUG reported for first time from Pennsylvania.

For new county records see page 685.

Special Reports

Gypsy Moth. Selected References 1970-1971. (pp. 688-689).

Reports in this issue are for week ending September 29 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	677
Insects Affecting	
Corn, Sorghum, Sugarcane....	677
Small Grains.....	678
Turf, Pastures, Rangeland...678	
Forage Legumes.....	679
Soybeans.....	679
Cotton.....	680
Sugar Beets.....	680
Potatoes, Tomatoes, Peppers.	680
Beans and Peas.....	680
Cole Crops.....	681
General Vegetables.....	681
Deciduous Fruits and Nuts..	682
Ornamentals.....	682
Forest and Shade Trees.....	682
Man and Animals.....	683
Stored Products.....	684
Beneficial Insects.....	684
Federal and State Plant Protection Programs.....	684
Detection.....	685
Hawaii Insect Report.....	686
Light Trap Collections.....	687
Gypsy Moth. Selected References 1970-1971.....	688

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

OCTOBER 1972

The National Weather Service's 30-day outlook for October calls for temperatures to average below seasonal normal over northern and central portions of the Plains and the Mississippi Valley and also in eastern portions of the central and southern plateau region. Above normal temperatures are indicated for the Atlantic and Gulf Coast States as well as the central and south Pacific coast. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal from the Mississippi Valley to the Appalachians, as well as over the northern Plains and the southern plateau. Subnormal totals are indicated for California and the Great Basin. Elsewhere near normal totals 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 OCTOBER 2

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Northeasterly upslope winds produced heavy snow over portions of Montana late Sunday, September 24, and early Monday morning. By 6 a.m., m.s.t. Monday, snow had accumulated to 3 inches at Butte, 4 inches at Livingston, and 13 inches at Miles City, all in Montana. Heavy rains fell along a front that stretched from the Great Lakes to a Low centered over the Texas Panhandle. From Sunday night to 3 a.m. Monday, about 5 inches had fallen at Charles City, Iowa. Up to 4 inches soaked Poplar Bluff, Missouri. Cold rain and snow fell late Tuesday over portions of Idaho and Nevada. Weather of the week continued on page 690.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - OKLAHOMA - Ranged 13-15 per 10 sweeps in alfalfa in Payne and Noble Counties. Damaged soybean pods in Wagoner County. Light in soybeans in Rogers and Mayes Counties. Light and scattered in late sorghum heads in Major, Mayes, and several west-central counties. (Okla. Coop. Sur.). TEXAS - Damaged grain sorghum heads in isolated areas of Pecos County. Field counts showed one larva per head in 15-40 percent of sorghum heads. (Neeb). WISCONSIN - Larvae appeared in sweet corn in northeast area; infestation less than 2 percent. Treatments not planned. (Wis. Ins. Sur.). DELAWARE - Adults decreased in blacklight trap collections; averaged 5 per night at 5 locations in Sussex County. (Burbutis, Kelsey).

GREENBUG (Schizaphis graminum) - SOUTH DAKOTA - Ranged light to heavy in all winter wheat from Fall River County to Lyman County. West of Oelrichs, Fall River County, infestations ranged 10-70 per linear row foot in winter wheat; infestations uneven across fields. Near Wickville and Quinn, eastern Pennington County, infestations light, ranged 5-50 per linear row foot. Heavier infestations, 70-150 per linear row foot, seen in fields in Jackson, Jones, and Lyman Counties. Infestations reported in winter wheat in Buffalo County. Almost all winter wheat acreage treated in Tripp County, some fields treated twice. (Jones). OKLAHOMA - Light to moderate in seedling wheat in Kingfisher County. Light in Custer and Beckham Counties. (Okla. Coop. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - MISSISSIPPI - Infestation of Heliothis spp. in 3,000 acres of soybeans in Yazoo County 80 percent this species. Control very difficult. (Young).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Adults in blacklight traps averaged 2 per night for 5 locations in Sussex County. (Burbutis, Kelsey). KENTUCKY - Percent plants infested (fall survey) and number of borers per 100 plants, respectively, by county: Christian 26.4 and 4.4; Logan 67.2 and 126.4; Simpson 30.4 and 9.6; and Todd 20.6 and 2.4. (Barnett).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - KENTUCKY - Averaged 21 per 100 stalks in 15-acre Caldwell County cornfield. Collected in Barren County, September 23 by D. Barnett. This is a new county record. (Barnett, Raney).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - KANSAS - Full-grown larvae averaged 3 per 100 ears in one of 3 cornfields in Ellis County. Collected and determined by E. Martinez. This is a new county record. (Bell).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - KANSAS - Larval infestation involving 25-50 percent of stalks seen in 2 adjacent cornfields in Pottawatomie County in late August. Determined by D.M. Weisman. Counts negative in other fields in Pottawatomie and adjoining counties to date. On September 20, larvae half to full grown; feeding in tunnels in lower third of plants. First confirmed report of infestation in State since 1920, when reported from Greenwood County. (Bell).

SORGHUM MIDGE (Contarinia sorghicola) - OKLAHOMA - Damage ranged 5-10 percent in late sorghum in several west-central counties. (Okla. Coop. Sur.). MISSISSIPPI - Adults averaged 10 per row foot in 100-acre grain sorghum field in Holmes County. (Robinson).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Activity light to moderate in El Paso County grain sorghum; increased on grain sorghum in Pecos and Reeves Counties. (Neeb).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Heavy in wheat in many counties in northwest, north-central, northeast, west-central, central, southwest, and south-central areas. Many fields destroyed and will be replanted. Some S. ornithogalli (yellow-striped armyworm) and S. exigua (beet armyworm) found in fields in some areas. S. frugiperda heavy in barley in Payne County, heavy in rye in Kingfisher County, light in rye in Major County, and light in oats in Mayes County. Many fields treated in these areas. (Okla. Coop. Sur.). ARKANSAS - S. frugiperda economic in some small grain fields, mainly rye, in scattered areas of State. Controls applied. Acreage of small grains vulnerable to attack increased following additional seeding and good rains. (Boyer). MISSOURI - S. frugiperda heavy on small grains in southwest area; some newly seeded wheat fields completely stripped. (Munson).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Survey of hard red spring wheat stubble fields for cutting by this pest showed increase in cutting. Cut stems ranged up to 27.5 (averaged 2) percent. This is 1.2 percent increase from 0.8 percent found in 1971. Cutting evident in 60 percent of fields in 1972 compared to 54 percent in 1971. Fortuna, sawfly resistant wheat variety, not widely grown in State in 1972. (Brandvik, Kaatz).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Still present in various types of pastures and lawns in southern half of State. Range gradually extending north. (Robinson). ARKANSAS - Lighter than usual in pastures, but increased recently; controls applied in central, southwest, and northwest areas. (Boyer). OKLAHOMA - Ranged up to 20 per square foot in Bermuda grass lawn in Stillwater, Payne County. Heavy in Bermuda grass pastures in Stephens and Choctaw Counties, moderate in Atoka County. Heavy in ryegrass in Osage County and in lawns in Cleveland County. (Okla. Coop. Sur.). MISSOURI - Light to moderate in newly seeded grasses in southwest area. Controls applied. (Munson).

GRANULATE CUTWORM (Feltia subterranea) - OKLAHOMA - Heavy in experimental bentgrass plot in Payne County. (Okla. Coop. Sur.).

A MEALYBUG (Heterococcus tuttlei) - ARIZONA - Necessitated repeat treatments on commercial Bermuda grass seed fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - OHIO - Larvae common in fairway turf of Wayne County golf course. (Miller).

FORAGE LEGUMES

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Ranged 28-33 per 10 sweeps in 2 alfalfa fields in Payne and Noble Counties. Heavy in Kingfisher County. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Unusually abundant on alfalfa plantings this season; still problem in San Joaquin Valley fields. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - UTAH - Caused estimated loss of 4 million dollars to forage and seed alfalfa crops in State during 1972. This is above normal. (Roberts).

A CECIDOMYIID MIDGE (Cecidomyia texana) - OKLAHOMA - Survey of experimental guar plantings showed light damage at Tipton, Tillman County; Mangum, Greer County; and Chickasha, Grady County. (Okla. Coop. Sur.).

SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - OKLAHOMA - Heavy in soybeans in Verdigris River bottom in northern Wagoner County. Light, 0-2 per row foot, in other areas of Wagoner and Muskogee Counties. (Okla. Coop. Sur.). ARKANSAS - Heavy on soybeans in Hope area of Hempstead County. (Boyer). MISSISSIPPI - Averaged 25+ per 25 sweeps in soybeans in Choctaw, Attala, Holmes, Carroll, and Montgomery Counties. (Robinson).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults and larvae continued to cause moderate to heavy defoliation in several areas of Worcester, Somerset, and Wicomico Counties. Economic losses will be at minimum due to advanced maturity of soybeans. Overwintering populations should be moderate in Wicomico, Somerset, Worcester, and lower Dorchester Counties. (U. Md., Ent. Dept.). VIRGINIA - Buildup expected until cold weather. Soybean plants can withstand up to 35 percent defoliation after pod and seeds fully formed. (Allen).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - ALABAMA - Exploding larval population defoliated 125-acre late soybean field at Gallion, Marengo County. Fed on pods of any size and age. In field at Dothan, Houston County, loss estimated at 50 percent of yield where 95 percent of all plants damaged by maturing larvae. (Roney). ARKANSAS - Common in soybeans in north-east, east-central, and in upper Arkansas River Valley areas. Most common larvae in Pope County. This species generally rare on soybeans in State. (Boyer).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Heavy in soybeans in Payne and Ottawa Counties. Light, up to one per row foot, in Wagoner, Muskogee, Rogers, and Mayes Counties. (Okla. Coop. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Moderately damaged soybeans in Atoka County. (Okla. Coop. Sur.).

GREEN STINK BUG (Acrosternum hilare) - MISSISSIPPI - Counts of 25 per 50 sweeps taken in 100 acres of soybeans in Holmes County. Also 5 per 25 sweeps taken in 25 acres of near mature soybeans in Choctaw County. (Robinson).

COTTON

BOLLWORMS (Heliothis spp.) - ARKANSAS - Late cotton subject to bollworm damage. H. virescens problem in late cotton in southeast area. Comprises almost 100 percent of Heliothis population in cotton. (Boyer). OKLAHOMA - Percent H. zea boll damage by county: Wagoner and Muskogee 1-8; Bryan 2-30; and Washita and Caddo 7-20. Very light in southwest area except for heavy in Red River bottom in Cotton County. (Okla. Coop. Sur.). TEXAS - H. zea moderate to heavy in isolated areas in El Paso County. Eggs 40-60 per 100 plant terminals, larvae 5-12 per 100 plants, and 8-25 percent damage to squares and young bolls of top crop reported from Dell City area of Hudspeth County; also reported on mature bolls. Eggs 20-40 per 100 plant terminals, larvae 4-15 per 100 plants, and 5-25 percent crop damage reported from Pecos and Reeves Counties. Midland, Martin, Glasscock, and Reagan Counties reported 10-20 eggs per 100 plant terminals, 3-10 larvae per 100 plants, and 5-20 percent top crop damage. (Neeb).

ARIZONA - Treatment for Heliothis spp. continued in Yuma area of Yuma County. Larvae in bolls 50 percent H. zea, 50 percent H. virescens. Damage appears heaviest in some treated fields at Safford, Graham County; timing of control applications suspected as part of problem. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Punctured squares averaged 40 percent in late cotton in Muskogee County. Light to moderate in Jackson, Greer, and Kiowa Counties; heavy in Red River bottom in Cotton County. (Okla. Coop. Sur.).

SUGAR BEETS

POTATO SCAB GNAT (Pnyxia scabiei) - WASHINGTON - Caused commercially significant damage to sugar beets in at least one 120-acre area near Eureka, Walla Walla County. (Landis).

POTATOES, TOMATOES, PEPPERS

TOMATO RUSSET MITE (Aculops lycopersici) - CALIFORNIA - Many late tomato fields severely damaged. Where early treatment omitted, population heavy and lower parts of vines dry. One organic tomato patch of 2 acres complete loss as vines nearly bare and stems and fruit sunburned; mite count per leaf very heavy. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Averaged 700 per 100 leaves in peppers throughout Sussex County. (Burbutis, Kelsey).

BEANS AND PEAS

CABBAGE LOOPER (Trichoplusia ni) - TENNESSEE - Larvae ranged 5-15 per row foot in beans in small area of Cumberland County. Pseudoplusia includens (soybean looper) larvae averaged 2 per row foot in same field. Harvest abandoned. Many larvae parasitized by unspecified Diptera. (Heinrich).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - NORTH CAROLINA - Ranged 2-3 per plant in cabbage fields of Pasquotank and Hyde Counties. Controls essential. (Sorensen). OKLAHOMA - Heavy on turnips in Pontotoc County. (Okla. Coop. Sur.).

BEEF ARMYWORM (Spodoptera exigua) - NORTH CAROLINA - Larval feeding caused serious damage to occasional cabbage plants in Pasquotank County. Egg masses also seen in several locations. (Sorensen). ARIZONA - Larvae of this pest and Trichoplusia ni (cabbage looper) heavy on lettuce and sugar beets at Yuma, Yuma County; controls applied. Controls applied on lettuce at Parker Valley. (Ariz. Coop. Sur.).

GENERAL VEGETABLES

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Larval mining moderate in several fields of sweetpotatoes near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

FALL WEBWORM (Hyphantria cunea) - TEXAS - Light to moderate in El Paso County. Heavy on pecan trees in Ward, Ector, and Crockett Counties. Still damaging pecans in Knox and Young Counties. Heavy on pecans in Brazos County. Some controls applied. (Neeb et al.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Heavy on pecans in Comanche County, light to moderate in Cleveland County. (Okla. Coop. Sur.).

BLACK PECAN APHID (Tinocallis caryaefoliae) - ALABAMA - This species and Monellia spp. (yellow aphids) increased on pecan trees in Elmore, Lee, Russell, Conecuh, Covington, and Barbour Counties. (Morris et al.).

BLACKMARGINED APHID (Monellia costalis) - ARIZONA - Heavy on pecan foliage at Safford, Graham County. (Ariz. Coop. Sur.).

ORNAMENTALS

A LACE BUG (Stephanitis takeyai) - PENNSYLVANIA - Adults collected from 8 Pieris sp. September 6 by R.J. Weidner at small nursery in Berwick, Columbia County. Determined by E.E. Simons. This is a new county record. (Kim).

FOREST AND SHADE TREES

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - ARKANSAS - Infestations reported on oaks in southwest area. Feeding expected to increase, larvae about half-grown. (Boyer). MISSOURI - Completely defoliated 600-1,000 acres of forest trees in Iron and Reynolds Counties. (Kearby).

ORANGESTRIPED OAKWORM (Anisota senatoria) - OHIO - Larvae fed on pin oak and other oaks throughout State. Inquiries and requests for information increased 4 to 5-fold over 1971. (Miller).

A GRACILLARIID MOTH (Lithocolletis robinella) - PENNSYLVANIA - Larvae, pupae, and adults infested black locust along State Highway 756 near Johnstown, Cambria County. Heavily damaged all young trees in area; damage less severe on older trees. Determined by K. Valley. (Wolf).

ELM LEAF BEETLE (Pyrrhalta luteola) - SOUTH DAKOTA - Taken from elm September 24, 1972, in White River, Mellette County. Collected by R. Trenary. Determined by E.U. Balsbaugh. This is a new county record. (Kantack). COLORADO - Heavy on elms in Akron area of Washington County and Yuma area of Yuma County. (Pilcher).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Damaging population developed in stand of planted pines in ornamental nursery at Semmes, Mobile County. (Lockheart, Howell).

BRONZE BIRCH BORER (Agrilus anxius) - IDAHO - Infested birch trees scattered throughout Orofino, Clearwater County. Collected September 28. This is a new county record. (O'Keefe).

WALKINGSTICK (Diapheromera femorata) - ARKANSAS - Increased in upland areas of western part of State. (Boyer). MISSOURI - Defoliated small forested area near Harrisburg, Boone County. (Kearby).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 4,569 confirmed cases reported in continental U.S. during period September 17-23 as follows: Texas 4,062; New Mexico 155; Arizona 192; Oklahoma 157; Louisiana 1; Kansas 2. Single case reported from St. Martin Parish, Louisiana, was from horse recently shipped from Kerr County, Texas. First cases confirmed from Kansas were collected in Seward and Meade Counties. These counties are adjacent to Beaver and Texas Counties in Oklahoma Panhandle where screwworm occurred earlier in 1972. Total of 869 cases reported in Mexico. Number of sterile flies released in U.S. this period totaled 173,834,000 as follows: Texas 154,430,000; New Mexico 5,470,000; Arizona 13,028,000; California 650,000; Louisiana 250,000. Total of 26,780,000 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - TEXAS - Heavy on cattle and sheep in most counties of Trans-Pecos area. (Neeb). OKLAHOMA - Ranged 700-1,000 per head on cattle in Major County, averaged 200 per head in Payne County. Heavy in Osage, Hughes, Comanche, Garvin, and Pontotoc Counties; moderate in Pawnee, Craig, Cleveland, Cherokee, and Choctaw Counties; light in Kingfisher County. (Okla. Coop. Sur.). MISSISSIPPI - Averaged 100+ on 75 head of beef cattle in Attala County. (Robinson).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Ranged 2-3 per head on cattle checked in Payne County. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - TEXAS - Heavy in backs of cattle in Brewster and Jeff Davis Counties, ranged 55-60 in some animals. (Neeb).

MOSQUITOES - MAINE - Few Aedes spp. still present in some areas, but annoyance at low level. (Gall). RHODE ISLAND - Culex pipiens pipiens (northern house mosquito) females active and biting in Washington County. (Field). WISCONSIN - Mosquitoes decreased but still biting on warmer days and evenings. Reports from Richland and Walworth County indicate heavier than normal activity. (Wis. Ins. Sur.). MINNESOTA - Cool weather with frosts in some areas sharply reduced mosquito numbers and activity. Aedes vexans accounted for 80 percent of trap collections; dominant in most bite collections. (Minn. Pest Rpt.). OKLAHOMA - Culex spp. and Aedes spp. increased after recent rains in Payne County area. Larvae ranged up to 50 per dip. (Okla. Coop. Sur.). UTAH - Mosquitoes, chiefly Aedes dorsalis, continued very numerous and troublesome in Curlew Valley of Box Elder County from Great Salt Lake north through Snowville. (Knowlton).

BLACK FLIES (Simulium spp.) - MAINE - Much annoyance reported at Augusta, Orono, and several areas in northern section. S. jenningsi and S. venustum moderate at Orono. (Gall).

A COMBFOOTED SPIDER (Latrodectus variolus) - MICHIGAN - Adult female taken September 22 under rock in wooded area at Bearinger

Township, Presque Isle County. Collected by M. Little. Determined by R.J. Sauer. This is a new county record. (Sauer).

STORED PRODUCTS

SAWTOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - OKLAHOMA - Damaged stored feed and grain in Harmon County; controls applied. (Okla. Coop. Sur.).

RICE WEEVIL (Sitophilus oryzae) - KANSAS - Heavy in bin of wheat in elevator in Shawnee County. Tribolium castaneum (red flour beetle) and Cryptolestes sp. (a cucujid beetle) also present. (Bell).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Built up rapidly in wheat with light greenbug infestations in Custer and Beckham Counties. (Okla. Coop. Sur.).

WEEVILS - IDAHO - Ceutorhynchus litura (100 specimens) released near Bellevue, Blaine County, August 9 for biological control of Canada thistle. Rhinocyllus conicus (750 specimens) released near Rigby, Jefferson County, August 10 for biological control of musk thistle. (Hawkes, Andres).

A BIG-EYED BUG (Geocoris punctipes) - MISSISSIPPI - Taken from soybeans at rate of 15 nymphs and adults per 25 sweeps in Choctaw County. (Robinson).

HONEY BEE (Apis mellifera) - OHIO - Recent heavy rainfall for several days over most of State restricted bee flights. Although blooms abundant, species not able to forage. Next few weeks will dictate fall nectar flow and colony strength going into winter. Beekeepers should check colonies for honey stores and provide supplemental feeding if needed. (Conner).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Chemical treatment completed on 740 trees in infested area of Delano, Kern County; about 91 city blocks in this infestation. Major hosts include mulberry, silktree, tree-of-heaven, catalpa, and cottonwood. Treatment made on 6 city blocks in Earlimart, Tulare County; survey of adjacent areas underway, negative to date. In Porterville area, 150,000 lacewing eggs and 175,000 Cryptolaemus sp. adults released; Cryptolaemus sp. dispersing. (Cal. Coop. Rpt.).

GRASSHOPPERS - IOWA - Annual survey across 37 western counties indicates population down about 50 percent from 1971. No economic populations seen in 197 stops. Light infestations (3-7 per square yard in field or 11-20 per square yard in margins) seen only at 4 stops in Calhoun and Guthrie Counties. (Iowa Ins. Sur.).

NEBRASKA - Surveys show infestations heaviest (8+ per square yard) along North Platte River Valley from Hershey, Keith County, west to Oshkosh, Garden County, and in southern Dundey County. Major

cropland species included Melanoplus bivittatus, M. differentialis, and M. femurrubrum. Major rangeland species included Ageneotettix deorum, Aulocara elliotti, Phlibostroma quadrimaculatum, and Trachyrachys kiowa. (Bell, Hohnholt). TEXAS - Boottettix argenta-tus moderate to heavy, ranged 5-15 per plant, defoliated creosote bushes on about 3,000 acres of rangeland in Hudspeth County and 2,000-3,000 acres of rangeland in Culberson County. (Neeb). NEVADA - Ageneotettix deorum taken at Lexington Creek, White Pine County, September 23, 1972. Melanoplus yarrowii taken at Pahrump, Nye County, September 15, 1972. Collected by G.M. Nishida. Determined by R.C. Bechtel. These are new county records. (Bechtel).

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - Adults trapped in Bellvue Township, Eaton County, and in Fawn River Township, St. Joseph County, September 5 by D. Loree. Determined by R.D. Gordon. These are first times trapped in these counties. (Sauer).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Boll infestations ranging 5-60 percent scattered over El Paso County. In Dell City area of Hudspeth County, less than 3 percent of bolls infested. In Pecos Valley area of Reeves and Pecos Counties, 5-80 percent of bolls infested. Wichita County field showed heavy infestations; up to 6 larvae per boll found; primarily in small bolls. (Neeb, Boring). ARIZONA - Infestations in cotton general throughout Graham County. (Ariz. Coop. Sur.).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Treatment and survey completed in Siskiyou County; no new finds this season. Very limited core area infestation treated; no carryover anticipated in 1973. Treatment completed at Clovis, Fresno County; survey negative in quarantine zone. Local infestation at Biola consists of 3 yard plants and 20 commercial acres of grapes; 2 treatments made since infestation detected late in season. In San Jose, Santa Clara County, infestation extensive in yard grapes; new infestations still present, but within delimited area of proposed quarantine. Surveys for this pest negative again this season in El Dorado, Sacramento, Yolo, Placer, and Solano Counties. (Cal. Coop. Rpt.).

DETECTION

New State Record - A STILT BUG (Berytinus minor) - PENNSYLVANIA - Adult collected from Sargents juniper in Harrisburg, Dauphin County, September 1 by T. Henry. Determined by A. Wheeler. (Kim).

New County Records - BRONZE BIRCH BORER (Agrilus anxius) IDAHO - Clearwater (p. 682). A COMBFOOTED SPIDER (Latrodectus variolus) MICHIGAN - Presgue Isle (pp. 683-684). ELM LEAF BEETLE (Pyrrhalta luteola) SOUTH DAKOTA - Mellette (p. 682). GRASSHOPPERS - Ageneotettix deorum - NEVADA - White Pine; Melanoplus yarrowii - NEVADA - Nye (p. 685). A LACE BUG (Stephanitis takeyai) PENNSYLVANIA - Columbia (p. 682). SOUTHWESTERN CORN BORER (Diatraea grandiosella) KENTUCKY - Barren (p. 677). WESTERN BEAN CUTWORM (Loxagrotis albicosta) KANSAS - Ellis (p. 677).

HAWAII INSECT REPORT

Corn - CORN EARWORM (Heliothis zea) heavy in silks and ear tips in 4 acres of sweet corn at Pupukea, Oahu; one or more early larvae in 80-90 percent of ears. (Kawamura).

General Vegetables - TOBACCO FLEA BEETLE (Epitrix hirtipennis) caused moderate damage to leaves in yard plantings of eggplant at Ewa, Oahu; beetles light, less than one per 10 leaves. On Oahu, LEAFMINER FLIES (Liriomyza spp.) and BEEBEE ARMYWORM (Spodoptera exigua) caused heavy damage in 0.1 acre of green onions at Manoa; 60 percent of leaves affected. S. exigua egg clusters averaged 1.5 per plant. Larvae heavy in adjacent 2,000 square feet of lettuce; 20 percent of young heads with one or more larvae. At Pupukea, Liriomyza spp. larval mines heavy in 0.2 acre of cucumber; about 40-50 percent of leaf surface affected by mines. Also heavy in adjacent 0.25 acre of snap beans. Adults trace in both plantings. (Kawamura).

Fruits and Nuts - REDBANDED THRIPS (Selenothrips rubrocinctus) and an ARMORED SCALE (Phenacaspis cockerelli) moderate on residential mango trees at Lahaina and Kahului, Maui. P. cockerelli heavy on same host at Lahaina. (Miyahira).

Forest and Shade Trees - Population of a PSYLLID (Psylla uncatoides) about nil on 36 Acacia confusa trees at Punchbowl, Oahu; less than one psyllid per 5 sweeps. At Punchbowl, Oahu, all but two of 24 monkeypod trees affected by varying degrees of foliar damage caused by larvae of a NOCTUID MOTH (Melipotis indomita) in early spring recovered completely following repeated chemical applications to canopy, trunk, and debris at bases of affected trees. (Larvae of M. indomita normally take refuge during daylight under loose, scaly bark and debris at base of trees.) At Hickam Air Force Base, larval activity nil under loose bark and debris at bases of 5 kiawe trees where large number of larvae detected in late June. (Kawamura).

Miscellaneous Pests - Single 3.5-inch specimen of GIANT AFRICAN SNAIL (Achatina fulica) found in nursery at Maunalei Gulch Nursery, Lanai, during week of September 17. Subsequent survey of area revealed no evidence of snail activity and indications are that this specimen may have been hitchhiker on plant material introduced from an infested area. Followup surveys planned at this site during winter when conditions more favorable to snail activity. A. fulica presently established on every major island except Lanai. On Molokai, 2 adults taken at Maunaloa; first report of activity in this area in number of years. (Olson, Fujimoto).

GYPSY MOTH
(Porthetria dispar (L.))

Selected References
1970-1971

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

- Beroza, M., Bierl, B. A., Knipling, E. F., and Tardif, J. G. R. 1971. The activity of the gypsy moth sex attractant dispar-lure vs. that of the live female moth. *J. Econ. Ent.* 64(6): 1527-1529.
- Beroza, M. and Coauthors. 1971. Activity and persistence of synthetic and natural sex attractants of the gypsy moth in laboratory and field trials. *J. Econ. Ent.* 64(6):1499-1508.
- Bierl, B. A., Beroza, M., and Collier, C. W. 1970. Potent sex attractant of the gypsy moth: its isolation, identification, and synthesis. *Science* 170(3953):87-89.
- Bierl, B. A. and Coauthors. 1971. Enhancement of the activity of extracts containing the gypsy moth sex attractant. *J. Econ. Ent.* 64(1):297-300.
- Doane, C. C. 1970. Primary pathogens and their role in the development of an epizootic in the gypsy moth. *J. Invertebrate Pathol.* 15(1):21-33.
- Doane, C. C. 1971. A high rate of parasitization by Brachymeria intermedia (Hymenoptera: Chalcididae) on the gypsy moth. *Ent. Soc. Amer. Ann.* 64(3):753-754.
- Doane, C. C. and Redys, J. J. 1970. Characteristics of motile strains of Streptococcus faecalis pathogenic to larvae of the gypsy moth. *J. Invertebrate Pathol.* 15(3):420-430.
- Gilpatrick, J. D. and Terrill, J. 1970. Control of the gypsy moth with trichlorfon applied ULV by aircraft in New York State in 1967. *J. Econ. Ent.* 63(1):15-18.
- Jacobson, M., Schwarz, M., and Waters, R. M. 1970. Gypsy moth sex attractants: a reinvestigation. *J. Econ. Ent.* 63(3):943-945.
- Jacobson, M., Sonnet, P. E., Adler, V. E., and Cook, D. 1970. Inactivity of a preparation reported to be highly active as a gypsy moth sex attractant. *Ent. Soc. Amer. Ann.* 63(2):614-615.
- Kolybin, V. A. and Zelinskaya, L. M. 1971. Ecologo-physiological peculiarities of Porthetria dispar L. population in the Lower Dnieper area. Communication II. Parasites and diseases. *Vest. Zool.* 5(1):26-31. In Rus., Engl. Sum.
- Kurian, P. and Sirsi, M. 1970. Serological studies in the genus Lymantria. I. Investigations on eggs of L. dispar (Linnaeus) and L. obfusata Walker. *Commonwealth Inst. Biol. Cont. Tech. Bul.* 13:95-104.

- Lavenseau, M. L. 1970. Development and differentiation of wing rudiments in Lymantria dispar L. (Lepidoptera) after their transplantation on an individual of opposite sex. Acad. Sci. Compt. Rend. Ser. D. 270(4):638-640. In Fr.
- Leonard, D. E. 1970. Effects of starvation on behaviour, number of larval instars, and developmental rate of Porthetria dispar. J. Insect Physiol. 16(1):25-31.
- Leonard, D. E. 1970. Feeding rhythm in larvae of the gypsy moth. J. Econ. Ent. 63(5):1454-1457.
- Leonard, D. E. 1970. Intrinsic factors causing qualitative changes in populations of Porthetria dispar (Lepidoptera: Lymantriidae). Canad. Ent. 102(2):239-249.
- Leonard, D. E. 1971. Air-borne dispersal of larvae of the gypsy moth and its influence on concepts of control. J. Econ. Ent. 64(3):638-641.
- Leonard, D. E. 1971. Brachymeria intermedia (Hymenoptera: Chalcididae) parasitizing gypsy moth in Maine. Canad. Ent. 103(5):654-656.
- Maksimović, M. 1970. Investigation of population dynamics of the gypsy moth by means of traps. Internatl. Atomic Energy Agency (Vienna) Panel Proc. 1968:9-19.
- Merriam, W. A., Tower, G. C., Paszek, E. C., and McDonough, J. L. 1970. Laboratory and field evaluation of insecticides against the gypsy moth. J. Econ. Ent. 63(1):155-159.
- Nichols, J. O. 1970. Pennsylvania--future battleground of the gypsy moth. Pennsylvania Forests 60(3, Issue 417):91-93.
- Reardon, R. C. 1970. A new species of Rogas parasitic on the gypsy moth, Porthetria dispar (Hymenoptera: Braconidae). Ent. Soc. Wash. Proc. 72(4):473-475.
- Statler, M. W. 1970. Effects of gamma radiation on the ability of the adult female gypsy moth to attract males. J. Econ. Ent. 63(1):163-164.
- Tardif, R. and Secrest, J. P. 1970. Devices for cleaning and counting eggs of the gypsy moth. J. Econ. Ent. 63(2):678-679.
- Weseloh, R. M. 1971. Behavioral responses of the gypsy moth egg parasitoid Ooencyrtus kuwanai to abiotic environmental factors. Ent. Soc. Amer. Ann. 64(5):1050-1057.
- Yadava, R. L. 1970. Influence of temperature and humidity on the development of nuclear-polyhedrosis of Lymantria monacha L. and L. dispar L. Z. Angew. Ent. 65(2):167-174. In Ger., Engl. Sum.

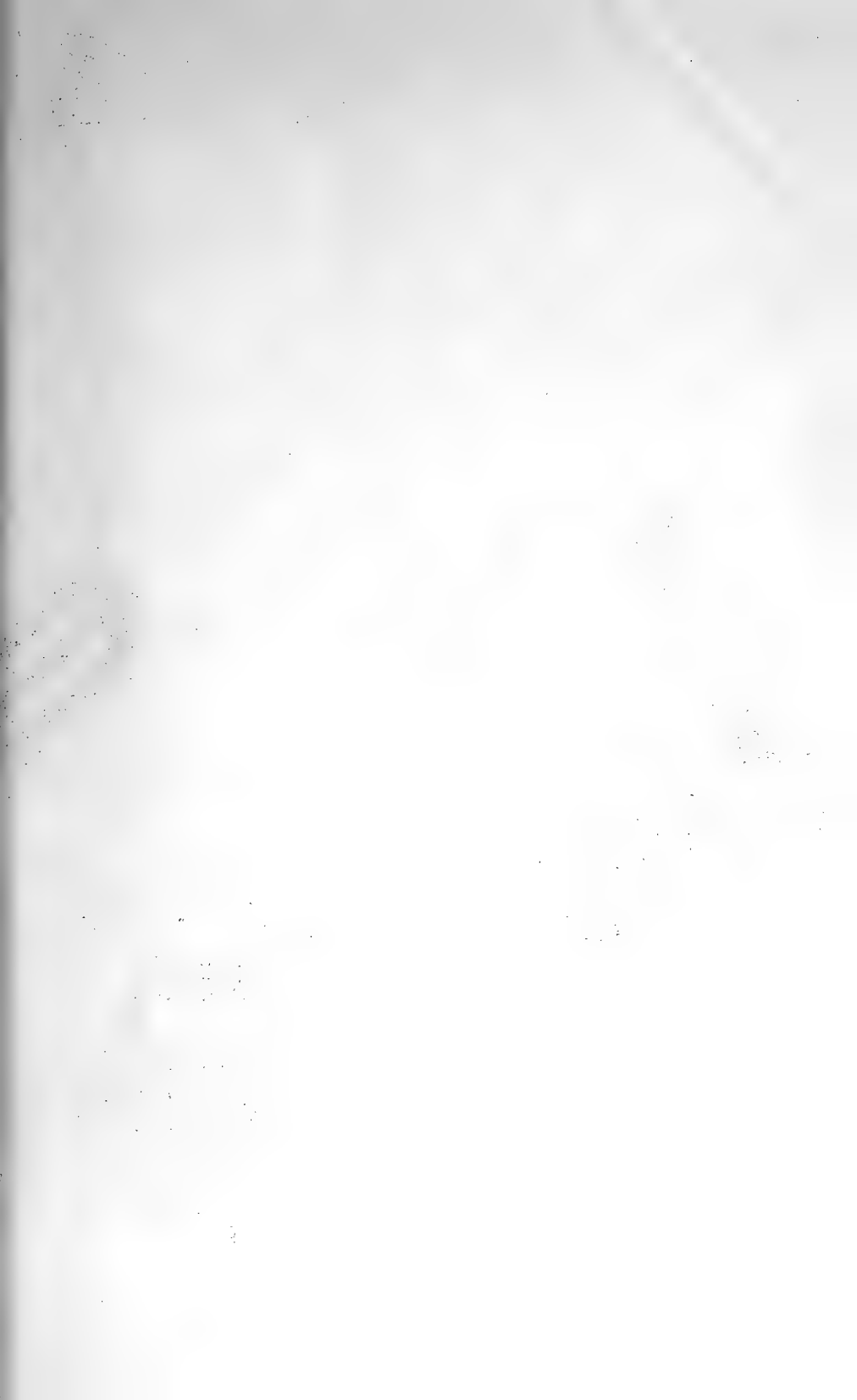
Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(40):688-689, 1972

Weather of the week continued from page 676.

Some drifting occurred, icy mixtures slicked roads and highways making traveling difficult and hazardous. By midweek, the eastern portion of the front stretched from the southern Great Plains to New England. Showers and thunderstorms occurred along the front and in the warm humid air that lay over the Deep South. Port Arthur, Texas, received 3.04 inches of rain in 2 hours early Wednesday evening. Showers also dotted northern California. The weekend brought widespread rains over the eastern half of the Nation, mostly in connection with a cold front moving over the area and in the warm, humid air that lay south and east of the front. No rain fell from southern California and extreme southern Nevada to the western edge of the southern Great Plains. Totals were generally less than 1 inch north of this dry area. Over the eastern half of the country, totals ranged mostly from about 0.5 inch to 2 inches. Tennessee, North Carolina, and portions of neighboring States received from 2 to 5 inches of rain last week.

TEMPERATURE: Early in the week a Low was centered over the Texas Panhandle. The front extended northeastward to the Great Lakes, another front extended westward to Utah. The western portion of the front separated cold, dry air north of the front from mild, dry air south of the front. Cold, damp air lay north of the eastern portion of the front and warm, humid air covered the south. A large High was centered off the Virginia coast. A small High was centered over southern Saskatchewan. An eastern High pumped warm summer weather far northward along the Atlantic coast. Martinsburg, West Virginia, registered 91 degrees Tuesday afternoon and maximums in the 80's were common as far north as southern New England. In contrast, Canadian air was responsible for autumn weather over the intermountain region, northern Rocky Mountains, and the northern Great Plains. Big Piney, Wyoming registered 10 degrees Monday morning, September 25. On Tuesday morning, temperatures in the 20's were common over Montana, Wyoming, and nearby portions of the neighboring States. Clear skies at some places were ideal for rapid nighttime radiation of heat. Some sharp temperature contrasts existed along a front that stretched across the Great Plains. At noon Monday, temperatures at Norfolk and Omaha, both in Nebraska, were 49 and 82 degrees, respectively. By Tuesday morning the mercury at Omaha had plunged to 44 degrees. A quick warmup occurred over the central Rocky Mountains and the central Great Plains at midweek. The mercury at Denver, Colorado climbed from 38 degrees Wednesday morning to 86 degrees in the afternoon. Corresponding temperatures at Hill City, Kansas, were 47 and 87 degrees, respectively. Summer heat continued over the Deep South reaching 90 degrees or higher each afternoon at spots in Georgia and Florida. Mild temperatures continued over the Great Plains over the weekend. Pierre and Huron, South Dakota, registered 82 degrees Sunday afternoon. In the East a cold front continued its advance southward. Minimums dropped to the 40's and 50's over the Carolinas Sunday morning. Most of the Nation averaged cooler than normal. The main exception was the eastern seaboard which ranged from 1 to 4 degrees above normal. Temperatures from Washington and Oregon to the Great Lakes averaged from 6 to 10 degrees cooler than normal for late in September.



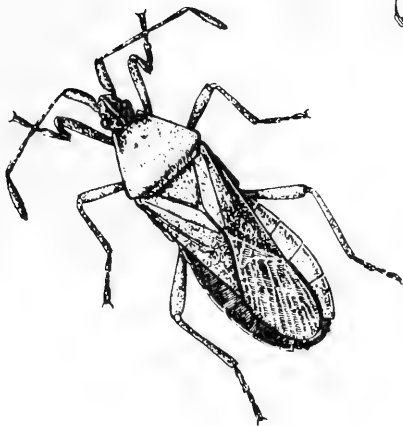
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



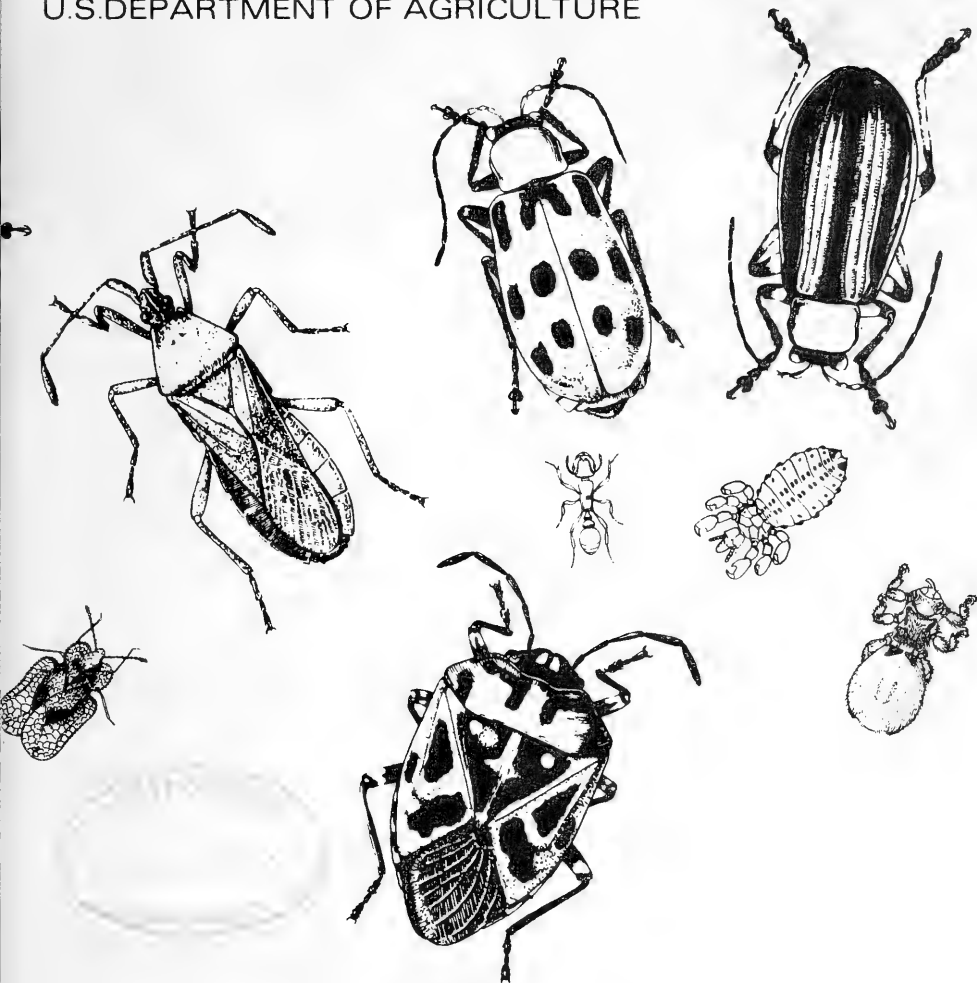
0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
F23
C77
Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 Service 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:

CEIR

Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

FALL ARMYWORM damaged early planted small grains in most areas of Oklahoma, and lawns and pastures in several areas of State. Also heavy on coastal and native grasses in south-central and Coastal Bend areas of Texas. (p. 694).

MEADOW SPITTLEBUG survey in Illinois showed populations to be noneconomic again in 1972 as for past several years. (p. 694).

Fall survey for EUROPEAN PINE SHOOT MOTH in eastern Multnomah County, Oregon, where this pest found in spring of 1972, revealed no larvae or suspect damage. (p. 696).

Infestation of a TORTRICID MOTH on over 150,000 acres of mixed oak in Sproul State Forest in Pennsylvania collapsed but left many dead or dying trees. (p. 697).

Prediction

GRASSHOPPERS not expected to be problem on legumes in Illinois in 1973. (p. 694).

Detection

For new county and island records see page 701.

Special Reports

Mediterranean Fruit Fly. Selected References 1967-1969. (pp. 702-706).

Whitefringed Beetle Quarantines. Map. (Centerfold).

Reports in this issue are for week ending October 6 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	693
Insects Affecting	
Corn, Sorghum, Sugarcane....	693
Small Grains.....	694
Turf, Pastures, Rangeland..	694
Forage Legumes.....	694
Soybeans.....	695
Tobacco.....	695
Miscellaneous Field Crops....	695
Potatoes, Tomatoes, Peppers..	695
Deciduous Fruits and Nuts....	695
Ornamentals.....	696
Forest and Shade Trees.....	696
Man and Animals.....	697
Beneficial Insects.....	698
Federal and State Plant Protection Programs.....	698
Hawaii Insect Report.....	699
Light Trap Collections.....	700
Detection.....	701
Mediterranean Fruit Fly. Selected References 1967-1969.....	702
Whitefringed Beetle Quarantines. Map. Centerfold.	

WEATHER OF THE WEEK ENDING OCTOBER 9

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: A High over the Pacific Northwest and another High over the East early in the week brought widespread typical fine weather to most of the Nation. A weak Low over the upper Mississippi River Valley produced scattered showers from the Great Lakes to Tennessee and the quasi-stationary front across the Florida Peninsula set off moderate to heavy local showers. After midweek, Hurricane Joanne, about 500 miles south of San Diego, California, became tropical storm Joanne and moved across northern Mexico. It became an extra tropical Low and produced heavy rains over portions of the Desert Southwest. About 3 inches of rain fell in the Prescott and Flagstaff, Arizona, area in 24 hours. A 4-day total for Phoenix was 1.93 inches which is more than 4 times the normal rainfall for Phoenix for the entire month of October. Sunflower, Arizona, about 50 miles northeast of Phoenix, received 5.38 inches in 4 days. Heavy rains damaged cotton but filled reservoirs. Upslope winds caused mixtures of rain, sleet, and snow on the eastern slopes of the northern Rocky Mountains. Meanwhile, the storm intensified off the coast of North Carolina. Onshore winds brought moisture to the hill country along the Middle Atlantic States. Almost 11 inches fell at Amelia, Virginia, about 45 miles southwest of Richmond. Three-day totals over interior Virginia ranged from 6 to 12 inches with slightly lesser amounts from western Maryland to North Carolina. The 3-day intense rains caused serious flooding at Richmond, Virginia, on the Hames River and the worst flooding in the 20th century at Petersburg on the Appomattox River. Light to moderate showers also fell over Nevada, Utah, and the northern and central Great Plains. No important rain fell in Washington, Oregon, or Idaho. The large area from western Kansas to the Rio Grande and eastward to southern Georgia received no rains or only widely scattered light sprinkles. Weather of the week continued on page 701.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (*Heliothis zea*) - OREGON - Infested late-planted corn at Willamette Valley. Damage appears spotty, some infestations up to 80 percent. (Penrose). MISSOURI - Light, 1 per 10 row feet, in very late-planted soybeans in southwest area. Most larvae full grown. (Munson). OKLAHOMA - Averaged 1 per head in some fields of late grain sorghum in Payne County. Some fields treated. Ranged 1-5 per 10 sweeps in alfalfa in Grady and Canadian Counties. (Okla. Coop. Sur.). MISSISSIPPI - Averaged 0.2 per head in grain sorghum in Washington County. (Robinson). DELAWARE - Adults ranged 2-3 per night in blacklight trap collections in Sussex County. (Burbutis, Kelsey).

CORN LEAF APHID (*Rhopalosiphum maidis*) - MICHIGAN - Noted in late-planted wheat seedlings. Alates ranged 1-2 per seedling in Genesee County field. Although no threat present, number unusually heavy for time of year. (Johnson, Ruppel). NEW MEXICO - Light on barley at Roswell, Chaves County. (N.M. Coop. Rpt.).

GREENBUG (*Schizaphis graminum*) - SOUTH DAKOTA - Increased in winter wheat in central and western areas. Infestations less than 10 per linear row foot in some winter wheat fields north and west of Wall, Pennington County. Ranged up to 200 per linear row foot in other fields. Colonies fed on leaf surfaces and at ground level. Infestations light, 10 or less per linear row foot, in fields north of Wasta, Pennington County. *S. graminum* in untreated winter wheat near Kennebec, Lyman County, averaged 995 per 3 linear row feet. Damage in untreated winter wheat expected to continue. (Jones). OKLAHOMA - Very light in few wheat fields in Kingfisher, Grady, and Blaine Counties. (Okla. Coop. Sur.). NEW MEXICO - Ranged 2-7 per linear foot in Curry and Roosevelt County wheat fields. (N.M. Coop. Rpt.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Average counts per 10 sweeps of alfalfa in Yuma County: Dome Valley 140, Yuma Mesa 140, Gila Valley 240. (Ariz. Coop. Sur.). OKLAHOMA - Light, up to 30 per 10 sweeps, in alfalfa in Canadian, Grady, and Caddo Counties. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - Adults averaged less than 1 per night in blacklight traps at 5 locations in Sussex County. (Burbutis, Kelsey). KENTUCKY - Percent plants infested (fall survey) and number of borers per 100 plants, respectively, by county: Webster 9.6 and 0.8; Union 53.6 and 19.6; Graves 24.8 and 4.8; Henderson 17.7 and 14.6. (Barnett). NEBRASKA - In all districts surveyed, populations lighter than in 1971; stalk damage and ear drop light. (Peters et al.). MINNESOTA - Fall survey underway. Populations in south-central district decreased, averaged 18.7 per 100 plants. Populations expected to be light in all other survey districts in State. Second generation about as light and unsuccessful as first generation. (Minn. Pest Rpt.).

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - OKLAHOMA - Infested 10-40 percent of cornstalks in Texas County. (Okla. Coop. Sur.). ARIZONA - Heavy in sorghum stalks northwest of Phoenix, Maricopa County. (Ariz. Coop. Sur.).

SORGHUM WEBWORM (Celama sorghiella) - MISSISSIPPI - Larvae ranged 4-8 per head in grain sorghum in Washington County. (Robinson).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Damage moderate to heavy in early planted small grains in most areas of State. Later planted fields generally show little damage. (Okla. Coop. Sur.). MISSISSIPPI - Averaged 3 per square foot in 60 acres of wheat and ryegrass in Pontotoc County. (Robinson).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Heavy on coastal and native grasses throughout south-central and Coastal Bend areas. Medium to heavy infestations noted in Burleson County. Controls needed. (Cole, Green). OKLAHOMA - Heavy, damaged lawns and pastures in some areas of Latimer, Marshall, Bryan, Garvin, and Kingfisher Counties. (Okla. Coop. Sur.).

A NOCTUID MOTH (Heliothis paradoxa) - ARIZONA - Larvae moderate in many Bermuda grass seed fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

A WHITEFLY (Aleurocybotus occiduus) - ARIZONA - Expected to be problem when Bermuda grass seed cleaned as honeydew heavy in many fields in Yuma County. (Ariz. Coop. Sur.).

RHODESGRASS SCALE (Antonina graminis) - ARIZONA - Heavy in some Bermuda grass lawns in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - OKLAHOMA - Ranged 2-25 per 10 sweeps in alfalfa in Grady and Canadian Counties. (Okla. Coop. Sur.). TEXAS - Larvae heavy in some alfalfa in Wilbarger County. Much foliage destroyed and controls applied in some cases. Adults heavy in alfalfa in Wilbarger County past 14 days. (Boring). NEW MEXICO - Very light on alfalfa at Roswell, Chaves County. (N.M. Coop. Rpt.).

ALFALFA LOOPER (Autographa californica) - OREGON - Adult activity increased in Keizer and St. Paul areas of Marion County. Black-light trap counts at Keizer increased from 4 during period ending September 26 to 16 for period ending October 4. At St. Paul, counts increased from 2 to 10 for same periods. (Penrose).

ALFALFA WEEVIL (Hypera postica) - MISSOURI - Adults ranged 2-11 per sweep of alfalfa in southwest and west-central areas. Fresh egg punctures seen in all fields checked. (Munson).

MEADOW SPITTLEBUG (Philaenus spumarius) - ILLINOIS - Populations in alfalfa and clover light again in 1972. Averaged less than one adult per sweep. Heaviest in northeast district; averaged 0.7 per sweep. Populations considered noneconomic. (Ill. Ins. Rpt.).

GRASSHOPPERS - ILLINOIS - Ranged 2.2-3.6 per square yard in alfalfa and clover in northernmost 5 districts surveyed. Averaged 2.7 per square yard statewide. Not expected to be problem in 1973. (Ill. Ins. Rpt.).

SOYBEANS

BEEF ARMYWORM (Spodoptera exigua) - TEXAS - Infestations of this species, Trichoplusia ni (cabbage looper), and Acrosternum hilare (green stink bug) heavily damaged soybeans in Matagorda County past 7 days. (Cole).

SOYBEAN LOOPER (Pseudoplusia includens) - ALABAMA - Young larvae of this species and Trichoplusia ni (cabbage looper) ranged 100-200 per 1-2 row feet of soybeans in plot in Prattville field, Autauga County, September 29. Controls planned. (Henderson et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Averaged 1.4 per row foot in soybeans in Washington County. (Robinson). ALABAMA - Light populations fed on leaves during August and September in most all soybean fields in west area; infestations much lighter than past 2 years. (Lashley et al.).

GREEN STINK BUG (Acrosternum hilare) - OKLAHOMA - Adults and nymphs ranged 10-15 per soybean plant in some areas of Garvin and Payne Counties. (Okla. Coop. Sur.).

TOBACCO

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - Larvae heavy on regrowth tobacco in Coastal Plain, especially on sucker growth of cut stalks not plowed out. Spot checks revealed 1 larva per bud (often 5+ per cut stalk) in fields from Wilson County southward. Parasitism low. (Ganyard).

MISCELLANEOUS FIELD CROPS

PYRALID MOTHS (Pyrausta spp.) - OREGON - P. ochosalis and P. fumalis are new pests of peppermint in State. Larvae feed within underground stems (rhizomes) causing infested plants to wilt. Death of plant may follow, resulting in stand reduction. Present distribution data fragmentary. One or both species found in Umatilla, Benton, Linn, and Polk Counties. Known infestations involve about 500 acres in eastern part of State and 200-500 acres in Willamette Valley. (Berry, Sept. 29).

CORN ROOTWORMS (Diabrotica spp.) - COLORADO - Adults of D. undecimpunctata howardi (southern corn rootworm) and D. virgifera (western corn rootworm) heavy in pumpkin field in Fort Collins area, Larimer County. (Colo. Ins. Sur.).

POTATOES, TOMATOES, PEPPERS

BANDEDWING WHITEFLY (Trialeurodes abutilonea) - TENNESSEE - Adults, immatures, and eggs heavy on tomatoes in Davidson County. (Stamey, Greene).

DECIDUOUS FRUITS AND NUTS

LESSER APPLEWORM (Grapholitha prunivora) - IDAHO - Heavy in some orchards and backyard trees in Canyon County where last cover sprays omitted or short residual sprays used. (Homan).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Decreased on pecans throughout south-central area past 7 days. Some damage reported on pecans and persimmons in counties adjoining Guadalupe County. (Cole).

ORNAMENTALS

AZALEA LACE BUG (Stephanitis pyrioides) - FLORIDA - Adults very heavy on 90 percent of 300 azalea plants at Winter Garden, Orange County. (Fla. Coop. Sur.).

BANDEDWING WHITEFLY (Trialeurodes abutilonea) - TENNESSEE - Adults, immatures, and eggs heavy on shrubbery in Davidson County. (Greene, Stamey).

TEA SCALE (Fiorinia theae) - ALABAMA - Infested 90+ percent of all Camellia japonica shrubs throughout State. Most important scale on camellia and Burford holly in State. (McQueen).

AN ARMORED SCALE (Pseudaonidia clavigera) - FLORIDA - Adults light on 5 camellia plants at nursery at Sarasota, Sarasota County. This is a new county record. (Fla. Coop. Sur.).

A SOFT SCALE (Pulvinaria mesembryanthemi) - CALIFORNIA - Infested ice plant at Vallejo, Napa County. Previously reported in same area in 1971. Second infestation in same yard after 25-year absence from State. Immediate treatment planned. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Larvae found infesting 9 Pinus contorta (lodgepole pine) April 19 at large field nursery in eastern Multnomah County. Infested trees found at several locations within nursery destroyed; all others treated. Total of 1,862,420 pines checked on 101 properties by April 28, mostly in eastern Multnomah County. Specimens determined by R.L. Westcott. Confirmed by D.R. Davis. (Westcott et al.). Fall survey of several large nurseries in eastern Multnomah County within one mile of nursery where this pest occurred in spring of 1972 completed. No larvae or suspect damage found in these nurseries. (Larson et al.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - OREGON - Damage widespread in residential area of southwest Portland, Multnomah County; few larvae found, indicating high mortality. (Larson).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MARYLAND - Adults killed 70 large Virginia pine trees in large planting near Chestertown, Kent County. (U. Md., Ent. Dept.).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Infestations moderate and scattered on oaks in Stillwater area, Payne County. (Okla. Coop. Sur.). WEST VIRGINIA - Larvae caused light to moderate damage to oaks in following locations: Tucker County, collected by J.E. Salmon; Upshur County, collected by J. Mitchell; Doddridge County, collected by J. Mills; Greenbrier County, collected by G. Harmon. All determined by J.D. Hacker. These are new county records. (Hacker).

ORANGESTRIPED OAKWORM (Anisota senatoria) - WEST VIRGINIA - Larvae caused 80 percent defoliation of chestnut and oak trees in Cabell and Mason Counties. Also taken on chestnut in Braxton County by R.D. Whipkey September 22. Determined by J.D. Hacker. This is a new county record. (Hacker).

A TORTRICID MOTH (Archips semifera) - PENNSYLVANIA - Infestation in Sproul State Forest in Clinton and Centre Counties heavy on 94,640 acres, moderate on 40,460 and light on 24,480 acres. This infestation began in 1970, collapsed in 1972, but left many trees in this mixed-oak forest dead or dying. (Keeran, Sept. 22).

FALL WEBWORM (Hyphantria cunea) - TENNESSEE - Caused heavy defoliation of hardwood trees in Davidson and surrounding counties. (Stamey, Greene). NEW MEXICO - Heavily damaged many shade trees in Dona Ana County. Larvae moved into houses and became nuisance. (N.M. Coop. Rpt.).

TWIG GIRDLER (Oncideres cingulata) - OREGON - Appears much heavier in northwest area than in past years. (Boyer).

ASIATIC OAK WEEVIL (Cyrtepidistomus castaneus) - PENNSYLVANIA - About 4,000 adults taken in light trap operated 3 nights near Darlington, Beaver County. (Carter, Sept. 27).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 4,018 confirmed cases reported in continental U.S. during period September 24-30 as follows: Texas 3,652; New Mexico 111; Arizona 141; California 2; Oklahoma 109; Florida 1; Alabama 1; Georgia 1 (field diagnosis). Case at Demopolis, Alabama, traced directly to animals shipped from Snyder, Texas. Case near Sebring, Florida, found in native cow not known to be associated with any animal movements. Case in Georgia also in local animal; larvae removed from eye wound. These are first cases reported from the Southeastern States. Total of 2,550 cases reported from Mexico. Number of sterile flies released in U.S. this period totaled 159,300,000 as follows: Texas 137,360,000; New Mexico 5,790,000; Arizona 12,250,000; California 900,000; Louisiana 1,400,000; Florida 1,600,000. Total of 30,660,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MONTANA - Occasionally seen on livestock during warm periods. Adults nuisance by entering buildings. (Pratt, Sept. 29). KENTUCKY - Adults averaged 17.6 per animal in Simpson County and 8 per animal in Monroe County. (Barnett). MISSISSIPPI - Adults ranged 2-3 per face, up to 10 per face, on mixed breeds of cattle in Monroe County. (Robinson).

HORN FLY (Haematobia irritans) - OKLAHOMA - Heavy on cattle in Craig, Garvin, and Comanche Counties; moderate in Pawnee, Garfield, and Cleveland Counties. (Okla. Coop. Sur.). MARYLAND - This species, Musca autumnalis (face fly), and Stomoxys calcitrans (stable fly) declined rapidly. Counts throughout State less than 2 per head on beef and dairy cattle. (U. Md., Ent. Dept.).

MOSQUITOES - WISCONSIN - Numerous and biting in southern counties. Most noticeable in Racine, Kenosha, Walworth, Dane, and Lafayette Counties. Aedes trivittatus most troublesome in southwestern area cornfields. (Wis. Ins. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Comanche County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

A CHALCID WASP (Brachymeria intermedia) - SOUTH CAROLINA - This pupal parasite of Porthetria dispar (gypsy moth) released at 3 sites (250 per location) in Horry County where male P. dispar moths previously trapped. (McKee).

AN ENCYRTID WASP (Ooencyrtus kuwanai) - WEST VIRGINIA - Total of 42,000 specimens of this egg parasite of Porthetria dispar (gypsy moth) released at 4 sites in Berkeley County; 68,000 released at 4 sites in Jefferson County; 12,000 released at one site each in Hampshire, Hardy, and Pendleton Counties. Releases made September 28 by State Department of Agriculture. (Hacker).

A SCOLIID WASP (Scolia dubia) - WEST VIRGINIA - Adult flight heavy over lawn of Ohio Valley Experiment Farm at Point Pleasant, Mason County. Collected and determined by J.D. Hacker. This is a new county record. (Hacker).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Pasture grass core samplings at one location near Custer, Whatcom County, indicated population of 1,000+ per square foot, mostly first instar. (Campbell, Davison).

GRASSHOPPERS - UTAH - Adults infested 16,572 rangeland acres in Box Elder, Iron, Juab, Millard, Rich, Sanpete, Tooele, Uintah, and Utah Counties. Light populations moved into fall emerging wheat in Blue Creek area of Box Elder County. (Watson, Knowlton).

KANSAS - Fall survey showed economic infestation (8+ per square yard) primarily limited to areas in southern Meade County and along Cimarron River in Seward County; involves estimated 200,000 acres of rangeland and 100,000 acres of cropland. Melanoplus differentialis, M. bivittatus, and M. sanguinipes major species. Localized economic infestations on estimated 150,000 rangeland acres and 50,000 cropland acres found in Comanche, Barber, Kiowa, and Edwards Counties. Major species include Ageneotettix deorum, Phliobostroma quadrimaculatum, Drepanopterna femoratum, M. differentialis, M. femurrubrum, and M. bivittatus. Substantial but noneconomic infestations (3-7 per square yard) common in parts of several counties in south-central, southwest, and west-central districts. Major species in all areas of State M. differentialis, M. bivittatus, and M. femurrubrum. (Bell).

OKLAHOMA - Damage, mostly by M. differentialis, usually confined to first 10-15 rows of scattered wheat fields in few central and west-central counties. (Okla. Coop. Sur.).

GYPSY MOTH (Porthetria dispar) - See "A CHALCID WASP" and "AN ENCYRTID WASP" under BENEFICIAL INSECTS, page 698.

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Spotty medium to heavy infestations in Mesilla Valley cotton fields. Few fields in Dona Ana County hatch area show late buildup of young larvae. Infestation more extensive than previously believed. (N.M. Coop. Rpt.).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - Taken on sumac (Rhus sp.), hickory (Carya sp.), wax myrtle (Myrica cerifera), blackberry (Rubus betulifolius), and live oak (Quercus virginiana) at Apopka, Orange County, for new host plants. (Fla. Coop. Sur.).

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED.
 COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.



GENERALLY INFESTED AREA--STATE AND FEDERAL REGULATIONS APPLIED (ERADICATION TREATMENTS NOT IN PROGRESS).



SUPPRESSIVE AREA--STATE AND FEDERAL REGULATIONS APPLIED (ERADICATION TREATMENTS APPLIED OR IN PROGRESS).



STATE REGULATIONS ONLY. (ERADICATION TREATMENTS APPLIED OR IN PROGRESS).



ERADICATED--REGULATIONS REMOVED.

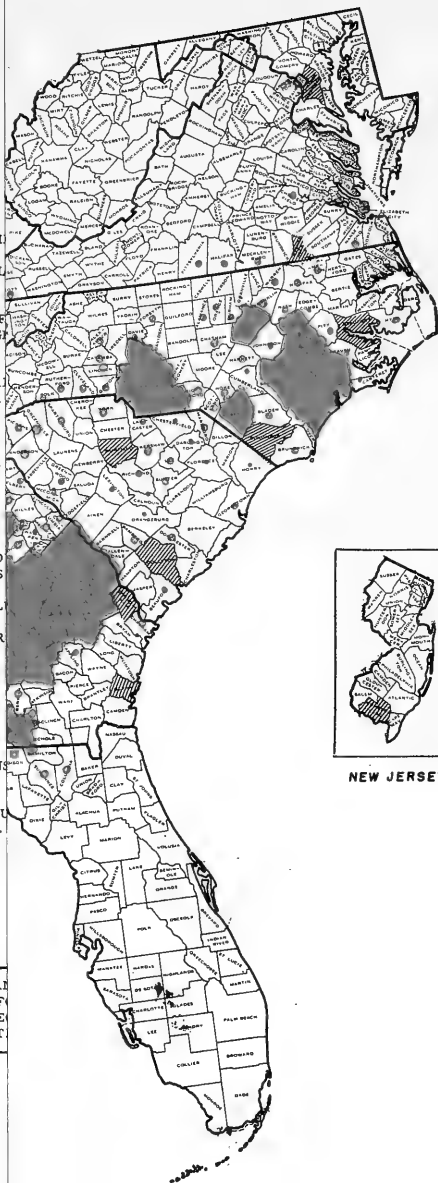
RESTRICTIONS ARE IMPOSED ON THE MOVING OF CERTAIN ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE OR ERADICATED.
2. GREEN INTO OR THROUGH BLUE OR ERADICATED.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN^o.
5. BLUE INTO ANY OTHER AREA^{oo}.

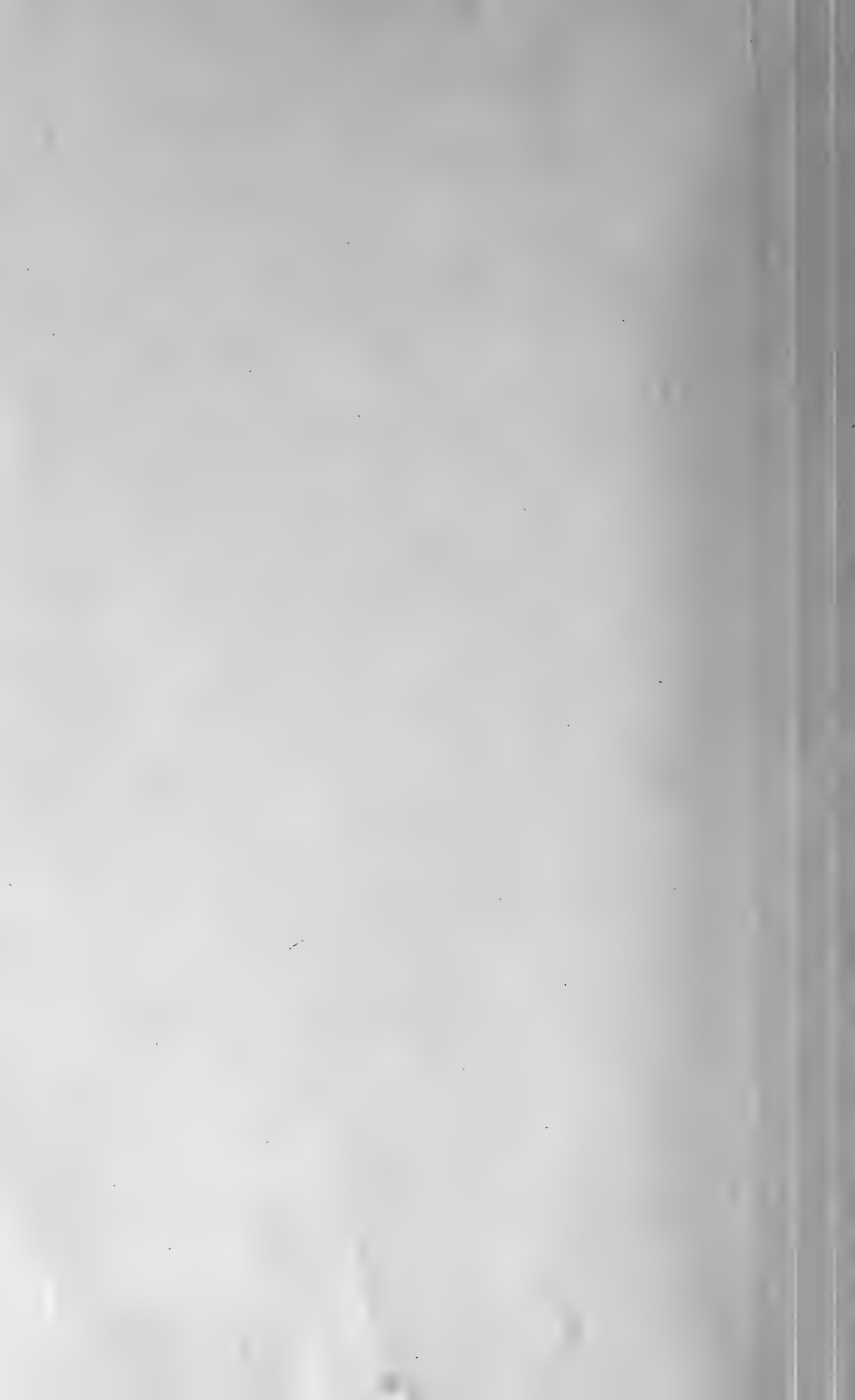
^o WHEN IT IS DETERMINED BY THE INSPECTOR THAT THE RISK OF SPREAD EXISTS.

^{oo} ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

CONSULT YOUR STATE OR FEDERAL PLANT HEALTH INSPECTOR OR YOUR COUNTY AGENT FOR REGULATIONS REGARDING EXACT AREAS UNDER REGULATED REQUIREMENTS FOR MOVING REGULATED ARTICLES.



NEW JERSEY



WHITE FRINGED BEETLE QUARANTINES

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
COOPERATING WITH AFFECTED 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.)

SUPPRESSIVE AREA--STATE AND FEDERAL REGULATIONS.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

STATE REGULATIONS ONLY.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

ERADICATED--REGULATIONS REMOVED.

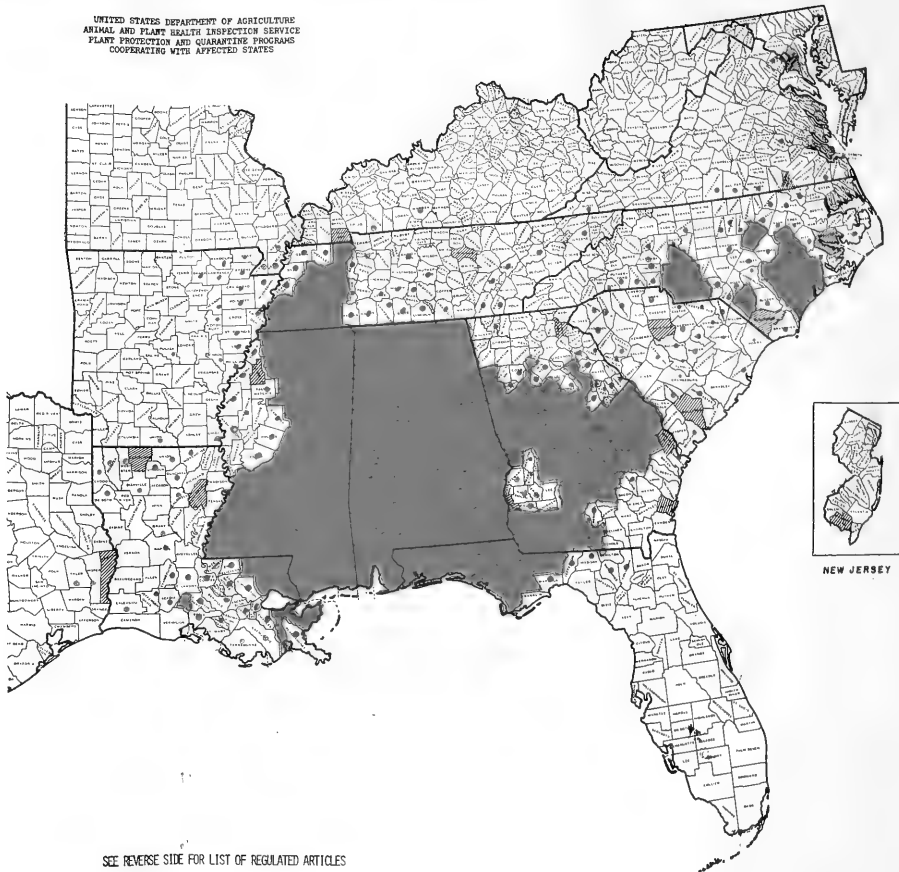
RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED
ARTICLES FROM A REGULATED AREA AS FOLLOWS:

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^o.
5. BLUE INTO ANY OTHER AREA^{oo}.

^o WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD
OF SPREAD EXISTS.

^{oo} 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.



NEW JERSEY

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES

Revised July 10, 1972

THE FOLLOWING REGULATED ARTICLES MOVED FROM GENERALLY INFESTED AREAS (RED) REQUIRE A 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 crossies.

Forest products, such as pulpwood, stumpwood, logs, lumber, and crossies are exempt***if not exposed to infestation in storage or if the storage site has been treated with an approved pesticide.

14. Used mechanized cultivating equipment and used harvesting machinery.

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 whitefringed beetles and the person in possession thereof has been so notified.

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED: *

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 whitefringed beetles and the person in possession thereof has been so notified.

* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

** 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.

HAWAII INSECT REPORT

General Vegetables - BEAN FLY (Melanagromyza phaseoli) heavy on long beans in small community garden at Lanai City, Lanai; infested 80 percent of petioles. Heavy in home garden snap beans at Kaunakakai, Molokai. (Olson et al.). All stages of ONION THRIPS (Thrips tabaci) heavy in 15 acres of bulb onion at Hoolehua, Molokai. Adults light in 100-foot row of green onions at Lanai City. (Fujimoto et al.). On Oahu, LEAFMINER FLIES (Liriomyza spp.), GREENHOUSE WHITEFLY (Trialeurodes vaporariorum), and CARMINE SPIDER MITE (Tetranychus cinnabarinus) light in 0.25 acre of eggplant at Kahaluu; Liriomyza spp. mines light in about 50 percent of leaves. Liriomyza spp. and T. vaporariorum light in adjacent 2,000 square feet of long beans. T. vaporariorum light in 0.75 acre of bittermelon at Halawa. T. cinnabarinus moderate in 0.25 acre of eggplant at Waimanalo; restricted mostly to older leaves. Adults and larval mines of Liriomyza spp. heavy in 0.1 acre of green onion at Makawao, Maui; about 75 percent of leaves affected. Adults heavy and larval mines light in 300-foot row of eggplant at Lanai City, Lanai. (Miyahira, Kawamura).

Fruits and Nuts - Small to moderate colonies of COCONUT SCALE (Aspidiotus destructor) on about 20 percent of plants in 0.5 acre of banana at Kahaluu, Oahu. Parasites and predators nil. (Kawamura).

Forest and Shade Trees - CLIDEMIA THRIPS (Liothrips urichi) purposely introduced from Fiji for control of the weed Clidemia virgata. In forest reserves throughout Oahu, nymphs and adults moderate on young flushing terminals with up to 50 thrips on underside of single leaf. Damage, characterized by terminal chlorosis, evident on about 50 percent of examined shrubs. Although detrimental to plants, this thrips seldom causes death under Hawaiian conditions. At 4,000 feet elevation on Mt. Kaala, Oahu, 100 percent of several native manono trees (Gouldia sp.) exhibited large gall-like structures caused by boring larvae of a GELECHIID MOTH (Aristotelia sp.). As many as 4 galls per foot-long branching terminal; some trees with 100 percent of terminals infested. Roadside Maui pamakani shrubs (Eupatorium glandulosum) on Mt. Kaala showed 100 percent terminal-gall infestation caused by larvae of EUPATORIUM GALL FLY (Procecidochares utilis). P. utilis introduced from Mexico in 1945. Now established on all infested islands and exerting year-round stress on weed pest. GREENHOUSE THRIPS (Heliethrips haemorrhoidalis) severe on Acacia koa saplings at 3,000 feet elevation in Lapahoehoe Forest Reserve, Hawaii. Foliage of damaged plants heavily spotted with excrement and conspicuously discolored. Chlorotic condition caused by feeding punctures of this sap sucking pest. Megaphragma mymaripenne (a trichogrammatid wasp), a parasite of H. haemorrhoidalis eggs, not observed in field. (Yoshioka).

General Pests - CHINESE ROSE BEETLE (Adoretus sinicus) caused heavy foliar damage in 0.1 acre of edible ginger (Zingiber officinale) at Kahaluu, Oahu; 80 percent of leaves with 10-70 percent of leaf surface eaten. Chemical control application minimal. Foliar damage moderate on 500 false kamani (Terminalia catappa) saplings at Maunalei, Lanai. (Miyahira, Kawamura). A LYGAEID BUG (Neocoryphus bicrucis) heavy on terminals of 250 potted African tulip (Spathodea campanulata) seedlings at Waikoloa, Hawaii; up to 10 (average 4) adults per plant. This is a new island record. N. bicrucis now occurs on every island except Kauai. (Matayoshi).

DETECTION

New County and Island Records - AN ARMORED SCALE (Pseudaonidia clavigera) FLORIDA - Sarasota (p. 696). A LYGAEID BUG (Neacoryphus bicrucis) HAWAII - Hawaii (p. 699). ORANGESTRIPED OAKWORM (Anisota senatoria) WEST VIRGINIA - Braxton (p. 696). A SCOLIID WASP (Scolia dubia) WEST VIRGINIA - Mason (p. 698). VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) WEST VIRGINIA - Tucker, Upshur, Doddridge, Greenbrier (p. 696).

LESSER GRAIN BORER (Rhyzopertha dominica) WEST VIRGINIA - Adults numerous in animal stuffed with sorghum and barley seeds imported from Mexico. Collected by B.C. Stinnett August 29. Determined by T.J. Spilman. (Hacker).

Weather of the week continued from page 692.

TEMPERATURE: Sunny skies prevailed over most of the Nation early in the week. Maximums Monday, October 2, ranged from the 50's and 60's in the Northeast to the 80's and 90's in the Southwest. Phoenix, Arizona, registered 101 degrees October 2. The Deep South was warm and muggy. Subfreezing weather occurred one or two mornings over the northern and central Rocky Mountains and eastward to the Great Lakes. Cooler autumn weather replaced mild weather as the weekend approached. Weekly mean temperatures were 3 to 5 degrees above normal over Nevada and 3 to 5 degrees below normal over the southern Appalachians. Elsewhere, temperatures averaged very close to normal.

MEDITERRANEAN FRUIT FLY
Ceratitidis capitata (Wiedemann)

Selected References
1967-1969

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

- Arroyo, M., Mellado, L., Jiménez, A., and Caballero, F. 1968. Tests on the eradication of Ceratitidis capitata Wied. from the island of Tenerife by the sterile-male method. Bol. Pat. Veg. Ent. Agr. 30(1967-68):233-249. In Sp.
- Arroyo, M., Mellado, L., Jiménez, A., and Caballero, F. 1968. The influence of various feeding diets on oviposition in Ceratitidis capitata Wied. Bol. Pat. Veg. Ent. Agr. 30(1967-68):251-285. In Sp.
- Awadallah, A. and Faris, F. 1969. Application of certain dimethoate compounds on peaches for control of the Medfly, Ceratitidis capitata (Wied.) (Diptera: Tephritidae). Bul. Ent. Soc. Egypt, Econ. Ser. 3:75-80.
- Barroso, C., Municio, A. M., and Ribera, A. 1969. Biochemistry of the developments of the insects Dacus oleae and Ceratitidis capitata-evolution of total fatty acids. Compar. Biochem. Physiol. 28(1):239-244.
- Berville, P. 1969. Control of the Mediterranean fruit-fly in Spain. Phytoma 21(210):35-36.
- Brnetić, D. 1968. Effect of the number of eggs cultured on the amount and weight of Mediterranean fruit fly chrysalises obtained. Contemporary Agr. 17(3):65-70.
- Calabretta, C. 1967. Adult emergence, sex ratio and mating behaviour in Ceratitidis capitata. Bol. Lab. Ent. Agr. Filippo Silvestri 25:317-325. In Ital., Engl. Sum.
- Cals-Usciati, J. 1969. Influence of physiological condition of host Ceratitidis capitata Wied. (Diptera) on development of parasite Opius concolor Szepi. (Hymenoptera). Acad. Sci. Compt. Rend. Ser. D. 269(3):342-344. In Fr.
- Causse, R. and Féron, M. 1967. Influence of the photoperiodic rhythm on the sexual activity of the Mediterranean fruit fly C. capitata. Ann. Epiphyt. 18(2):175-192. In Fr., Engl. Sum.
- Cohen, I. and Cohen, J. 1967. Centrally organized control of the Mediterranean fruit fly (Ceratitidis capitata Wied.) in citrus groves in Israel. Tel-Aviv, Agrotech. Div. Citrus Bd. Israel. 32 pp.
- Cordes, R. E. 1968. Preliminary data on labeled Mediterranean fruit fly, Ceratitidis capitata (Wiedemann), with ³²P. Soc. Ent. Argentina Rev. 31(1/4):23-32.

- Cordes, R. E. 1969. Preliminary data on the marking of Ceratitidis capitata with radioactive phosphorus. Revta Soc. Ent. Argent. 31(1/4):23-32. In Sp., Engl. Sum.
- Costa, M. V. Da. 1967. Ability to regulate the mesothoracic dorsal disk by Ceratitidis capitata Wied (Diptera, Trypetidae). Acad. Sci. Compt. Rend. Ser. D, 264(8):1058-1061. In Fr.
- Costilla, M. A. 1967. The importance of the Mediterranean fruit-fly (C. capitata) on citrus in Tucumán and its control. Estac. Expt. Agr. Tucumán Bul. No. 105. 12 pp. San Miguel de Tucumán. Engl. Sum.
- Cucchi, N. J. A., La Red, F. C., and Wouters, O. 1968. Preliminary tests on the fruit-fly C. capitata. Idia 245:23-38. In Sp.
- Damiano, A. 1967. Organophosphates for control of Mediterranean fruit fly on peaches. Internatl. Pest Control 9(6):14-16.
- De La Puerta Castello, L. 1967. Ceratitidis capitata treatment in Castellon Province. Agr. 36(418):66-69. Map. In Sp. Madrid
- Feron, M. 1969. Studies on the Mediterranean fruit fly in Tunisia. Panel Insect Ecol. and Sterile-Male Tech. Proc. 1967:83-85. In Fr., Engl. Sum.
- Fletcher, B. S. 1969. The structure and function of the sex pheromone glands of the male queensland fruit fly, Dacus tryoni. J. Insect Physiol. 15(8):1309-1322.
- Hafez, M. and Ezzat, M. A. 1967. Does the Mediterranean fruit fly, Ceratitidis capitata (Wied.), occur in the New Valley in U.A.R.? Agr. Res. Rev. 45(2):97-101. Cairo
- Hafez, M., Ezzat, M. A., Fares, F., and Awadallah, A. M. 1967. Mass rearing of the Mediterranean fruit fly, Ceratitidis capitata (Wied.), on artificial medium in U.A.R. Agr. Res. Rev. 45(2):77-90. Cairo
- Hafez, M. and Fares, F. 1967. Annual number of generations of the Mediterranean fruit fly, Ceratitidis capitata (Wied.) in U.A.R. Agr. Res. Rev. 45(2):91-96. Cairo
- Haltebourg, M. 1967. Study on the persistence of the insecticides most widely used against Ceratitidis capitata. Al Awamia 19 (1966):1-16. Ara., Engl., and Sp. Sum.
- Haltebourg, M. 1967. Tests on the control of larvae of Ceratitidis in apricots before picking. Al Awamia 19(1966):17-25. Ara., Engl., and Sp. Sum.
- Holbrook, F. R. and Fujimoto, M. S. 1969. Mediterranean fruit flies and melon flies trapped at various heights with synthetic lures. J. Econ. Ent. 62(4):962-963.

- Jalloul, A. 1968. Observations concerning various treatments used in Lebanon in 1966 against Ceratitis capitata Wied. Fruits 23(8):415-421. In Fr., Engl. Sum., p. 447
- Kamiński, E. 1967. The possibilities of the acclimatisation of the Mediterranean fruit-fly (Ceratitis capitata) in Poland on the basis of its ecology. Pr. Nauk. Inst. Ochr. Rośl. 9(2):145-160. In Pol., Rus. and Engl. Sum.
- Katiyar, K. P. 1968. Use of cheap yeasts in the larval diet of the Mediterranean fruit fly (Ceratitis capitata). Turrialba (18(3):264-267. In Sp., Engl. Sum.
- Katiyar, K. P. and Ferrer, F. 1967. Effect of exposure of irradiated pupae of the Mediterranean fruit fly, Ceratitis capitata, to high temperatures. Turrialba (Costa Rica) 17(1): 31-34. In Sp.
- Keiser, I. 1968. Residual effectiveness of foliar sprays against the oriental fruit fly, melon fly, and Mediterranean fruit fly. J. Econ. Ent. 61(2):438-443.
- Keiser, I. and Schneider, E. L. 1969. Longevity, resistance to deprivation of food and water, and susceptibility to malathion and DDT of oriental fruit flies, melon flies, and Mediterranean fruit flies sexually sterilized with tepa or radiation. J. Econ. Ent. 62(3):663-667.
- Keiser, I. and Schneider, E. L. 1969. Need for immediate sugar and ability to withstand thirst by newly emerged oriental fruit flies, melon flies, and Mediterranean fruit flies untreated or sexually sterilized with gamma radiation. J. Econ. Ent. 62(3):539-540.
- Kokolis, N. 1968. Biochemical studies of purine catabolism in Ceratitis capitata. Compar. Biochem. Physiol. 25(2):683-691.
- Marot, G. 1968. Evolution of reproductive capacity in the males of Ceratitis capitata. Ann. Epiphyt. 19(1):199-200. In Fr.
- Nadel, D. J. and Guerrieri, G. 1969. Experiments on Mediterranean fruit fly control with the sterile-male technique. Panel Sterile-Male Tech. Erad. Cont. Harmful Insects Proc. 1967: 97-105.
- Nadel, D. J., Monro, J., Peleg, B. A., and Figdor, H. C. F. 1967. A method of releasing sterile Mediterranean fruit fly adults from aircraft. J. Econ. Ent. 60(4):899-902.
- Nakagawa, S., Cunningham, R. T., and Farias, G. J. 1969. Differentiation of parasitized and unparasitized pupae of the melon fly and oriental and Mediterranean fruit flies. J. Econ. Ent. 62(4):970-971.
- Nakagawa, S., Farias, G. J., and Urago, T. 1968. Newly recognized hosts of the oriental fruit fly, melon fly, and Mediterranean fruit fly. J. Econ. Ent. 61(1):339-340.

- Ohinata, K. and Steiner, L. F. 1967. Comparative damage to automobile finishes of promising bait-spray toxicants for fruit flies. *J. Econ. Ent.* 60(3):704-707.
- Planes, S. and Del Rivero, J. M. 1968. Notes on tests on the control of the fruit-fly (*Ceratitidis capitata*). *Bol. Pat. Veg. Ent. Agr.* 30(1967-68):299-305. In Sp.
- Sanders, W. 1968. Oviposition behavior of the Mediterranean fruitfly, *Ceratitidis capitata* Wied., its dependence on the color and make up of environment. *Z. Tierpsychol.* 25(5):588-607. In Ger., Engl. Sum.
- Scherney, F. and Haisch, A. 1967. Mass breeding and sterilization of the Mediterranean fruit fly *Ceratitidis capitata*. Bayer. *Landwirt. Jahrbuch* 44(6):748-756. Map. In Ger.
- Scherney, F. and Haisch, A. 1968. On the rearing and sterilization of insect pests, especially the Mediterranean fruit-fly *C. capitata* Wied. *Anz. Schädlingsk.* 41(1):7-14. Engl. and Fr. Sum.
- Selim, O. F. 1967. Studies on the Mediterranean fruit-fly, *Ceratitidis capitata* Wied., in U.A.R. (Diptera: Tephritidae). *Soc. Ent. Egypte Bul.* 51:315-341. Pub. 1969.
- Selim, O. F. 1969. Experiments on the control of *Ceratitidis capitata* (Wied.) in U.A.R. (Diptera: Tephritidae). *Bul. Ent. Soc. Egypt, Econ. Ser.* 3:1-7.
- Simon F., J. E. 1969. Present stage of research into the eradication of the Mediterranean and South American fruit flies and the cotton stainer in Peru by the sterile-male technique. Panel Sterile-Male Tech. *Erad. Cont. Harmful Insects Proc.* pp. 115-121.
- Steiner, L. F. 1969. A method of estimating the size of native populations of oriental, melon, and Mediterranean fruit flies, to establish the overflooding ratios required for sterile-male releases. *J. Econ. Ent.* 62(1):4-7.
- Steiner, L. F. 1969. Mediterranean fruit fly research in Hawaii for sterile fly release program. Panel Insect Ecol. and Sterile-male Tech. *Proc.*:73-82.
- Tanaka, N., Steiner, L. F., Ohinata, K., and Okamoto, R. 1969. Low-cost larval rearing medium for mass production of oriental and Mediterranean fruit flies. *J. Econ. Ent.* 62(4):967-968.
- Turica, A. 1968. A Central American plan for the eradication of the Mediterranean fruit fly. IDIA (Inst. Nac. Tecnol. Agropecuar.) 247:1-12. In Sp.
- Turica, A. 1968. Biological control as a means for the control of fruit flies. *Idia* 241:29-38.

- Turica, A. 1968. The Central American plan for the eradication of the Mediterranean fruitfly. *Idia* 247:1-12.
- U.S. Agricultural Research Service, Plant Pest Control Division. 1968. Mediterranean fruit fly eradication in Lower Rio Grande Valley. Emergency preparedness in action. U.S. Agr. Res. Serv. ARS 81-29. 25 pp.
- Valega, T. M. and Beroza, M. 1967. Structure-activity relationships of some attractants of the Mediterranean fruit fly. *J. Econ. Ent.* 60(2):341-347.
- Valega, T. M. and Coauthors. 1967. Candidate attractants for control of the Mediterranean fruit fly. *J. Econ. Ent.* 60(3):835-844.
- Vargues, H. 1969. Effect of different antibiotics on larval development of fruit fly (*Ceratitis capitata* Wied). Paris Soc. Biol. Compt. Rend. 163(8/9):1915-1918. In Fr.
- Yana, A. 1968. The phenomenon of chemical attraction in *Ceratitis capitata* Wied (Diptera, Trypetidae). I. Tunisie, InSt. Nat. Rech. Agron. Doc. Tech. 37. 18 pp. In Fr.
Baits and sex attractants.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt
22(41):702-706, 197



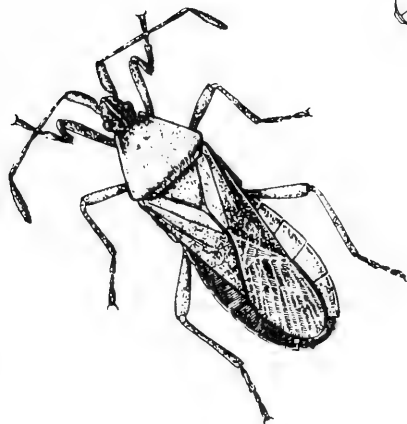
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



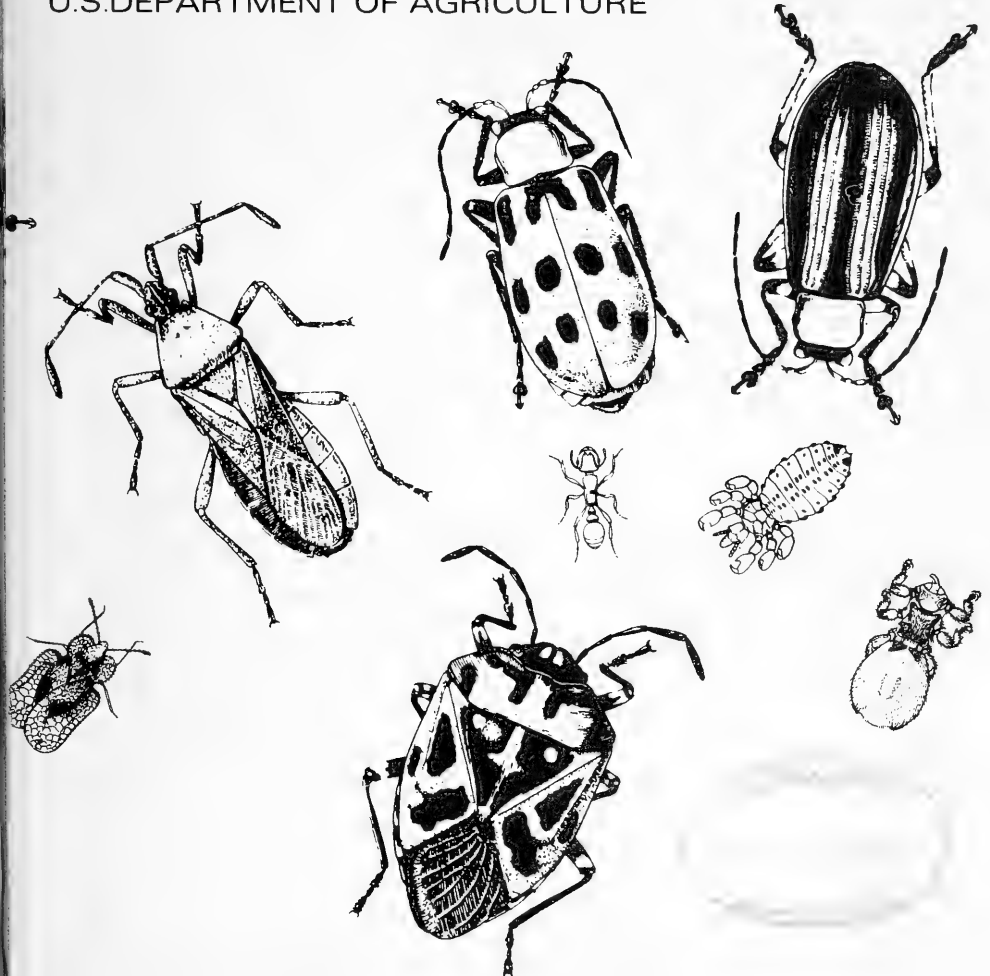
0004 SMINL ISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C77 Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 Service 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:

CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

CORN EARWORM severely damaged soybeans in Alabama. (p. 709).

GREENBUG heavy on winter wheat in Nebraska and South Dakota. (p. 709).

First POTATO SCAB GNAT incident in Idaho in 20 years. (p. 711).

Detection

A CONIFER APHID reported for the first time in Virginia. (p. 712).

For new county records see page 714.

Special Reports

Gypsy Moth. Additional Selected References 1967-1969. (pp. 717-718).

Pink Bollworm Quarantines. Map. (Centerfold).

Reports in this issue are for week ending October 13 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	709
Insects Affecting	
Corn, Sorghum, Sugarcane...709	Sugar Beets.....711
Small Grains.....710	Potatoes, Tomatoes, Peppers.711
Turf, Pastures, Rangeland..710	General Vegetables.....711
Forage Legumes.....710	Deciduous Fruits and Nuts...711
Soybeans.....711	Ornamentals.....712
Peanuts.....711	Forest and Shade Trees.....712
Cotton.....711	Man and Animals.....713
Beneficial Insects.....	713
Federal and State Plant Protection Programs.....	713
Hawaii Insect Report.....	714
Detection.....	714
Corrections.....	714
Light Trap Collections.....	715
Weather of the Week.....	716
Gypsy Moth. Additional Selected References 1967-1969.....	717
Pink Bollworm. Quarantines. Map. Centerfold.	

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-OCTOBER TO MID-NOVEMBER 1972

The National Weather Service's 30-day outlook for mid-October to mid-November calls for temperatures to average below seasonal normal over the eastern half of the Nation except for near normal along the north Atlantic Coast and in Florida. Below normal temperatures are also indicated for the central Plateau region. Above normal temperatures are expected along the Pacific Coast and also in northern Montana. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal over the northeastern quarter of the Nation as well as the central and south Pacific Coast. Subnormal totals are indicated for the Northwest and also the Gulf Coast States and Florida. Elsewhere 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.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - ALABAMA - Larval damage severe in Baldwin and Mobile Counties on almost all 200,000 acres of soybeans. This pest and foliage feeders damaged most fields in Covington County. (Turner et al.). TENNESSEE - Corn earworm damaged 7 percent of pods in snap bean fields in Cumberland County. (Mullins).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Nymph emergence slowed due to unseasonably cool weather during September in all spray areas. Breeding still occurring and hatch expected over next 21-28 days. Populations in Kern County ranged 60-70 percent nymphs in some areas. Percentage of first and second instar nymphs low in most treatment areas. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 3-8 per square foot of barley at Hobbs and Lovington, Lea County. (N.M. Coop. Rpt.). TEXAS - Light, 1-5 per row foot of wheat, in 21 panhandle counties September 21 to October 2. (Daniels). KANSAS - Heaviest, 0-12 per drill row foot, in Wichita County. (Bell). NEBRASKA - Scattered light to moderate damage to winter wheat. Occasional spots in 2 fields discolored in Gage County; counts numbered 100+ per linear foot of drill row. Up to 150 per plant in Polk County field; about 25 percent of this 6-acre field destroyed. Light in Dawson County. Light in winter wheat from North Platte, Lincoln County, south to Frontier and Red Willow Counties. (Campbell). SOUTH DAKOTA - Continues to damage untreated winter wheat throughout winter wheat range in State. Completely destroyed untreated wheat east of Chamberlain, Brule County, to near Bear Butte in western Meade County. Untreated winter wheat in test plots near Kennebec, Lyman County, had up to 5,710 aphids per 3 feet of row. About 0.75-1.0 inch of precipitation on October 4-5 helped wheat. Daytime temperatures in the 60's and 70's helped parasites and lady beetles to maintain above normal populations. (Jones).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Counts of 3,000 per 100 sweeps of alfalfa from one Gila Valley field and 200 per 100 sweeps from Yuma Mesa, Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Moderate on alfalfa in Washita, Beckham, Caddo, and Custer Counties. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Infested corn-stalks by county: Greeley 4 percent (1 field), Lane 0-12 percent (2 fields), and Ness 20 percent (1 field). Collected and determined by M. Shuman. These are new county records. (Bell). NORTH DAKOTA - Fall survey showed increase in southeast district. Borers up to 650 (averaged 140) per 100 plants; averaged 130 per 100 plants in 1971. Decreased in Cass, Dickey, and Sargent Counties. Increased in Richland and Ransom Counties. Infested plants up to 100 (average 53) percent; averaged 52 percent in 1971. No second-brood larval infestation this season. (Brandvik, Kaatz). WISCONSIN - Fall survey completed. Decreased in all districts except in the north-central; east-central district remained the same. Fivefold decrease in southwest and west-central districts. (Wis. Ins. Sur.).

ILLINOIS - Larvae of Ostrinia nubilalis, almost 5 per plant, infested 3 fields of field corn in Henderson County with 40 percent of stalks broken below the ear and 10 percent of ears on the ground. An exceptional case, overall populations low for 1972. (Ill. Ins. Rpt.). KENTUCKY - Percent plants infested (and borers per 100 plants) by county: Daviess 39.2 (21.6), Hopkins 19.2 (6.0), Warren 6.0 (none). (Barnett). VERMONT - Fall survey complete. State averaged 14.8 percent infested corn and 14.4 borers per 100 plants. Heaviest in Grand Isle County with 42 percent infested corn and 43 borers per 100 plants. (Benedict).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - OKLAHOMA - Heavy on corn in Cimarron County. (Okla. Coop. Sur.). ALABAMA - Severe lodging of cornstalks still reported in Morgan and Blount Counties. (Rutledge, Lloyd). KENTUCKY - Collected October 10 by D. Barnett in Hardin County. This is a new county record. (Barnett).

SORGHUM WEBWORM (Celama sorghiella) - KANSAS - Moderate on heads of late sorghum in Woodson County; trace in late sorghum in Coffey County. (Bell).

SORGHUM MIDGE (Contarinia sorghicola) - MISSISSIPPI - Heavy, averaged 10 per head in 10-head sample, in late-planted Noxubee County sorghum field. Destroyed 60 percent of grain in each head. (Robinson). KANSAS - Adults trace on blooming heads of late sorghum in Saline, Ottawa, and Coffey Counties. (Bell).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Larvae declined in many areas due to pupation. Still moderate to heavy on small grains in Pawnee, Roger Mills, Cleveland, Love, and Marshall Counties. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Heavy on Coastal Bermuda pastures in Brazos County past 7 days. Controls applied. (Cole). MISSISSIPPI - Larvae damaged 600 acres of ryegrass in Madison County. (Robinson).

FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Adult flights heavy at Safford, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Larvae light, 5-10 per 25 sweeps, on alfalfa at Hobbs and Lovington, Lea County. (N.M. Coop. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Heavy on alfalfa in Washita, Beckham, Caddo, and Custer Counties. (Okla. Coop. Sur.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - ARKANSAS - Specimens collected from alfalfa October 2 in Jefferson County determined this species. Rare on alfalfa, common on soybeans in State. (Ark. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Heavy, 45-100 per sweep (5 percent males), in some alfalfa on light soil in western and southern Sauk Counties. Much lighter in central and southwestern parts of State. (Wis. Ins. Sur.).

SOYBEANS

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Adults and nymphs of this species and Euschistus servus (brown stink bug) approaching damaging populations in several Houston County soybean fields. Population and damage generally light over State for 1972. (Mathews et al.).

PEANUTS

REDNECKED PEANUTWORM (Stegasta bosqueella) - NEW MEXICO - Affected 30 percent of terminals in a peanut field in Lea County. (N.M. Coop. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Damage reported in 2 Hertford County peanut fields. Larvae in 5-10 percent of stems. Controls generally not practical this late in season. (Hunt).

COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Counts in late cotton averaged 11,000 per acre in irrigated fields and ranged 0-2,700 per acre in dryland fields in Washita County. (Okla. Coop. Sur.). ALABAMA - Up to 5 young weevils feeding per young boll in Cotton Pest Management Area of Elmore and Autauga Counties where in season controls stopped too soon before defoliation, especially in non-defoliated fields. Few weevils reached firm diapause. Very few weevils in 80+ percent of acres where full insect control maintained and followed by third diapause weevil control program. (Smith).

SUGAR BEETS

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Problem on young sugarbeets at Yuma, Yuma County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

POTATO SCAB GNAT (Pnyxia scabiei) - IDAHO - Infested potatoes collected by W. Henninger at Dry Lake area, Nampa, Canyon County. Potatoes, examined by B.J. Landis, found to be infested on October 2. First confirmed incident in State in 20 years. (Portman).

TOMATO PINWORM (Keiferia lycopersicella) - MISSISSIPPI - Heavy in greenhouse tomatoes in Copiah County. (Burnham).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Treatments applied to lettuce in Yuma and Maricopa Counties. (Ariz. Coop. Sur.). MARYLAND - Fully grown larvae ranged 1-2 per 10 row feet in 100 acres of spinach near Galena, Kent County. Controls applied. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Heavily damaged or completely defoliated many pecan trees in Dona Ana County. (N.M. Coop. Rpt.). TEXAS - Infested pecan and shade trees in Travis, Caldwell, Gonzales, Guadalupe and De Witt Counties. Populations declined. (Cole).

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Larval damage on pecan trees still reported moderate to heavy in Bryan, Oklahoma, and Cleveland Counties. (Okla. Coop. Sur.).

BLACK PECAN APHID (Tinocallis caryaefoliae) - ALABAMA - Populations and damage of this species and Monellia spp. (yellow aphids) still heavy in Baldwin, Macon, Covington, Bullock, Dale, and other counties in southern area. Some controls still planned. (Turner et al.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Alates heavy on Prunus spp. in western Dane County; colonies built up. No eggs found but nymphs contain eggs. (Wis. Ins. Sur.).

PEAR PSYLLA (Psylla pyricola) - UTAH - Adults very heavy in orchard at mouth of Providence Canyon, Cache County. (Davis).

ORNAMENTALS

A CONIFER APHID (Cinara canadensis) - VIRGINIA - Taken on juniper in Montgomery County July 6, 1972, by J.A. Weidhaas. Determined by J.O. Pepper. This is a new State record. (Allen).

CRAPEMYRTLE APHID (Tinocallis kahawaluokalani) - MARYLAND - Very heavy and injurious to plant at Baltimore. Population included males, oviparous females, new eggs, and viviparous females. Sexual forms rare. (U. Md., Ent. Dept.).

FOREST AND SHADE TREES

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Heavy infestation on oaks in Bryan County declined. Fully grown larvae left trees in Payne County. (Okla. Coop. Sur.). ARKANSAS - Specimens submitted from Benton County. Determined by B.F. Jones. Much lighter in northwest area than farther south. Attacked by diseases and parasites in most areas. (Ark. Ins. Sur.). WEST VIRGINIA - Larval damage heavy on about 300 acres of scattered red and black oaks in Hardy County. (Jones, Oct. 4).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Heavy on oak trees in Brazos County past 7 days. (Cole).

HEMLOCK LOOPER (Lambdina fiscellaria) - WEST VIRGINIA - Larvae caused heavy defoliation of one hemlock tree at Buckhannon, Upshur County. Collected by B.A. Smith October 2. This is a new county record. Larvae caused 75 percent defoliation of hemlocks in 3-acre area in Hancock County October 5. (Hacker).

SPINY OAKWORM (Anisota stigma) - TEXAS - Heavy on oaks at Conroe, Montgomery County, past 7 days. (Cole).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Damage heavy on many shade trees in most of State. Larvae, a nuisance around households. (N.M. Coop. Rpt.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Damage heavy to Siberian elms at Farmington, San Juan County. (N.M. Coop. Rpt.).

IF IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD IS REQUIRED BY STATE REGULATIONS OR BY AN AUTHORITY

5. BLUE INTO ANY OTHER AREA.





4. WITHIN GREEN.

3. GREEN INTO GREEN.

2. GREEN INTO OR THROUGH BLUE OR WHITE

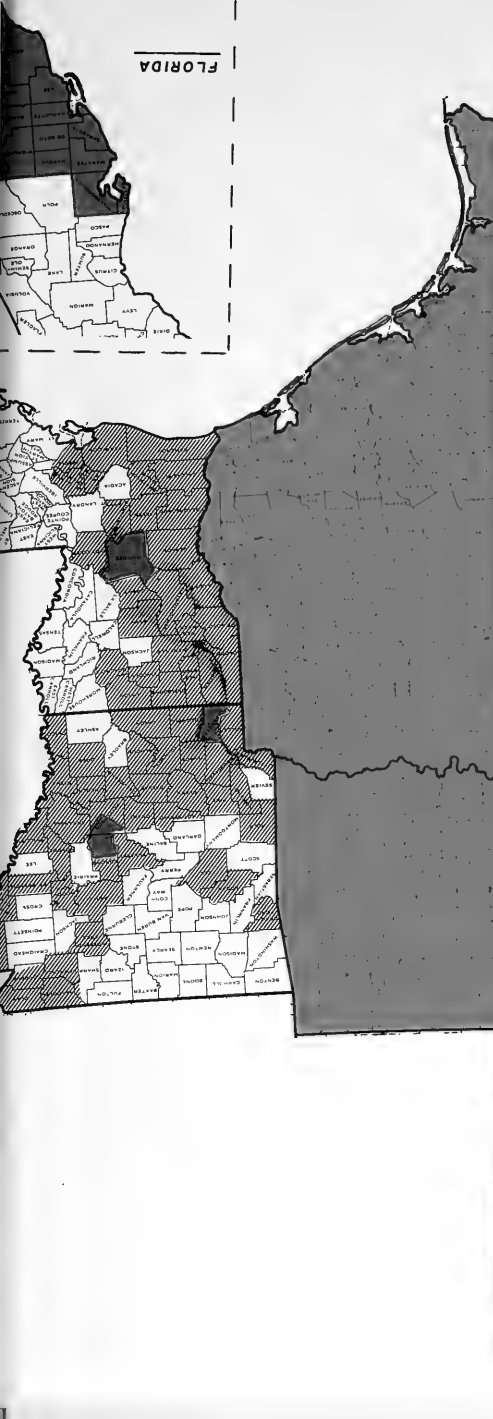
1. RED INTO OR THROUGH GREEN, BLUE OR WHITE

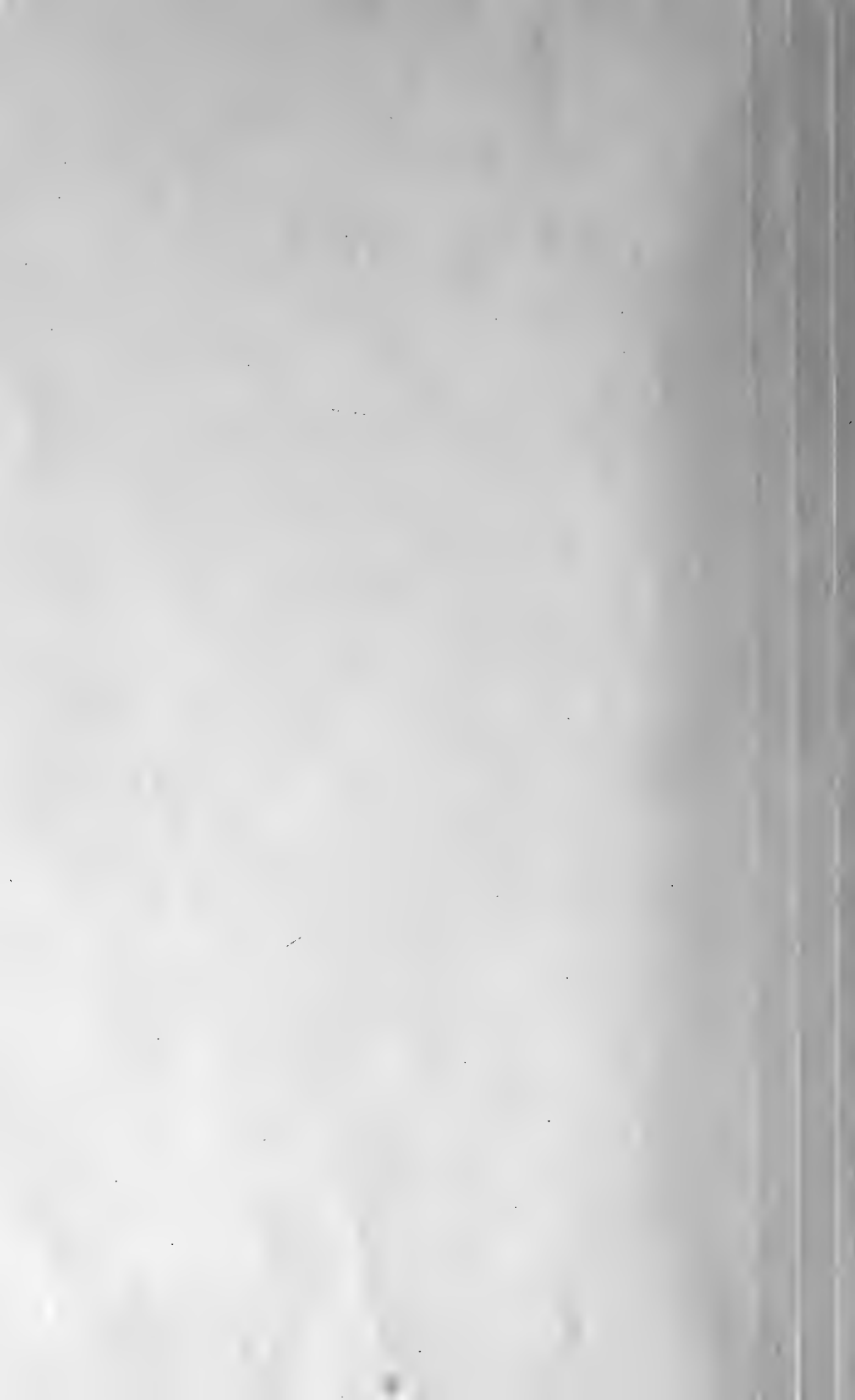
RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED AREA AS FOLLOWS:

-  ERADICATED - REGULATIONS REMOVED.
-  STATE REGULATIONS ONLY - SUPPRESSIVE AREA.
-  SUPPRESSIVE AREA - STATE AND FEDERAL REGULATIONS
-  GENERALLY INFESTED AREA - STATE AND FEDERAL REGULATIONS

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED
 COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED

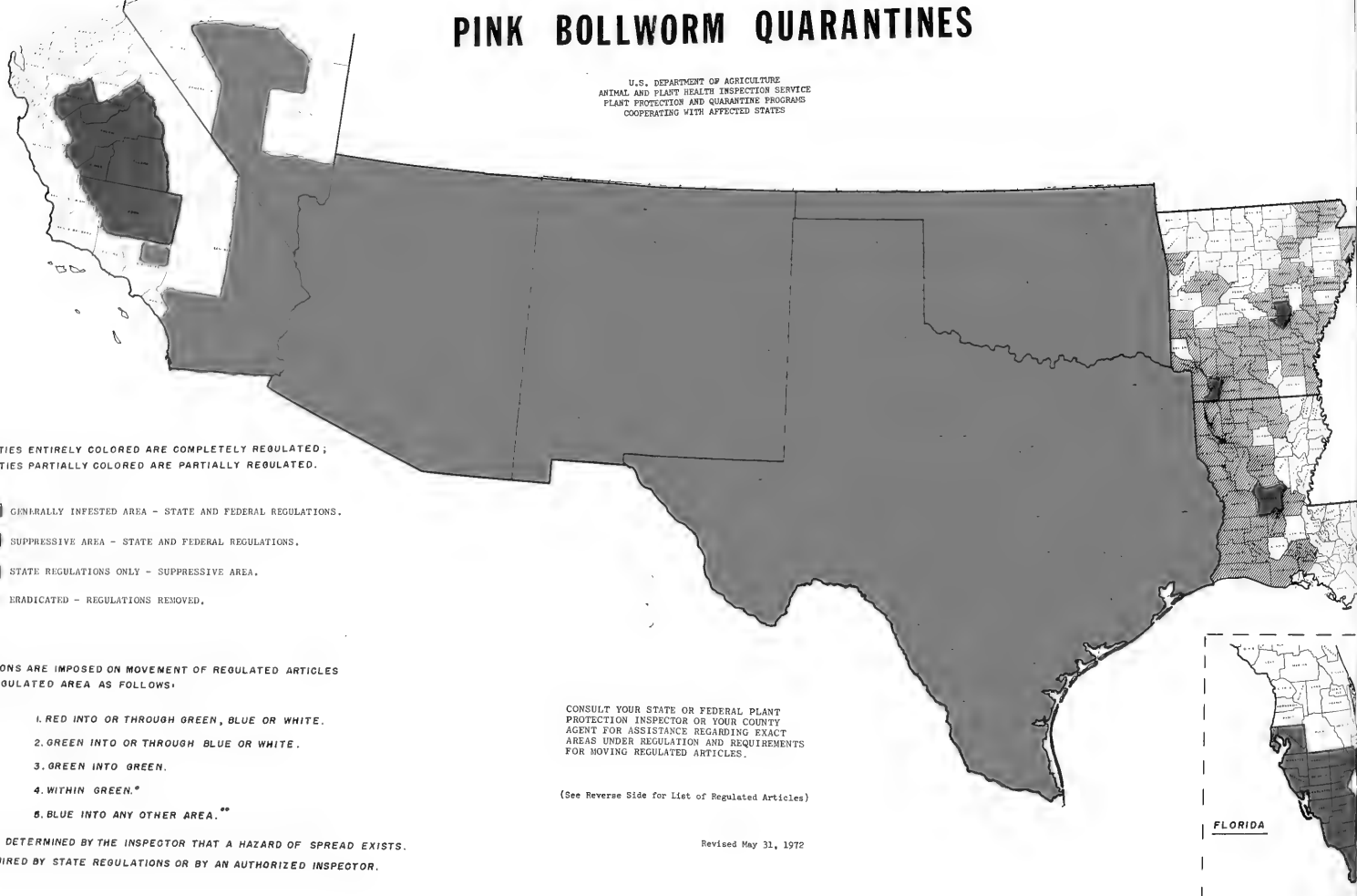
FLORIDA





PINK BOLLWORM QUARANTINES

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
COOPERATING WITH AFFECTED STATES



COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;
COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED.

■ GENERALLY INFESTED AREA - STATE AND FEDERAL REGULATIONS.

■ SUPPRESSIVE AREA - STATE AND FEDERAL REGULATIONS.

■ STATE REGULATIONS ONLY - SUPPRESSIVE AREA.

▨ ERADICATED - REGULATIONS REMOVED.

RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED ARTICLES
FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. WITHIN GREEN.**
5. BLUE INTO ANY OTHER AREA.**

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 List of Regulated Articles)

** IF IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

** IF REQUIRED BY STATE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

Revised May 31, 1972

FLORIDA

THE FOLLOWING REGULATED ARTICLES REQUIRE A CERTIFICATE OR PERMIT
YEAR-ROUND EXCEPT AS INDICATED:

1. Cotton and wild cotton, including all parts of such plants.
2. Seed cotton.
3. Cottonseed.
4. Cottonseed hulls.
5. Cotton lint.

Baled cotton lint is exempt if compressed to a minimum of 22 pounds per cubic foot.

Baled cotton lint moving from the generally infested area into the suppressive area is exempt if the lint is from seed cotton produced in the suppressive area and moved to the generally infested area for ginning, provided the identity of the baled cotton lint is maintained.

Samples of cotton lint of the usual trade size are exempt. The samples may be assembled in a single package for shipment.
6. Cotton linters.

Linters are exempt if compressed to a minimum of 22 pounds per cubic foot.

Samples of cotton linters of the usual trade size are exempt. Samples may be assembled in a single package for shipment.
7. Cotton waste produced at cotton gins, cottonseed oil mills, and cotton textile mills.

Lint cleaner waste is exempt if compressed to a minimum of 22 pounds per cubic foot.
8. Cotton gin trash.
9. Used bagging and other used wrappers for cotton.
10. Used cotton harvesting equipment and used cotton ginning and cotton oil mill equipment.
11. Okra and kenaf, including all parts of such plants except canned or frozen okra.

Edible okra is exempt if produced during the period December 1 to May 15 inclusive, except that okra consigned to California is exempt only if produced during the period of January 1 to March 15 inclusive.
12. 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 the pink bollworm and the person in possession thereof has been so notified.

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 3,547 confirmed cases reported in continental U.S. during period October 1-7 as follows: Texas 3,300; New Mexico 80; Arizona 98; Oklahoma 63; Arkansas 3; California 3. Total of 1,125 cases reported in Mexico. Number of sterile flies released in U.S. this period totaled 159,318,000 as follows: Texas 133,730,000; New Mexico 5,580,000; Arizona 12,900,000; Louisiana 1,708,000; Florida 4,200,000; Alabama 200,000; Georgia 1,000,000. Total of 29,912,000 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 750-1,000 per head on cows and averaged 3,500 per head on bulls in Payne County. Averaged 200 per head in Love County; moderate to heavy in Cleveland, Hughes, Comanche, and Bryan Counties. (Okla. Coop. Sur.). MISSISSIPPI - Adults averaged 600+ on 65 beef cattle in Oktibbeha County. Should be last generation before diapause. (Robinson).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Increased, ranged 12-15 per head, on untreated dairy cattle past 14 days in Payne County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

AN ENCYRTID WASP (Ooencyrtus kuwanai) - RHODE ISLAND - Released 60,000 against Porthetria dispar (gypsy moth) eggs in Providence County October 3. (Relli).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Percent infested bolls ranged 0-40 in Lea County cotton field. (N.M. Coop. Rpt.). OKLAHOMA - Lint cleaner inspections revealed 275-300 larvae per bale in Jefferson County and 10-15 per bale in Canadian County. Green boll infestations averaged 75 percent and 90 percent in 2 cotton fields in Bryan County, 100 percent and 90 percent in 2 fields in Marshall County, 100 percent and 40 percent in 2 fields in Love County, 75 and 60 percent in 2 fields in Johnston County, and 50 percent in 1 field in Grady County. Heavy green boll infestations also reported in southeastern Tillman County and a small ornamental planting in Noble County. (Okla. Coop. Sur.).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Still active; infested area increased in Santa Clara County. Controls applied as new finds made. No commercial grapes involved. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - See BENEFICIAL INSECTS above.

HAWAII INSECT REPORT

Corn - CORN PLANTHOPPER (Peregrinus maidis) heavy in 200 acres of mature field corn at Kilauea, Kauai; nymphs and adults of Tytthus mundulus (cane leafhopper egg sucker) heavy but not adversely affecting planthopper population. (Sugawa).

General Vegetables - Larval mines of LEAFMINER FLIES (Liriomyza spp.) heavy in .5 acre of eggplant seedlings at Waianae, Oahu; half of leaves (mostly older) with 80+ percent of leaf area mined. TOBACCO FLEA BEETLE (Epitrix hirtipennis) damage moderate; adults light. Leafminer mines generally moderate in several plantings of club gourd (Lagenaria vulgaris) at this same area; heavy on older leaves despite weekly controls. Adults heavy in a 1,000 square feet of mustard cabbage (Brassica juncea) adjacent to a .75-acre planting of club gourd. (Kawamura).

Fruits and Nuts - Small colonies of COCONUT SCALE (Aspidiotus destructor) on less than 1 percent of pinnae of about 200 coconut trees at Kahe Point, Oahu. (Kawamura). Moderate numbers of BLACK THREAD SCALE (Ischnaspis longirostris) and an ERIOPHYID MITE (Eriophyes litchii) on backyard Litchi chinensis trees at Lahaina, Maui. (Miyahira).

General Pests - FULLER ROSE WEEVIL (Pantomorus cervinus) damage heavy in yard plantings of Citrus sp. and Cordyline terminalis at Makawao and lower Kula, Maui. (Miyahira).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) activity light at Poipu, Kauai, during September; about 90 snails collected and destroyed. Nil at Wahiawa. (Sugawa).

DETECTION

New State Record - A CONIFER APHID (Cinara canadensis) - VIRGINIA - Montgomery County. (p. 712).

New County Records - EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Greeley, Lane, Ness (p. 709). HEMLOCK LOOPER (Lambdina fiscellaria) WEST VIRGINIA - Upshur (p. 712). SOUTHWESTERN CORN BORER (Diatraea grandiosella) KENTUCKY - Hardin (p. 710).

CORRECTIONS

CEIR 22(40):685 - GRASSHOPPERS - Line 4: "... Trachyrachys kiowa." should read "... Trachyrhachys kiowa."

CEIR 22(41):699 - FOREST AND SHADE TREES: "... Liothirps urichi ..." should read "... Liothrips urichi ..."

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 10/13, BL - Armyworm (Pseudaletia unipuncta) 45, beet armyworm (Spodoptera exigua) 132, black cutworm (Agrotis ipsilon) 13, corn earworm (Heliothis zea) 9, fall armyworm (S. frugiperda) 40, granulate cutworm (Feltia subterranea) 5, tobacco budworm (H. virescens) 1, variegated cutworm (Peridroma saucia) 5.

KANSAS - Garden City, 9/25, 27, 10/2, 4, 9, 11, BL - Army cutworm (Euxoa auxiliaris) 932, armyworm 76, black cutworm 38, corn earworm 305, variegated cutworm 15, wheat head armyworm (Faronta diffusa) 20, yellowstriped armyworm (S. ornithogalli) 3. Great Bend, 9/27-10/10, BL - Army cutworm 248, armyworm 51, black cutworm 52, corn earworm 144, variegated cutworm 82, wheat head armyworm 4, yellowstriped armyworm 2.

MISSISSIPPI - Stoneville, 10/6-12, 2BL, 50-87 degrees F., no precip. - Armyworm 53, beet armyworm 1,914, black cutworm 17, cabbage looper (Trichoplusia ni) 9, corn earworm 212, fall armyworm 152, granulate cutworm 118, tobacco budworm 53, variegated cutworm 1.

NEW HAMPSHIRE - Lee, 10/9, BL - Black cutworm 1.

PENNSYLVANIA - (District) - Central, 10/4-11, BL - Army cutworm 1, armyworm 10, black cutworm 1, corn earworm 1, variegated cutworm 3, yellowstriped armyworm 1. Northeast, 10/4-11, BL - Armyworm 1, black cutworm 2, variegated cutworm 3. Southeast, 10/4-11, BL - Armyworm 9, black cutworm 3, fall armyworm 2, variegated cutworm 6, yellowstriped armyworm 2.

TEXAS - Waco, 10/12, BL - Armyworm 350, beet armyworm 213, black cutworm 11, cabbage looper 48, corn earworm 49, fall armyworm 92, granulate cutworm 71, tobacco budworm 189, variegated cutworm 102, yellowstriped armyworm 15.

VIRGINIA - Charlotte Court House, 9/26-10/6, BL - Armyworm 121, black cutworm 36, tobacco hornworm (Manduca sexta) 2, tomato hornworm (M. quinquemaculata) 1. Holland, 9/26-10/10, BL - Armyworm 70, black cutworm 16, tomato hornworm 3. Warsaw, 9/27-10/9, BL - Armyworm 115, black cutworm 22, tomato hornworm 4.

WEATHER OF THE WEEK ENDING OCTOBER 16

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Weak thunderstorms spattered the central Great Plains early in the week. A storm centered over the Pacific Ocean, west of California, provided light rain along the coast with snow in nearby mountains. Another storm centered over the extreme southern Saskatchewan caused cold, snowy weather in Montana. By noon Tuesday, about 2 inches of snow covered the Great Falls area and strong northerly winds spread snow into the northern Rocky Mountains. Vigorous thunderstorms shaped up in Iowa and spread to northern Illinois. Hail from 1 to 2 inches in diameter fell in northeastern Iowa. As air masses of differing temperature and moisture characteristics battled along a long front that stretched across the central Great Plains, showers and thunderstorms popped up along the front and snow flurries occurred in the cold air north of the front. Isolated precipitation continued in northern California midweek. Rain in the east spread, covering most of the area from Illinois to the northern and middle Atlantic States. The weekend brought light scattered rains over the central Great Plains, the Deep South and the Northeast, light rain or snow in the Northwest and central Rocky Mountains, and light to heavy rain in northern and central California. Heavy rains in California caused damaging mud slides in some hilly areas.

TEMPERATURE: A large Canadian High cooled the Northeast early in the week. Maximum temperatures Monday afternoon ranged from the 40's from the Great Lakes to Maine to the 60's from the Dakotas to Virginia. Mild temperatures and mostly sunny skies continued over the South. In the West Monday afternoon, temperatures ranged from the 70's in eastern Montana to the 90's in western Texas. Tuesday morning brought subfreezing temperatures as far south as West Virginia where Beckley registered 30 degrees. Gusty winds Monday night brought subfreezing temperatures to eastern Montana by Tuesday morning and held the afternoon temperatures in the 40's over much of that area Tuesday afternoon. The maximum temperature at Great Falls Monday was 73 and Tuesday 26 degrees. Corresponding readings at Havre were 80 and 40 degrees. The northern Great Plains remained cool Wednesday but extreme western Texas warmed to the 90's, 98 degrees at Presidio. Considerable warming occurred over the northern Great Plains Thursday. The Deep South continued sunny and mild. Subfreezing temperatures occurred in parts of the northern Great Plains and eastward to New England on Saturday and Sunday morning.

GYPSY MOTH
(Porthetria dispar (L.))

Additional Selected References
1967-1969

These references supplement those published in CEIR 19(44):819-820, 1969. Copies of these bibliographies are available from Pest Survey and Technical Support Staff.

Abdullaev, E. 1967. Parasites of eggs of the gypsy moth (Porthetria dispar) (Orgyidae, Lepidoptera) according to findings from Samarkand Region. In Akademiya Nauk Uzbekskoi SSR. Institut Zoologii i Parazitologii. Poleznye i vrednye bespozvonochnye zhivotnye Uzbekistana, pp. 25-29. In Rus.

Brown, G. S. 1968. Establishment of the gypsy moth, Porthetria dispar L., in Canada. Ent. Soc. Ont. Proc. 99:12-13.

Cardinal, J. A. 1967. Control of the gypsy moth, Lymantria dispar, in Quebec. Phytprotection 48(2):92-100. In Fr., Engl. Sum.

Golubev, A. V. and Semevskii, F. N. 1969. Distribution of an endemic population of the gypsy moth. Zool. Zh. 48(6):850-859. In Rus.

Krnjaić, S. 1967. A survey of the species and numbers of egg parasites of the gypsy moth at various places in Yugoslavia. Zašt. Bilja 18(93/95):247-255. In Serb., Engl. Sum.

Leonard, D. E. 1969. Intrinsic factors causing qualitative changes in populations of the gypsy moth. Ent. Soc. Ontario Proc. 100:195-199.

Magnoler, A. 1968. Laboratory and field experiments on the effectiveness of purified and non-purified nuclear polyhedral virus of Lymantria dispar L. Entomophaga 13(4):335-344. Fr. Sum.

Maksimović, M. 1969. Investigation of population dynamics of gypsy moth by means of traps. Panel Insect Ecol. and Sterile-male Tech. Proc.:9-19.

Maksimović, M. and Marović, R. 1967. The effect of the type of trap on the attractiveness of the sex scent of females of the gypsy moth. Zašt. Bilja 18(93/95):115-123. In Serb., Engl. Sum.

Mihalache, Gh. 1969. On the evolution of the useful entomofauna of the gypsy moth in areas treated with bacterial preparations. Stud. si Cercet. Biol. Ser. Zool. 21(5):365-376. In Rum.

Nagasawa, S. and Nakayama, I. 1968. Growth and its variation of Kurashiki race of gypsy moth, Lymantria dispar L.; problems on breeding of insects for biological assay of insecticides. XLVII. Kontyu 36(3):237-249. In Jap.

- Petre, Z., Caloianu, M., and Săvulescu, A. 1968. Histopathological studies concerning the nuclear polyhedrosis virus changes in Lymantria dispar L. larvae. Revue Roum. Biol.-Zool. 13(2): 105-109. Bucharest.
- Petre, Z. and Ploaie, P. 1969. Cell proliferations in Lymantria dispar L. larvae infected with the nuclear polyhedrosis virus. Experientia 25(8):842-844.
- Romanyk, N. and De Montes, I. 1969. La situación de las plagas de insectos forestales en España durante el año 1969. Bol. del Serv. de Plagas Forest. 12(24):135.
- Rose, A. H. 1969. Noteworthy forest insects in Ontario in 1969. Ent. Soc. Ontario Proc. 100:11-13.
- Topalovic, M. 1969. Situation of gypsy moth in autumn, 1968. Biljni Lek. 14(1):9-11. In Serb.
- Turner, N. 1969. The gypsy moth in Connecticut. Conn. Agr. Expt. Sta. Cir. 231. 8 pp.
- U.S. Department of Agriculture. 1969. The gypsy moth. U.S. Dept. Agr. PA-910. 6p.-folder.
- Vasiljević, Lj. and Injac, M. 1967. Some of the consequences of irradiating gypsy-moth eggs with radioactive cobalt-60. Zašt. Bilja 18(93/95):55-65. In Serb., Engl. Sum.
- Videnova, E. 1967. Tests on the use of bacteria for the control of larvae of the gypsy moth, the brown-tail moth and the lackey moth. Rastit. Zasht. 15(11):29-32. In Bu.
- Zhukovskii, S. G. and Alekseeva, T. M. 1968. On rearing the gypsy moth under laboratory conditions. Byull. vses. nauchno-issled. Inst. Zashch. Rast. 3(11):72-75. In Rus., Engl. Sum. Pub. in 1969.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(42):717-718, 1972



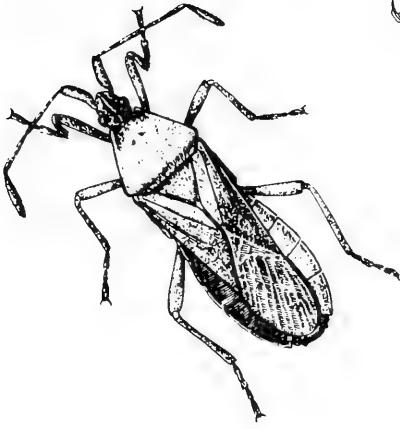
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



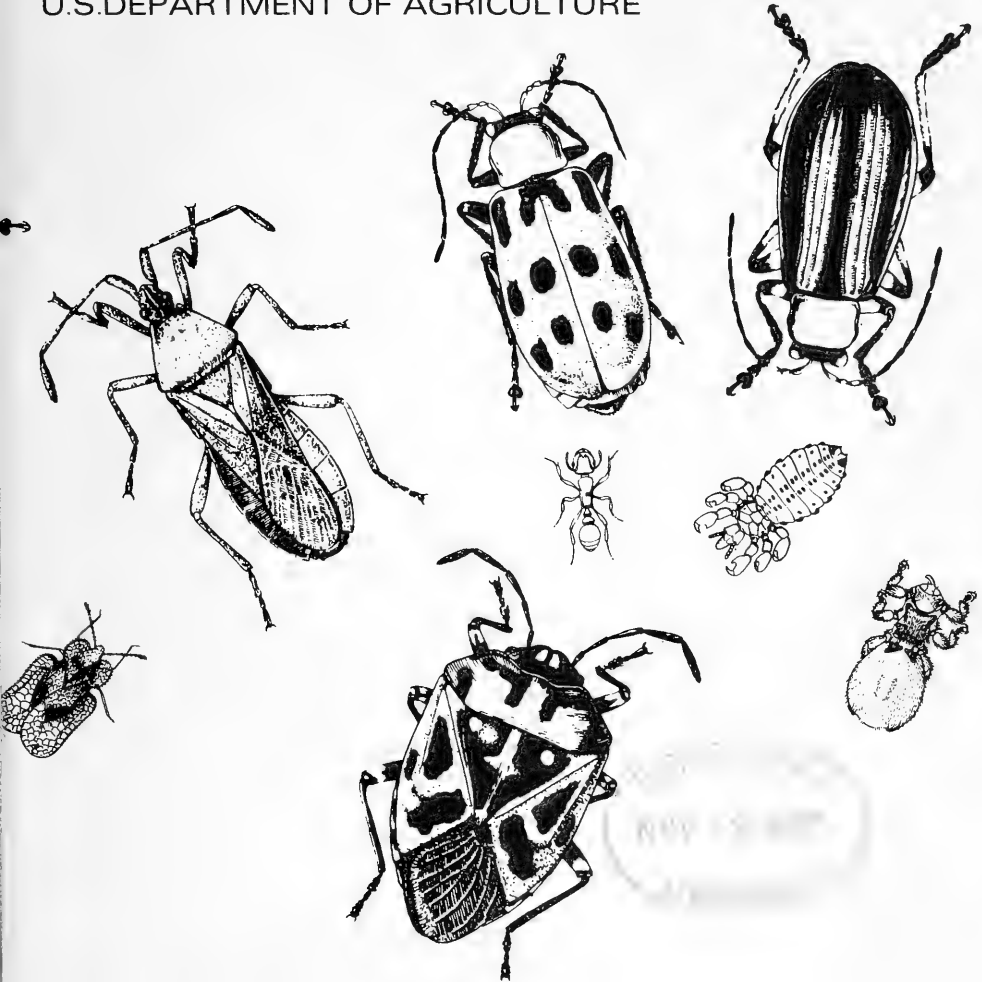
0004 SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C77 Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF**

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 Service 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:

**CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782**

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG active in winter wheat in scattered areas of Nebraska; economic in few fields with controls applied. (p. 721).

FALL ARMYWORM damaged small grains in some areas of Rolling Plains in Texas. Heavy on oats, wheat, and ryegrass combination pastures in scattered areas of Mississippi. (p. 722).

TOBACCO BUDWORM caused first known heavy loss to cotton in Arkansas. (p. 723).

HICKORY SHUCKWORM heavily damaged pecans in south-central Texas. BLACK PECAN APHID heavy on pecans along gulf coast of the State. (p. 724).

SOUTHERN PINE BEETLE population expanding rapidly over Tusquittee Ranger District in southwestern North Carolina; also problem in other areas of State. (pp. 724-725).

Special Reports

Special Report on a Sap Beetle in California. (p. 728).

Mediterranean Fruit Fly. Selected References 1960-1966. (pp. 729-734).

Reports in this issue are for week ending October 20 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....721

Insects Affecting

Corn, Sorghum, Sugarcane....721	Miscellaneous Field Crops.723
Small Grains.....722	Cole Crops.....723
Turf, Pastures, Rangeland...722	Deciduous Fruits and Nuts.724
Forage Legumes.....722	Small Fruits.....724
Peanuts.....723	Forest and Shade Trees....724
Cotton.....723	Man and Animals.....725
Tobacco.....723	

Beneficial Insects.....725
Federal and State Plant Protection Programs.....725
Light Trap Collections.....726
Hawaii Insect Report.....727
Special Report on a Sap Beetle in California.....728
Mediterranean Fruit Fly.. Selected References 1960-1966.....729

WEATHER OF THE WEEK ENDING OCTOBER 23

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Scattered showers occurred over the northern and central Atlantic Coastal States and Tennessee River Valley early in week in advance of a cool front which was moving southeastward over the area. Snow flurries were seen along the lee shores of the Great Lakes. Cold air blowing across relatively warm waters picked up moisture, dropped it when breezes reached the lee shores. Buffalo, New York, received 2 inches of snow Wednesday. Two inches of snow fell at Moline, Illinois, Wednesday also. Light rain also fell in the West while snow fell in some western mountains. Freezing drizzle slicked roads at Akron, Colorado, Wednesday afternoon. Heavy showers fell in some desert localities--1.83 inches at Phoenix, Arizona, and about 3.25 inches at Payson some 70 miles northeast of Phoenix. Many localities from the Atlantic to the Pacific and from the Great Lakes to the Gulf of Mexico received light showers Wednesday forenoon. Heavy rains fell over the central Great Plains late Saturday and early Sunday. One of the heaviest showers drenched McAlester, Oklahoma, with 6.25 inches. Lighter rains also fell elsewhere over the eastern half of the Nation over the weekend. No rain fell during the week in southern Georgia and much of the Florida Peninsula. Only widely scattered light sprinkles occurred from northern Washington to the Red River of the North.

TEMPERATURE: A mass of cold arctic air blustered into the North Central States from Canada early in the week. Southwesterly winds preceded the front which marked the leading edge of cold air. They brought summer weather from the South. Numerous cities in advance of the front had never seen such warm weather so late in the season. Some examples were: Wichita Falls, Texas, 102 degrees Tuesday; Oklahoma City, Oklahoma, 96 degrees Tuesday; Jacksonville, Florida, 89 degrees Wednesday. Northwesterly winds followed the front. Weather of the week continued on page 726.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - TENNESSEE - Continued to damage newly seeded sod in central area. To date most damage light and isolated. (Gordon).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Ranged 2-6 per linear foot in wheat in Texas County. Very light in Cimarron County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 0-5 per linear foot on wheat in Curry and Roosevelt Counties. (N.M. Coop. Rpt.). OKLAHOMA - Destroyed about half of 35-acre small grain field in Cimarron County. Ranged 7-21 per linear foot in 5 fields in Texas and Cimarron Counties. Light in Roger Mills and Tillman Counties. (Okla. Coop. Sur.). KANSAS - Averaged 5 per drill row foot in field of early wheat in Bourbon County, 4 per row foot in field in Cherokee County. Trace infestations found in Linn, Greenwood, Chautauqua, Sumner, and Harper Counties. (Bell). NEBRASKA - Active in winter wheat in scattered areas. Economic in few fields, controls applied. Counts indicate most fields should be watched. Counts 2,000+ per row foot near one end of 160-acre field in Box Butte County; about 3 percent of stand killed. Damage severe in 20-acre field in Polk County, with 50 percent of stand killed. Up to 500 S. graminum and 100 Rhopalosiphum fitchii (apple grain aphid) per row foot in this field. S. graminum ranged trace to 10 and R. fitchii up to 25 per row foot in Hamilton, Fillmore, and Clay Counties; no damage visible in these counties. Parasitism by Lysiphlebus testaceipes (a braconid wasp) less than 5 percent in most fields. Only occasional Hippodamia convergens (convergent lady beetle) observed. (Peters). S. graminum noted in 6 of 21 winter wheat fields surveyed in Lincoln, Keith, and Perkins Counties. Numbers generally light; heaviest count, 30 per row foot. (Campbell). Infestations spotted in Otoe County. (Peterson, Roselle).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Ranged 4-10 per sweep in older alfalfa seed fields in Dixie Valley, Pershing County. (Stitt, Oct. 13). ARIZONA - Counts of 4,000 per 100 sweeps taken in one alfalfa field at Gila Valley, Yuma County. (Ariz. Coop. Sur.). KANSAS - Averaged 35 per 10 sweeps in field of 12-inch alfalfa in Bourbon County, 5 per 10 sweeps in field of 4-inch alfalfa in Crawford County. (Bell). ARKANSAS - Light, ranged 100-150 per 100 sweeps, in Washington County alfalfa. Survey negative in these fields past several weeks. (Boyer).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ILLINOIS - Found in 70 percent of fields surveyed in Alexander and Pulaski Counties; averaged 16.8 larvae per 100 plants. (Ill. Ins. Rpt.). OKLAHOMA - Infestation ranged 1-25 percent in 9 cornfields in Texas County, 2-10 percent in 4 fields in Cimarron County, and 1 percent in Beaver County field. Larvae ranged 50-100 percent immaculate in Texas County. (Okla. Coop. Sur.).

SORGHUM WEBWORM (Celama sorghiella) - KANSAS - Heavy in late sorghum field in Linn County; larvae, all stages, averaged 19 per head. Light, up to one larva per head, in late sorghum in Crawford, Cherokee, Labette, and Montgomery Counties. (Bell).

FALL ARMYWORM (Spodoptera frugiperda) - KANSAS - Second and third instars infested about 5 percent of whorls of 12-inch volunteer corn in Cherokee County; trace seen in whorls of 15-inch second-growth forage sorghum in Bourbon County. (Bell).

CORN ROOTWORMS (Diabrotica spp.) - IOWA - Statewide survey indicated lodging decreased from 4.97 percent in 1971 to 1.58 percent in 1972. (Iowa Ins. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - KANSAS - Heavy damage to seed heads of late sorghum in Linn, Crawford, Labette, and Montgomery Counties. (Bell).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Moderate to heavy infestations damaged small grains in some areas of Haskell, Young, Fisher, and Foard Counties of Rolling Plains. Heaviest damage to small grains planted for grazing. Light in Archer County. (Boring). OKLAHOMA - Light on small grain in Pawnee and Roger Mills Counties, light to moderate in Pontotoc, Tillman, and McCurtain Counties. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Caused 15-20 percent loss of stand in small grain fields in Carter County; larvae ranged 3-4 per linear row foot in spotted areas. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

SAGEBRUSH DEFOLIATOR (Aroga websteri) - UTAH - Infestation and damage ranged from very light to severe in northern and central range areas. Moderate in Cache, Davis, and Weber Counties, some infestations severe in northern Box Elder County. (Knowlton).

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Heavy on oats, wheat, and ryegrass combination pastures in Amite, Clay, and Madison Counties. Controls applied. (Robinson).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Caused loss of stand to wheat and rye pastures in Wilbarger and Wichita Counties. (Boring).

FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - NEVADA - Young larvae averaged 1 per plant in seedling alfalfa in Dixie Valley, Pershing County. (Stitt, Oct. 13). ARIZONA - Controls applied to alfalfa at Safford, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Larvae light, 5-10 per 25 sweeps, on alfalfa at Hobbs and Lovington, Lea County. (N.M. Coop. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - KANSAS - Larvae, all stages, averaged 22 per 10 sweeps in 14-inch alfalfa in Riley County. This pest, along with Colias eurytheme (alfalfa caterpillar), Caenurgina erechtea (forage looper), and Heliothis zea (corn earworm) caused about 15 percent defoliation. (Bell). OKLAHOMA - Heavy on alfalfa in Washita, Beckham, Caddo, and Custer Counties. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Larvae ranged 3-7 per 25 sweeps in some northern Dane County fields and one Sauk County field. No adults seen. (Wis. Ins. Sur.). MISSOURI - Adults ranged 3-31 per 10 sweeps in central area alfalfa. Light populations of small larvae seen in most fields checked. (Munson). NEW MEXICO - Light in alfalfa at Belen and Los Lunas, Valencia County. (N.M. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Populations stable, averaged 12 per sweep in southwestern and southern counties. Reproduction slowed as have predator and parasite activity. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - KENTUCKY - Averaged 20 per 100 sweeps on alfalfa checked in Meade County. (Barnett).

PEANUTS

REDNECKED PEANUTWORM (Stegasta bosqueella) - NEW MEXICO - Infested 80 percent of peanut terminals at Portales, Roosevelt County. (N.M. Coop. Rpt.).

COTTON

TOBACCO BUDWORM (Heliothis virescens) - ARKANSAS - About 400 acres of cotton plowed under in Chicot County. This is first known case of such heavy loss to this pest in State. Up to 40,000 larvae per acre seen in some fields. Insecticide treatments gave little control. (Boyer).

COTTON LEAFPERFORATOR (Bucculatrix thurberiella) - TEXAS - Caused light damage to cotton in Dickens, Kent, and Wichita Counties. (Jordan et al.). OKLAHOMA - Heavy in Caddo and Bryan Counties. (Okla. Coop. Sur.).

TOBACCO

TOBACCO MOTH (Ephestia elutella) - NORTH CAROLINA - Larval population increased in some curing barns and pack houses in Harnett, Wilson, and Wayne Counties. (Hunt).

MISCELLANEOUS FIELD CROPS

PYRALID MOTHS (Pyrausta spp.) - OREGON - Preliminary survey of mint plantings in Pineville area, Crook County, revealed no larvae or damage. Further surveys in mint-producing areas in central part of State anticipated. (Penrose). See CEIR 22(41):695 for first report of these new pests of mint in Oregon. (PP).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - OREGON - First significant larval counts noted in 0.5-acre test plot of broccoli, cauliflower, and cabbage near Cornelius, Washington County. Averaged one larva per 3 cabbage plants. (Collins, Oct. 13). ARIZONA - Controls applied to lettuce at Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - OREGON - Alates and non-winged forms heavy on 0.5-acre test plot of broccoli, cabbage, and cauliflower near Cornelius, Washington County. On broccoli, aphids ranged 50-100 per terminal (plants have gone to seed); on cabbage and cauliflower, 10-15 colonies per plant with 10-20 aphids per colony. (Collins, Oct. 13).

DECIDUOUS FRUITS AND NUTS

PEACHTREE BORER (Sanninoidea exitiosa) - OKLAHOMA - Moderate on peach and plum trees in Oklahoma County. (Okla. Coop. Sur.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - Males still active; totals of 160 and 205 taken in pheromone traps at 2 locations near Sawyer, Yakima County, week ending October 5. (Eves).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEVADA - Heavy on apple nursery stock in Las Vegas, Clark County. (Hoff et al.).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - OREGON - Very heavy buildup apparent in cherry orchards in Wasco County; cause not determined. (Thienes, Oct. 13).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Heavily damaged pecans in several south-central area counties. Heaviest in Guadalupe, Gonzales and De Witt Counties. (Cole). MISSISSIPPI - Up to 5 larvae per fallen nut found under several yard pecan trees in Oktibbeha County. (Robinson).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Pecan trees heavily damaged or completely defoliated in Dona Ana County. (N.M. Coop. Rpt.). TEXAS - Decreased on pecans in Goliad County. (Cole).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Increased on pecans in De Witt County, some trees stripped for third time this season. (Cole).

BLACK PECAN APHID (Tinocallis caryaefoliae) - TEXAS - Heavy in areas along gulf coast and in Caldwell County of south-central area. Some leaf damage and defoliation occurred. (Green).

SMALL FRUITS

RASPBERRY CROWN BORER (Bembecia marginata) - OREGON - Random sample of 18-acre field of red raspberry near Banks, Washington County, showed about 50 percent of plants infested with 1+ larvae. (Collins, Oct. 13).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - NEVADA - Larvae heavy on grapes and Virginia creeper in Las Vegas area, Clark County. (Bechtel).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Increased over Tusquitee Ranger District in Cherokee and Clay Counties. Population expanding rapidly. Survey revealed 60+ new

spot infestations. Also problem in Randolph, Surry, Davie, Davidson, and Stanly Counties. (Hunt). ALABAMA - Established infestation killed 100+ Virginia pines along main highway near top of Cheaha Mountain State Park in Cleburne County. Recently emerged adults seen. (McQueen).

WHITE PINE APHID (Cinara strobil) - SOUTH CAROLINA - Populations increased in white pine plantations in Piedmont area. (Fox).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Heavy populations defoliated trees in Pontotoc and McCurtain Counties. (Okla. Coop. Sur.).

OBSCURE SCALE (Melanaspis obscura) - KANSAS - Heavy on bur oaks near Wichita, Sedgwick County. Overwintering nymphs averaged 400+ per square inch, many twigs and branches dead. (Bell).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 3,725 confirmed cases reported in continental U.S. during period October 8-14 as follows: Texas 3,501; New Mexico 53; Arizona 101; California 1; Oklahoma 66; Kansas 3. There have been no further cases found in the Southeastern States since initial finds of one case each in Alabama, Florida, and Georgia reported in CEIR 22(41):697. Total of 554 cases reported from Mexico. Number of sterile flies released in U.S. October 8-14 totaled 148,314,000 as follows: Texas 122,424,000; New Mexico 5,922,000; Arizona 13,718,000; California 850,000; Florida 4,200,000; Alabama 200,000; Georgia 1,000,000. Total of 24,550,000 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Heavy on cattle in Choctaw, Pawnee, and Comanche Counties. Moderate in Pontotoc, McCurtain, Garfield, and Payne Counties. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

AN ENCARTID WASP (Ooencyrtus kuwanai) - OHIO - Total of 10,000 specimens of this egg parasite of Porthetria dispar (gypsy moth) released in immediate area of Auglaize County where male moth previously trapped. (PP).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - TEXAS - Heavily damaged oats and other small grains planted for grazing in Archer County. (Boring). NEW MEXICO - Heavy on rangeland at Vaughn, Guadalupe County. (N.M. Coop. Rpt.). OREGON - Fall adult surveys show total of 2,284,960 acres of rangeland infested in 9 eastern counties. (Penrose).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Trapped in Freemont Township, Isabella County, September 12; Big Rapids Township, Mecosta County, September 22; and in Bay City State Park, Bay County, September 22. These are first times collected in these counties. Also, first collections since declared eradicated in Calhoun County in 1969. Specimens from Isabella and Bay Counties determined by E.L. Todd. Specimen from Mecosta County determined by D.C. Ferguson. (PP). OHIO - See "AN ENCARTID WASP" under BENEFICIAL INSECTS above.

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Active in late top crop cotton at Maricopa, Pinal, Graham, and Yuma Counties. (Ariz. Coop. Sur.). NEW MEXICO - Green cotton boll checks ranged 4-44 percent infested around Las Cruces, Dona Ana County. Most larvae very young. (N.M. Coop. Rpt.). OKLAHOMA - Infested green cotton bolls in Bryan and Kiowa Counties. (Okla. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Adult found on range grass at Clayton, Union County. No egg masses found. (N.M. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 10/13-19, BL - Armyworm (Pseudaletia unipuncta) 7, beet armyworm (Spodoptera exigua) 66, black cutworm (Agrotis ipsilon) 3, corn earworm (Heliothis zea) 8, fall armyworm (Spodoptera frugiperda) 11, granulate cutworm (Feltia subterranea) 3, tobacco budworm (Heliothis virescens) 2.

MISSISSIPPI - Stoneville, 10/13-19, 2 BL, 60-90 degrees F., precipitation 0.12 - Armyworm 100, beet armyworm 1,532, black cutworm 38, cabbage looper (Trichoplusia ni) 2, corn earworm 135, fall armyworm 129, granulate cutworm 133, saltmarsh caterpillar (Estigmene acrea) 1, tobacco budworm 21.

NEW HAMPSHIRE - Lee, 10/15, BL - Armyworm 1.

PENNSYLVANIA - (District) - Central, 10/5-16, BL - Armyworm 6, black cutworm 3, variegated cutworm (Peridroma saucia) 2. Southeast, 10/5-16, BL - Armyworm 2, black cutworm 6, variegated cutworm 1, yellowstriped armyworm (Spodoptera ornithogalli) 4. Southwest, 10/5-16, BL - Armyworm 15, black cutworm 18, corn earworm 5, variegated cutworm 7, yellowstriped armyworm 4.

TEXAS - Waco, 10/16-20, BL - Armyworm 63, beet armyworm 36, black cutworm 10, cabbage looper 40, fall armyworm 41, granulate cutworm 63, variegated cutworm 71, yellowstriped armyworm 24.

WISCONSIN - Lancaster, 10/16-20, BL - Armyworm 3.

Weather of the week continued from page 720.

They sharpened the bite in the cold air. Williston, North Dakota, registered 5 degrees above zero Wednesday morning. By late Thursday, the front had marched off the Atlantic and gulf coasts. A large High covered the eastern half of the Nation. Only the Florida Peninsula lay in warm air. Sub-freezing weather reached Tennessee and North Carolina. Many eastern localities recorded lower temperatures than had occurred any previous October. A large area from the northern and central Great Plains to the northern and middle Atlantic coast averaged 9 degrees to 15 degrees colder than normal.

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) generally trace in 20 acres of pasture at Haiku, Maui; up to 8 (average less than 1) larvae per square foot in isolated pockets of Kikuyu grass. Pupae trace in pockets of light larval populations; larval parasitism may be a factor. Larvae collected and held for assessment. (Miyahira).

General Vegetables - ONION THRIPS (Thrips tabaci) nymphs and adults heavy in about one acre of bulb onions at Pulehu, Maui. Larval mines of LEAFMINER FLIES (Liriomyza spp.) ranged light to moderate on older leaves in 0.5 acre of snap beans and 3 acres of tomato at Pulehu, Maui; adults light and moderate respectively. Routine spray program followed in both plantings. (Miyahira).

Forest and Shade Trees - Chemical eradication efforts and extensive district surveys for a EURASIAN PINE APHID (Pineus pini) continued on Maui. Since inception of suppression project in July 1971, 22 residential infestations found after about 25 percent of island land-use districts surveyed. All infestations appear under control; no indication of spread from original introductions. Curinus coeruleus (a lady beetle) observed avidly preying on nymphs and adults of P. pini at one residence. Light infestation of P. pini found on less than one percent of 3,000+ potted Pinus spp. at nursery at Waikoloa, Hawaii; first report of this pest from this locality. Biological control continued with release of 357 adults of Leucopis nigriluna, a chamaemyiid fly, larvae are predaceous on aphids, scale insects, and mealybugs. Releases made on Parker Ranch. Recovery attempts to confirm establishment of L. nigriluna negative to date. Extensive search for P. pini on Kauai continued negative. Latest surveys conducted in Hanalei and Kawaihau districts. (Miyahira et al.). A PSYLLID (Psylla uncatoides) trace at Makaha, Kumuwela, and Kalalau in Kokee, Kauai. However, the koa rust, Uromyces koae (a fungus) spores of which are supposedly distributed by P. uncatoides, conspicuous on terminals and juvenile lateral growths of native Acacia koa trees. Light numbers of nymphs and occasional adult observed in Wahiawa and Palolo Forest Reserves on Oahu. Nymphs averaged 10 per foot-long koa terminal at Wahiawa and 5 at Palolo. No evidence of koa rust in either locality. (Sugawa, Kashiwai).

Man and Animals - Mosquito collections during September from 58 light traps operated on Oahu totaled 94 Aedes vexans nocturnus and 2,741 Culex pipiens quinquefasciatus. Aedes catches ranged 0-42 at Kahaluu. Culex catches ranged 0-621 at Waipahu. (Mosq. Control Br., State Dept. of Health).

Beneficial Insects - Adults of a MARSH FLY (Sepedon sauteri) moderate in swampy areas at Kalaupapa, Molokai, during late September. Although 100 specimens of another marsh fly, Sepedon n. sp., released in July 1972 in this area, no releases of S. sauteri made on Molokai. Recovery of Sepedon n. sp. on Molokai negative to date. (Miyahira). Nymphs and adults of a TINGID BUG (Leptobyrsa decora) heavy on roadside lantana at Ulupalakua, Maui; about 80 percent of leaves showed feeding signs. During September, specimens collected and introduced to a lantana infested area at Puleku. Pronounced girdling of lantana branches by LANTANA CERAMBYCID (Plagiohammus spinipennis) noted about 0.5 mile from L. decora activity area. Initial P. spinipennis releases made at this site in April 1972. (Miyahira).

SPECIAL REPORT ON A SAP BEETLE IN CALIFORNIA

Conotelus mexicanus is currently a pest with an adverse environmental impact in California. This nitidulid beetle, which has been present in the desert areas south of the Tehachapi Mountains for many years, adapted to the San Joaquin Valley about 1968 when specimens were collected from cotton blooms in Kern County. It is now known to occur as far north as Fresno County.

In Kern County it has appeared during September and October, then disappeared. In 1972, for the first time, populations exploded. Flower growers complained that the adults damaged the light colored blooms by feeding on the petals. Investigation has shown much damage to chrysanthemums, carnations, zinnias, dahlias, and roses. Rose buds and open blooms contained up to 400-500 beetles per bloom. Dooryard roses also were damaged and when bouquets were taken into homes, flying beetles filled the room. Beetles occur in shaded areas but readily leave the host when exposed to sunlight.

State entomologists G. Okumura, A. Gilbert, and R. Hawthorne observed the damage status of this sap beetle which included cauliflower fields. Large numbers of beetles swarmed over and in the cauliflower curds. Feeding on immature curds was observed. Additional damage was observed on blooms of string beans, lima beans, squash, peppers, and tomatoes. One late patch of corn was 100 percent barren. Earlier corn in the immediate area was full kernalled. Silks on the late corn were cut off at the tip and beetles were present on the stubs. The early corn had full silks which had dried.

The limited cut flower industry in Kern County is threatened, and the potential pest status of this sap beetle on commercial crops, such as cauliflower and corn, can have a serious impact. Other hosts may be involved. Little is known of the life history of this species, especially the larval stage. The very large numbers that are occurring indicate very favorable breeding conditions. To date, chemical control has not been very effective. (J.H. Black).

MEDITERRANEAN FRUIT FLY
Ceratitidis capitata (Wiedemann)

Selected References
1960-1966

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

- Akamine, E. K. and Shoji, K. 1960. Tolerance of tomatoes to methyl bromide fumigation. Hawaii Agr. Expt. Sta. Tech. Prog. Rpt. 124. 7 pp.
- Arrieta Mateos, D. L., Terrazas Loyola, J., and Jimenez Jimenez, E. 1961. Mediterranean fruit fly (Ceratitidis capitata Wied.) in Central America--actual situation in Nicaragua and possibilities of eradication. Fitofilo 14(32):29-38. In Sp.
- Baas, J. 1960. Die Mittelmeerfruchtfliege in Hessen-Nassau in Jahre 1959. Gesunde Pflanzen 12(5):106-108, 110.
- Baas, J. 1960. Die Mittelmeerfruchtfliege in Zitronen. Gesunde Pflanzen 12(4):72-74.
- Berg, G. H. 1960. Occurrence of Mediterranean fruit fly. FAO Plant Protect. Bul. 8(5):58-59.
In the most important coffee producing area of Nicaragua.
- Beroza, M. and Coauthors. 1961. New attractants for the Mediterranean fruit fly. J. Agr. and Food Chem. 9(5):361-365.
- Bess, H. A., van den Bosch, R., and Haramoto, F. H. 1960. Fruit fly parasites and their activities in Hawaii. Hawaiian Ent. Soc. Proc. 17(3):367-368. Pub. 1961.
- Bohm, H. 1960. Die Mittelmeerfruchtfliege in Jahre 1959. Pflanzenarzt 13(1):3-4.
- Cardosa Raimundo, A. and Roda Santos, M. L. 1965. Insect control. I. Labeling the fruit-fly (C. capitata) with radioactive phosphorus for the sterile-male method. Garcia de Orta 13(3):351-358. In Ital., Fr. and Engl. Sum., detachable sum. in Por. and Engl.
- Chancogne, M., Court, D., Cantuel, J., and Destruel, C. 1960. Tests of compounds against Ceratitidis capitata W. in pear and peach orchards. Phytatrie-Phytopharm. 9(4):227-232. In Fr.
- Chiozza, J. P. 1962. The Mediterranean fruit fly. Frutas 3(34/35): 2-3. In Sp.
- Cowperthwaite, W. G. 1962. The Medfly strikes the third time. Fla. State Hort. Soc. Proc. 75:19-20. Pub. 1963.
- Delanoue, P. 1961. Artificial permanent breeding of Opius concolor Szepi., parasite of Dacus oleae Gmel. on Ceratitidis capitata Wied. Inform. Oleicoles Internatl. (n.s.) 15:17-28. In Fr.

- Docavo Alberti, I. 1960. La mosca de las frutas (Ceratitis capitata Wiedemann). Soc. Espan. de Hist. Nat. Bol. Secc. Biol. 58(1):105-134. 18 figs.
- El-Sawy, S. E., Maher Ali, A., Faris, F. M., and Ezzat, M. A. 1964. Role of soil insecticides in reducing fruit-fly infestation. Soc. Ent. Egypte Bul. 48:159-162. Pub. 1965.
- Fandino, D., Ogloblin, A., and Mallo, R. G. 1965. Nuevo cebo alimenticio y atractivo para la "mosca del Mediterraneo". Rev. Invest. Agropecuar. Ser. 5, Pat. Veg. 2(5):33-40. Engl. Sum.
New feed and attractant for the Mediterranean fruit fly. Yeast extracts studied for Ceratitis capitata
- Fandino, D. S., Turica, A., and Mallo, R. 1961. Attractives for the "Mediterranean fruit fly." IDIA 161:30-35. In Sp.
- FAO Plant Protection Bulletin. 1965. Control of Mediterranean fruit fly in Central America. FAO Plant Protect. Bul. 13(2): 47-48.
Sterilization of flies with gamma rays.
- Féron, M. 1960. Bipotentialité de comportement mâle et femelle chez un insecte, Ceratitis capitata Wied. (Dipt. Trypetidae). Acad. des Sci. Compt. Rend. 250(II):2067-2069.
- Féron, M. 1962. Reproductive instinct in the Mediterranean fruit fruitfly Ceratitis capitata Wied. (Dip. Trypetidae): sexual behavior--oviposition behavior. Rev. de Path. Veg. et d'Ent. Agr. de France 41(1/2):1-78, 79-129. In Fr.
- Féron, M. 1966. Sterilization of the Mediterranean fruit fly, Ceratitis capitata Wied, by irradiation of the pupa with gamma rays. Ann. Epiphyt. 17(2):229-239. In Fr.
- Ferrari, R. 1966. Presence and activity of the fruit-fly (Ceratitis capitata Wied.) in the Bologna district. Bol. Oss. Mal. Piante Bologna 1:65-82. In Ital.
- Ferro, A. 1962. Ceratitis capitata Wied., fruit fly. Agr. Napoletana 29(10):29-37. In Ital.
- Guagliumi, P. and Requena, J. R. 1962. Situacion actual de la "mosca del Mediterráneo," Ceratitis capitata (Wied.) en Venezuela. Jornadas Agron. Trab. 3rd. Cong. (Paper 79). 4 pp., Map.
- Hubert, F. P. 1960. A review of treatments of citrus fruits for control of Mediterranean fruit fly. FAO Plant Protect. Bul. 9(3):33-36.
- International Conference on Mediterranean Fruit Fly and San Jose Scale. 1963. Ceratitis capitata Wied. Quadraspidiotus perniciosus (Comst.). Eur. and Mediterr. Plant Protect. Organ. 104 pp. Paris.

- Jimenez, E. J. and Camplis, J. V. 1965. Importance of the program of prevention and detection of Mediterranean fruit fly (Ceratitidis capitata Wied.) in Mexico. *Fitofilo* 18(48):21-27. Map. in Sp.
- Jones, H. L. 1960. Operation Medfly. *Amer. Fruit Grower* 80(2):23, 66, 68.
- Kovacevic, Z. 1960. Mittelmeerfruchtfliege - Ceratitidis capitata Wied., als ökologisches Problem. *Agron. Glasnik* 10(4):161-171. In Serb., Ger. Sum.
- Kuitert, L. C. 1962. Mediterranean fruit fly control. In *fertile lands of friendship*. 312 pp. (Edited by Alleger, D. E.). pp. 283-297.
- Lemaistre, J. 1960. Progrès récents de la lutte contre la cératite (Ceratitidis capitata Wied) dans les plantations d'agrumes et autres arbres fruitiers (revue bibliographique). *Fruits* 15(2):73-76.
- Lhoste, J. and Roche, A. 1960. Organes odoriférants des mâles de Ceratitidis capitata. *Soc. Ent. de France Bul.* 65(7/8):206-210.
- Machado Cazorla, E. 1960. Estudio de la mosca de la fruta y métodos para su control en el Valle de Huánuco. *Agronomia* 27(2):144-152.
- Maher Ali, A. 1964. A new era in the control of the Mediterranean fruit-fly. *Soc. Ent. Egypte Bul.* 48:155-157. Pub. 1965.
- Martínez-Beringola, M. L. 1966. The influence of larval density on the duration of development of C. capitata II. *Roy. Soc. Esp. Hist. Nat. Bul. (Biol.)* 64:351-360. In Sp., Engl. Sum.
- Martins, E. T. B. 1962. Enemies of cultivated plants: the fruit fly Ceratitidis capitata Wied. *Gaz. Agr. de Angola* 6(8):439-440. In Por.
- Mayer, K. 1960. Behavior studies of the Mediterranean fruit fly, Ceratitidis capitata Wied. *Internatl. Cong. Ent. Trans.* 11th Cong., v.2(sect. 7/14):80-83. In Ger. Pub. 1962.
- Mayer, K. 1960. Ceratitidis in Mitteleuropa. *Gesunde Pflanzen* 12(8):169-173.
- McGovern, T. P. and Coauthors. 1966. Volatility and attractiveness to the Mediterranean fruit fly of trimedlure and its isomers, and a comparison of its volatility with that of seven other insect attractants. *J. Econ. Ent.* 59(6):1450-1455.
- Mellado, L., Caballero, F., Arroyo, M., and Jiménez, A. 1966. Tests on the eradication of C. capitata from the Island of Tenerife by the sterile-male technique. *Bol. Pat. Veg. Ent. Agr.* 29:89-117. In Sp.
- Milaire, H. 1960. Evolution et dégâts de la mouche Méditerranéenne des fruits en France en 1959. *Phytoma* 12(118):21-23.

- Milaire, H. 1960. La mouche méditerranéenne des fruits, en 1959, dans la circonscription de Lyon et les nouvelles possibilités de lutte. III. Pomol. Franc. (n.s.) 2(7):17-20.
- Mitchell, S., Tanaka, N., and Steiner, L. F. 1965. Methods of mass culturing melon flies and oriental and Mediterranean fruit flies. U.S. Dept. Agr. ARS 33-104. 22 pp.
- Moiseeva, Z. 1966. The Mediterranean fruit-fly. Zashch. Rast. 1966. 9:35-36. In Rus.
- Monastero, S. and Genduso, P. 1962. Biological control of the olive fly (possibility of rearing and diffusion of Opius found in Sicily). Palermo Univ. Ist. di Ent. Agr. pp. 31-51. In Ital., Engl. Sum.
Opius concolor siculus reared on Ceratitis capitata
- Mourikis, P. A. 1965. Data concerning the development of the immature stages of the Mediterranean fruit fly (Ceratitis capitata (Wiedemann)) (Diptera: Trypetidae) on different host-fruits and on artificial media under laboratory conditions. Inst. Phytopathol. Benaki. Ann. (n.s.) 7(2):61-105.
Fruit juices for their nutrition.
- Myburgh, A. C. 1961. Studies on toxicants in bait sprays against fruit flies. (Scientific Note) Ent. Soc. South. Africa J. 24(2):345-347.
- Myburgh, A. C. 1963. Diurnal rhythms in emergence of mature larvae from fruit and eclosion of adult Pterandrus rosa (Ksh.) and Ceratitis capitata (Wied.). So. African J. Agr. Sci. 6(1):41-46.
- Nucifora, A. 1960. Control experiments against the Mediterranean fruit fly (Ceratitis capitata Wied.) carried out in 1956-1958 by S-/(methylcarbamy) methyl/ o.o-dimethyldithiophosphate and S-/(isopropylcarbamy) methyl/ o.o-dimethyldithiophosphate. Ann. della Sper. Agr. 14(3, sup.):CXLVII-CLXXII. In Ital., Engl. Sum.
- Nucifora, A. 1960. Positive effects of covering "Elberta" peaches with paper bags for protection against infestation by fruit fly (Ceratitis capitata Wied.). Tec. Agr. 12(4):448-453. In Ital.
- Nucifora, A. 1960. Residual action of "Rogor" in control of fruit fly in the adult stage. Tec. Agr. 12(2):171-177. In Ital., Engl. Sum.
- Nucifora, A. and Barbagallo, S. 1966. The use of Rogor in the protection of late-ripening peaches from C. capitata. Tec. Agr. (Catania) 18(1):1-15. In Ital., Engl. Sum.
- Organismo Internacional Regional De Sanidad Agropecuaria. 1961. Five years of work of the OIRSA. Organismo Internacional Regional De Sanidad Agropecuaria. 32 pp. In Sp. Managua, Nicaragua

- Orihuela, A. 1960. La mosca mediterranea de la fruta. Agr. Venezol. 24(220):13-16.
- Orlando, A., Sampaio, A. S., Rigitano, O., and Bitran, E. A. 1965. Studies on the influence of stickers in Fenthion powders for the control of "fruit flies" of peach. Biologico 31(7):125-132. In Por., Engl. Sum.
- Paglietta, R. 1961. "Ceratitis capitata" an undesirable guest of our fruit trees. Colt e Gior. Vinic. Ital. 107(9):284-286. In Ital.
- Peleg, B. A. and Rhode, R. H. 1967. New methods in mass rearing of the Mediterranean fruit fly in Costa Rica. J. Econ. Ent. 60(5):1460-1461.
- Quintanilla, R. H. 1965. Behavior of various substances as attractants of the "Mediterranean fruit fly" (Ceratitis capitata). Buenos Aires. Univ. Fac. Agron. Vet. Rev. 16(1):3-16. In Sp., Engl. Sum. Pub. 1965.
- Ruffinelli, A. 1963. Las moscas de las frutas (Ceratitis capitata y Anastrepha fraterculus). Uruguay Dir. de Agron. Pub. 109. 6 pp.
- Ruffinelli, A., Orlando, A., and Biggi, E. 1960. Further experiments with attractants for fruit-flies-Ceratitis capitata (Wied.) and Anastrepha mombinpraeoptans Sein. Sao Paulo Inst. Biol. Arq. 27:1-10. In Por., Engl. Sum.
- Sanders, W. 1962. The behavior of the Mediterranean fruit fly Ceratitis capitata Wied. during oviposition. Z. f. Tierpsychol. 19(1):1-28. In Ger., Engl. Sum.
- Shedley, D. 1960. Insect pests. Fruit fly control with Rogor 40 and Lebaycid (a progress report). West. Austral. Dept. Agr. J. Ser. 4, 1(11):973-974.
- Shedley, D. G. 1961. New recommendations for fruit fly control. West. Austral. Dept. Agr. J. Ser. 4, 2(10):793-795.
- Simunić, I. 1960. Comparative investigations of attractive means (baits) for Mediterranean fruit fly (Ceratitis capitata Wied.). Zastita Bilja 62:49-59. In Serb., Engl. Sum.
- Steiner, L. F., Rohwer, G. G., Ayers, E. L., and Christenson, L. D. 1961. The role of attractants in the recent Mediterranean fruit fly eradication program in Florida. J. Econ. Ent. 54(1):30-35.
- Stephenson, B. C. and McClung, B. B. 1966. Mediterranean fruit fly eradication in the Lower Rio Grande Valley. Ent. Soc. Amer. Bul. 12(4):374.
- U.S. Agricultural Research Service, Plant Pest Control Division. 1966. Mediterranean fruit fly; Formosan subterranean termite. FAO Plant Protect. Bul. 14(4):90
Outbreaks in Texas and Louisiana, respectively.

Vergani, A. R. and Valsangiacomo, F. J. 1961. Experiment with attractants for the Mediterranean fruit fly. IDIA Sup. 6:105-109. In Sp.

Yaman, I. K. A. 1966. Annual population fluctuations of Ceratitidis capitata Wied. in Jordan. Anz. Schadlingskunde 39(9):136-140. Map. In Ger.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(43):729-734, 1972



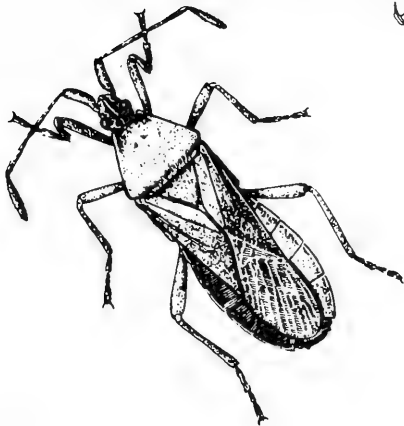
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101

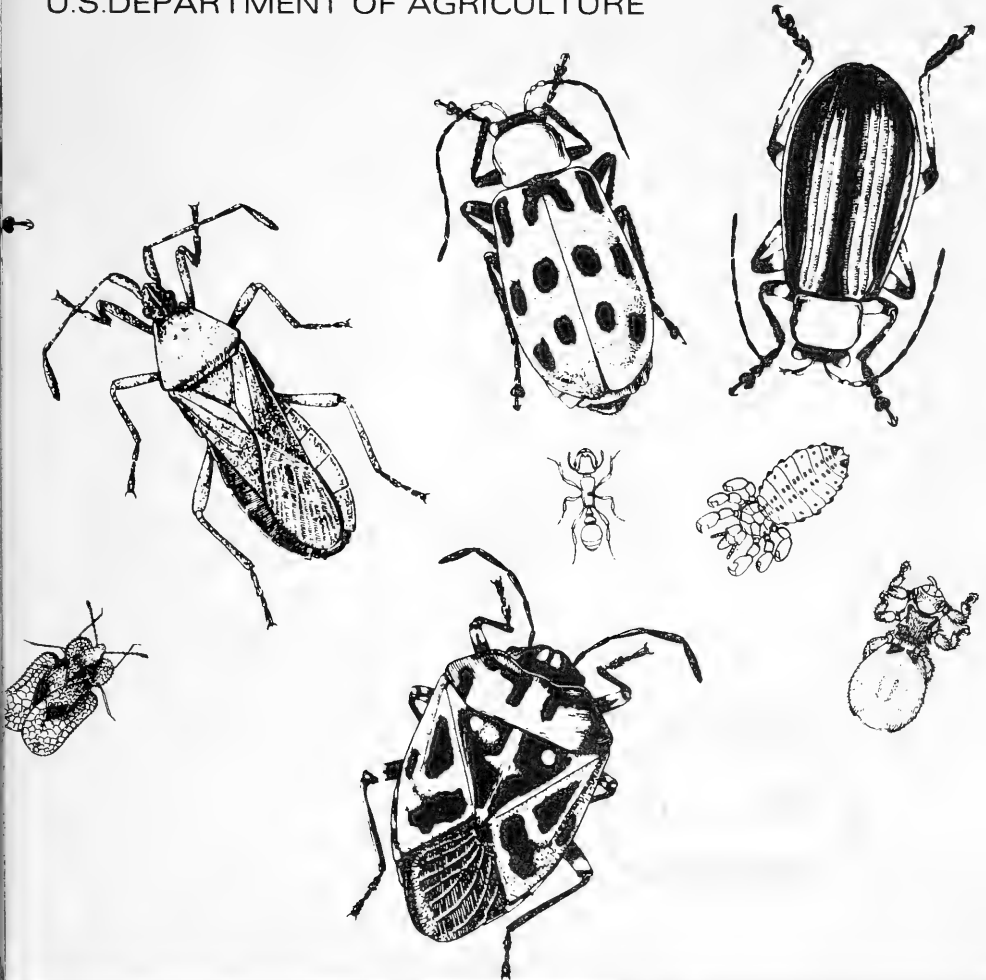


0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF**

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 Service 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:

CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

FALL ARMYWORM damaged wheat in Rolling Plains and BROWN WHEAT MITE heavy on 100,000 acres of wheat in central area of Texas. (p. 737).

PECAN WEEVIL and HICKORY SHUCKWORM economic on pecans in north-central Texas. (p. 738).

SOUTHERN PINE BEETLE outbreak continued at high level on Nantahala National Forest in North Carolina and is epidemic in much of Alabama. (p. 739).

Detection

New State records include a REDUVIID BUG from Oklahoma (p. 741), a CERAMBYCID BEETLE from New Jersey (p. 739), and a DERMESTID BEETLE from Ohio, New York, and North Carolina (p. 740).

For new county and parish records see page 741.

Special Reports

Mediterranean Fruit Fly. Selected References 1970-1971. (pp. 743-746).

Witchweed Quarantines. Map. (Centerfold).

Reports in this issue are for week ending October 27 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	737
Insects Affecting	
Corn, Sorghum, Sugarcane....	737
Small Grains.....	737
Turf, Pastures, Rangeland...738	
Forage Legumes.....	738
Cotton.....	738
Deciduous Fruits and Nuts..	738
Ornamentals.....	739
Forest and Shade Trees....	739
Man and Animals.....	740
Households and Structures..	740
Federal and State Plant Protection Programs.....	741
Detection.....	741
Light Trap Collections.....	742
Mediterranean Fruit Fly. Selected References 1970-1971.....	743
Witchweed. Quarantines. Map. (Centerfold).	

WEATHER OF THE WEEK ENDING OCTOBER 30

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: A vigorous storm, centered over the lower Great Lakes early in the week, spread cloudy skies, winds, and rain over much of the eastern half of the Nation. Snow was mixed with rain from southeastern Minnesota to Upper Michigan. By late Tuesday, a cold front associated with the storm had pushed off the Atlantic coast but dismal, cloudy weather persisted east of the middle and lower Mississippi River. Precipitation was widespread but mostly light. Some drizzle and fog occurred in the northern Appalachians. By midweek, two Highs controlled the weather. An eastern High extended from northern New England to the southern Great Plains. A western High reached from Idaho to southern California. Fair weather prevailed over most of the Nation. However, light rain or drizzle continued in the Pacific Northwest, southern Rocky Mountains, southern Texas, and Florida. Combinations of rain and snow occurred from Michigan and northern New England. As the weekend approached, snow fell in western Montana where Kalispell received 2 inches Thursday. A storm in the Pacific Northwest intensified, moved inland, and spread rain along the Washington and Oregon coast and snow in nearby hills and mountains. The weekend also brought dismal, rainy weather over the eastern third of the Nation from the Great Lakes to the Gulf of Mexico. Rain spread to New York and New England. Heaviest rains fell in northern Louisiana where some totals exceeded 6 inches. No rain or only widely scattered showers fell in California and nearby parts of neighboring States.

TEMPERATURE: A storm centered over the lower Great Lakes early in the week brought cold Canadian air to the northern Great Plains. By Tuesday, strong northwesterly winds aloft were cooling much of the Nation from the Rocky Mountains to the Appalachians. Subfreezing weather occurred as far south as Kansas and northern Oklahoma. Afternoon temperatures ranged from the 40's over the northern Great Plains to the 50's, 60's, and 70's in Texas. By early Tuesday afternoon, a cold front associated with the storm had moved off the Atlantic coast and sunny, pleasant weather returned to mid-America. The northern Great Plains warmed to the 50's and 60's Thursday afternoon. A High over the East in midweek brought chilly Canadian Weather of the week continued on page 742.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ASTER LEAFHOPPER (Macrosteles fascifrons) - OKLAHOMA - Leafhoppers, mostly this species, reported in small grains in several areas. Heavy in Comanche, moderate in Pittsburg, and light in Pawnee Counties. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - WASHINGTON - Populations approaching damaging levels in several wheatfields at Prosser, Benton County. (Klostermeyer). SOUTH DAKOTA - Continued to damage winter wheat. Latest area requiring treatment in eastern Pennington County, north of Wall, and in western Meade County, between Hereford and Sturgis. (Jones). ARKANSAS - Survey negative in northwest area wheat. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Continued at low level, 50-100 per 100 sweeps, in alfalfa in northwest area. Hymenopterous parasites increased, will aid in holding pest at low levels. (Boyer).

CORN, SORGHUM, SUGARCANE

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Widespread and heavy on sweet corn in Everglades area of Collier County. Severely damaged or destroyed 97 percent of young sweet corn buds in unsprayed experiment field plots at Belle Glade, Palm Beach County. (Fla. Coop. Sur., Oct. 18).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI - Fall survey in southeast area showed average infestation of 25.05 percent with average of 7.05 percent of stalks girdled. (Munson). ARIZONA - Heavy in sorghum field northwest of Phoenix, Maricopa County. (Ariz. Coop. Sur.).

CORN ROOTWORMS (Diabrotica spp.) - ILLINOIS - D. virgifera (western corn rootworm) collected on field corn as follows: Near Rushville, Schuyler County, August 15; in Piatt County, August 11; in Douglas County, August 11; in Moultrie County August 11; near Fithian in Vermilion County, August 21, all by J. Krebs; near Athensville, Greene County, and near Modesto, Macoupin County, August 24 by H.B. Petty; 2 miles north of junction of State Highways 100 and 36 August 30 by D. Kuhlman. These are all new county records. All determinations by M.W. Anderson. (Ill. Ins. Rpt.). NEBRASKA - D. virgifera and D. longicornis (northern corn rootworm) populations increased in 1972. Survey indicated percent cornstalks lodged by district as follows: Northeast 7.4, east 7, southeast 3.5, central zero, south zero. (Keith).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Heavy and damaged wheat in Knox and Foard Counties in Rolling Plains. (Boring).

BROWN WHEAT MITE (Petrobia latens) - TEXAS - About 100,000 acres of oats heavily infested in Falls County. Insecticide applied with limited results. (Boring).

TURF, PASTURES, RANGELAND

AN ALYDID BUG (Esperanza texana) - LOUISIANA - Heavy in several fields of Coastal Bermuda grass in Lincoln Parish; suspected of killing grass. Determined by H.M. Harris. This is a new parish record. (Cancienne).

FORAGE LEGUMES

A NOCTUID MOTH (Tathorhynchus angustiorata) - TEXAS - This looper heavy and damaged mature guar beans in Wilbarger and Hardeman Counties. (Rogers).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Moderate to heavy in alfalfa in west-central counties. (Okla. Coop. Sur.).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Counts per 100 sweeps in alfalfa averaged 130 at Yuma Valley and 130 at Gila Valley, Yuma County; and 134 at Phoenix, Maricopa County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Very heavy in alfalfa in Washita, Beckham, Caddo, Roger Mills, and Custer Counties. (Okla. Coop. Sur.).

FIELD CRICKETS (Gryllus spp.) - ALABAMA - These pests and unspecified grasshoppers destroyed seedling crimson clover, white clover, and other re-seedings of winter legumes in all grass sod pastures and fields checked in eastern area. (Barwood et al.).

COTTON

BOLLWORM (Heliothis zea) - NEW MEXICO - Damaged bolls ranged 0-8 percent in fields in northern Eddy and southern Chaves County. (N.M. Coop. Rpt.).

COTTON LEAFPERFORATOR (Bucculatrix thurberiella) - TEXAS - Increased in Brazos River Bottom of Robertson, Brazos, and Burleson Counties. (Cole).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - TEXAS - Heavy populations caused economic damage in Hood, Eastland, Stephens, Erath, Hamilton, and Comanche Counties. Populations variable, heavier in native pecan trees along creeks and rivers. (Hoelscher). OKLAHOMA - Infested 30-50 percent of nuts in small pecan planting in Payne County. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Heavy populations caused economic damage in Hood, McLennan, Bosque, Erath, Comanche, Hamilton, and Stephens Counties. Infestations ranged 1-5 larvae per pecan in 52-65 percent of nuts in Erath County and 1-6 larvae per pecan in 80 percent in Stephens County. (Hoelscher).

ORNAMENTALS

A CERAMBYCID BEETLE (Leiopus variegatus) - NEW JERSEY - All stages very heavy under bark of large mimosa tree on property in Haddonfield, Camden County, in June 1972. Mimosa so badly weakened by several years of frequent defoliation by Homadaula anisocentra (mimosa webworm) that tree was cut down. L. variegatus found when bark stripped from tree. Collected by M.D. Leonard and D.L. Winters. Determined by T.J. Spilman. This is a new State record. Larvae are known to occur in many varieties of hardwood. It is not known if this cerambycid has been found in mimosa previously. (Leonard).

GREEN PEACH APHID (Myzus persicae) - KENTUCKY - Severely damaged 200 square feet of chrysanthemums in Fayette County greenhouse. Estimated 50 percent of plants rendered unsalable. All plants exhibited some stunting and leaf damage. (Barnett).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Outbreak continued at high level on Tusquitee District, Nantahala National Forest (see CEIR 22(43):724). About 116 infested trees occurred per 1,000 acres of host type. Approximately 1.1 million board feet of timber infested in protection boundary at time of ground survey. (Hunt). ALABAMA - Considered epidemic on pine in 40 of 67 counties in State as of September 25. About 44 percent of damaged timber salvaged. Cooperation of landowners involved and forestry interests very good in connection with control program. (Ala. Forest Comm.).

PINE NEEDLE SHEATHMINER (Zelleria haimbachi) - CALIFORNIA - Scattered infestations damaged ponderosa pines on Klamath National Forest in Humbug drainage area. Some of better plantations affected. Active in Shasta-Trinity National Forest. Infestations to be checked in spring 1973 after new growth appears. (McMurtrey, USFS).

AN OLETHREUTID MOTH (Rhyacionia bushnelli) - CALIFORNIA - Larvae averaged 2 per stem on Monterey pine nursery stock in La Mesa, San Diego County. This new pest slowly spreading north in county. To date has not been reported in native pine stands. (Cal. Coop. Rpt.).

BLACK PINELEAF SCALE (Nuculaspis californica) - CALIFORNIA - Heavy, 2-100 per needle, on ponderosa pine from Shasta Lake to Butte County. (Cal. Coop. Rpt.).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Defoliation moderate to heavy on oaks in Mannford area, Creek County, and in scattered areas in western Tulsa County. Most larvae full grown and left trees. (Okla. Coop. Sur.).

A TORTRICID MOTH (Archips semiferranus) - PENNSYLVANIA - Outbreak of past 6 years declining. Defoliation, over 1 million acres previous 2 years, decreased to 610,000 acres in 1972. Timber loss heaviest in State for many decades. Entire forests killed over large areas of Clearfield, Centre, Clinton, and Lycoming Counties. (Kim, Oct. 10).

A GEOMETRID MOTH (Lambdina athasaria athasaria) - PENNSYLVANIA - About 200-300 forest acres along Clarion County streams heavily defoliated, resulting in much mortality. Large numbers of pupae collected under hemlock throughout McConnells Mills State Park in Lawrence County, with many trees dead in area. (Kim, Oct. 10).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 4,032 confirmed cases reported from continental U.S. during period October 15-21 as follows: Texas 3,625; New Mexico 87; Arizona 213; California 1; Oklahoma 104; Kansas 2. This total was an increase of 307 above the total (3,725) reported previous period. Total of 862 cases reported in Mexico this period. Number of sterile flies released in U.S. October 15-21 totaled 150,438,000 as follows: Texas 126,208,000; New Mexico 5,550,000; Arizona 12,380,000; California 900,000; Florida 4,200,000; Alabama 200,000; Georgia 1,000,000. Total of 41,694,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - UTAH - Annoyed horses and cattle in farm areas of Cache and Box Elder Counties during warmer periods of day. (Knowlton).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 500 per head on cattle in Payne County; moderate in Garfield, Pittsburg, and Okmulgee Counties. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Averaged 1 per head in herd of young cows and 0.5 per head in herd of older cows in Payne County. Two adults seen around cattle herd in Osage County. (Okla. Coop. Sur.).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Three found on 15 cows in Payne County; first of season. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Ranged 40-50 per head on hogs checked in several areas of Payne County. (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - MARYLAND - Annoyance levels and populations in homes increased in Prince Georges, Montgomery, Anne Arundel, and Baltimore Counties. (U. Md., Ent. Dept.).

HOUSEHOLDS AND STRUCTURES

A DERMESTID BEETLE (Anthrenus coloratus) - OHIO - Collected in house in Cincinnati, Hamilton County, March 30, 1970. NEW YORK - Collected in Frankfort, Herkimer County, September 26, 1963, by Asin. NORTH CAROLINA - Collected in apartment in Raleigh, Wake County, March 23, 1971, by O.L. Stephan. Determined by J.M. Kingsolver. These are new State records. See CEIR 19(5):61-62 for background and first report in U.S. (PP).

N.C.



DEPARTMENT OF AGRICULTURE
 AND PLANT HEALTH INSPECTION SERVICE
 PROTECTION AND QUARANTINE PROGRAM
 COOPERATING WITH AFFECTED STATES

OUR STATE OR FEDERAL PLANT PROTECTION
 OR YOUR COUNTY AGENT FOR
 MORE INFORMATION REGARDING EXACT AREAS UNDER
 THESE REGULATIONS AND REQUIREMENTS FOR MOVING
 PLANT MATERIALS.

ARE COMPLETELY REGULATED;
 ARE PARTIALLY REGULATED.

Regulated area--State and Federal regulations
 treatments not in progress or planned

Regulated area--State and Federal regulations
 treatments in progress or planned

Regulations removed

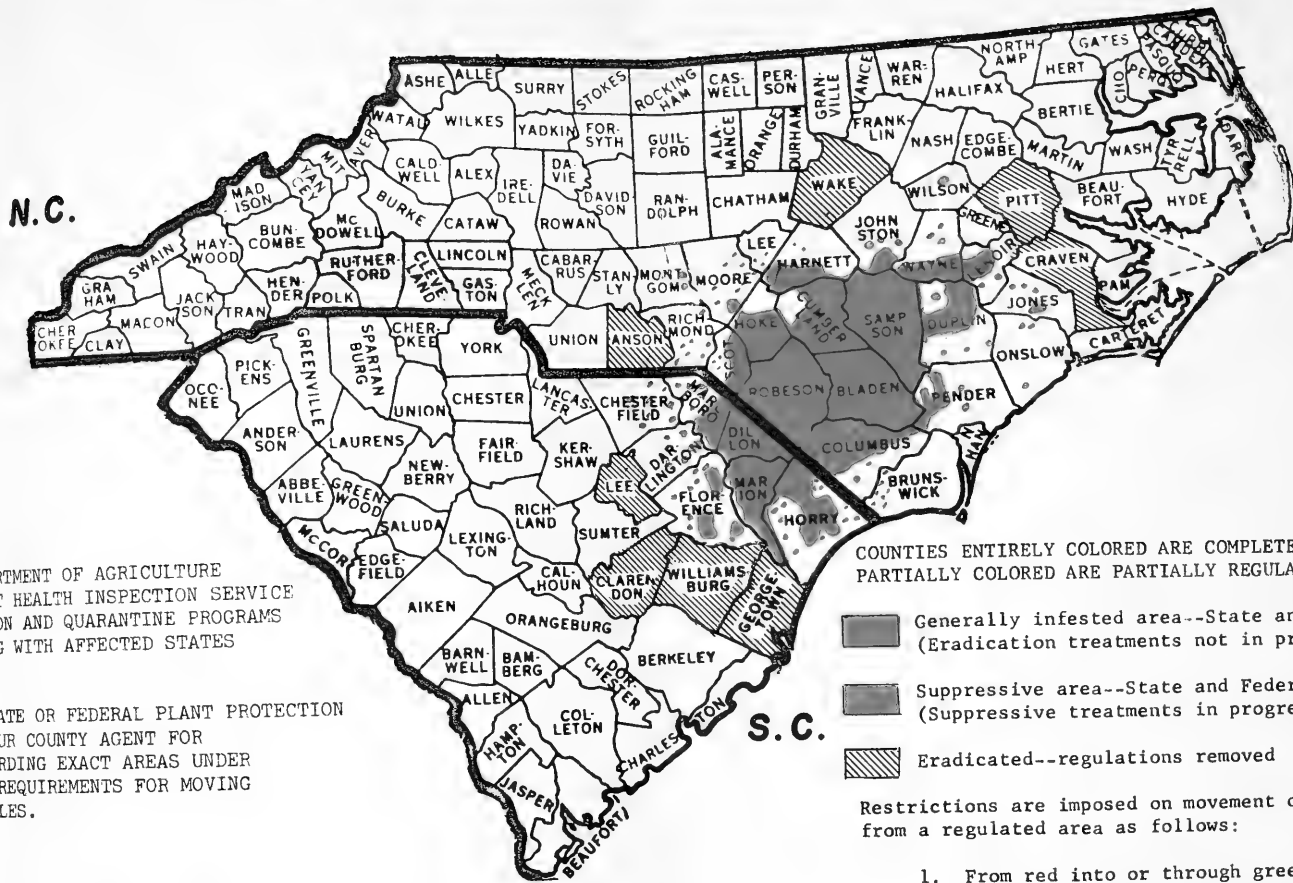
Regulations imposed on movement of regulated area
 as follows:

- into or through green or white.
- into or through white.
- to green.
- to green.*
- by an authorized inspector.

June 1, 1972

SEE REVERSE

WITCHWEED QUARANTINES



COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED; PARTIALLY COLORED ARE PARTIALLY REGULATED.

Generally infested area--State and Federal regu (Eradication treatments not in progress or plan
 Suppressive area--State and Federal regulations (Suppressive treatments in progress or planned)
 Eradicated--regulations removed

Restrictions are imposed on movement of regulated ar from a regulated area as follows:

1. From red into or through green or white.
 2. From green into or through white.
 3. Green into green.
 4. Within green.*
- *If required by an authorized inspector.

U.S. DEPARTMENT OF AGRICULTURE AND PLANT HEALTH INSPECTION SERVICE PROTECTION AND QUARANTINE PROGRAMS OPERATING WITH AFFECTED STATES

YOUR STATE OR FEDERAL PLANT PROTECTION OFFICER OR YOUR COUNTY AGENT FOR ADVICE REGARDING EXACT AREAS UNDER QUARANTINE AND REQUIREMENTS FOR MOVING PLANT ARTICLES.

THE FOLLOWING REGULATED ARTICLES REQUIRE A 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 shipped to approved laboratories do not require attachment of certificate or permit.*
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, such as turnips, carrots, and sweet potatoes, 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 harvested in bulk or into new or treated containers, and if the grains and containers for the grains have not come in contact with the soil, or if they have been cleaned at a designated facility.*
9. Soybeans, other than for seed purposes, are exempt** if harvested in bulk or into new or treated containers, and if the beans and containers for the beans did not come in contact with the soil, 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 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.
Unshucked ear corn 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.
Used farm tools.
18. Used farm tools are exempt** if cleaned free of soil.
19. Used mechanized cultivating equipment and used harvesting equipment.
Used mechanized cultivating equipment is 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 laboratories, 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.

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Survey completed in Earlimart and Delano, Kern County; one infestation located one mile from Delano on Carces Highway. In Tulare County, survey in Exeter, Lindsday, and Dinuba negative for late finds. (Cal. Coop. Rpt.).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Survey of 2 pastures in Custer area of Whatcom County revealed one to have second or third instar larvae at rate of 1,804 per square foot, and other pasture with larvae still in first instar and very light numbers. (Campbell).

GRASSHOPPERS - NEVADA - Ageneotettix deorum collected at Crestline, Lincoln County, August 23 by G.M. Nishida. Determined by R.C. Bechtel. This is a new county record. (Bechtel).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Percent infestation in green bolls in cotton fields ranged 8-92 in Artesia area, Eddy County, and 0-52 in Roswell area, Chaves County. (Mathews). ARIZONA - Infested 70 percent of top crop at Bowie, Cochise County. (Ariz. Coop. Sur.).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey revealed 17 new infestations in La Jolla, San Diego County. At each infestation 25 parasites released. This is farthest north pest found. Parasite releases continued in known infested area; 80 new releases made this period. Release sites total 1,059 on which 45,000 parasites released this season. (Cal. Coop. Rpt.).

DETECTION

New State Records - A CERAMBYCID BEETLE (Leiopus variegatus) - NEW JERSEY - Camden County. (p. 739). A DERMESTID BEETLE (Anthrenus coloratus) - OHIO - Hamilton County. NEW YORK - Herkimer County. NORTH CAROLINA - Wake County. (p. 740).

A REDUVID BUG (Gnathobleda litigiosa) - OKLAHOMA - Three specimens collected at lights in McCurtain County by D.C. Arnold. Determined by W.A. Drew. Collected at Beavers Bend State Park June 16, 1970, and June 12, 1972, and at Battiest June 14, 1972. (Okla. Coop. Sur.). This species previously recorded in Florida, Georgia, Louisiana, Arkansas, and Texas. (PP).

New County and Parish Records - AN ALYDID BUG (Esperanza texana) LOUISIANA - Lincoln (p. 738). A GRASSHOPPER (Ageneotettix deorum) NEVADA - Lincoln (p. 741). WESTERN CORN ROOTWORM (Diabrotica virgifera) ILLINOIS - Schuyler, Piatt, Douglas, Moultrie, Vermilion, Greene, Macoupin (p. 737).

Weather of the week continued from page 736.

air over the East. Florida continued mild with afternoon temperatures in the 80's. Fort Myers and Palm Beach each registered 87 degrees Wednesday and 88 degrees Thursday. As the weekend drew near, one High cooled the Northeast and warmed the Great Plains. Temperatures over South Dakota reached the 70's Thursday afternoon, 76 degrees at Pickstown. A western High cooled Washington and Montana. Omak, Washington, recorded 25 degrees Thursday morning. Winter temperatures moved eastward over the weekend. The mercury at West Yellowstone, Montana, dropped to zero Sunday morning. Temperatures averaged above normal along the middle and southern Atlantic coast and below normal over most of the rest of the Nation. Parts of the southern Great Plains averaged 4 to 10 degrees cooler than normal.

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 10/20-26, BL - Beet armyworm (Spodoptera exigua) 6, fall armyworm (Spodoptera frugiperda) 3, granulate cutworm (Feltia subterranea) 2.

MISSISSIPPI - Stoneville, 10/20-26, 2BL, 36-74 degrees F, precipitation 1.90 - Armyworm (Pseudaletia unipuncta) 4, beet armyworm 1, granulate cutworm 5, tobacco budworm (Heliothis virescens) 2.

NEW HAMPSHIRE - Lee, 10/25, BL - Armyworm 1, black cutworm (Agrotis ipsilon) 1.

PENNSYLVANIA - (District) - Southeast, 10/12-22, BL - Variegated cutworm (Peridroma saucia) 1. Southwest, 10/12-22, BL - Armyworm 6, black cutworm 9.

TEXAS - Waco, 10/21-27, BL - Armyworm 75, beet armyworm 37, black cutworm 6, fall armyworm 49, granulate cutworm 61, variegated cutworm 101, yellowstriped armyworm (Spodoptera ornithogalli) 3.

MEDITERRANEAN FRUIT FLY
Ceratitis capitata (Wiedemann)

Selected References
1970-1971

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

- Anwar, M., Chambers, D. L., Ohinata, K., and Kobayashi, R. M. 1971. Radiation-sterilization of the Mediterranean fruit fly (Diptera: Tephritidae): comparison of spermatogenesis in flies treated as pupae or adults. Ent. Soc. Amer. Ann. 64(3): 627-633.
- Costilla, M. A. 1970. A review of the situation regarding fruit-flies (Anastrepha fraterculus (Wied.) and Ceratitis capitata (Wied.)) in the province of Tucumán. Estac. Expt. Agr. Tucumán Misc. Pub. 32:3-4.
- Costilla, M. A. 1970. Experiments with molasses and parathion for control of fruit-flies. Estac. Expt. Agr. Tucumán Misc. Pub. 32:5. Sum. only.
- Cucchi, N. J. A., Puiatti, A. E., and García, M. F. 1970. Observations on the effectiveness of some attractants for the fruit-fly in Mendoza. Estac. Expt. Agr. Tucumán Misc. Pub. 32:16-28.
- Cunningham, R. T., Farias, G. J., Nakagawa, S., and Chambers, D. L. 1971. Reproduction in the Mediterranean fruit fly: depletion of stored sperm in females. Ent. Soc. Amer. Ann. 64(1):312-313.
- Cunningham, R. T., Steiner, L. F., Ohinata, K., and Farias, G. J. 1970. Mortality of male melon flies and male Mediterranean fruit flies treated with aerial sprays of lure and naled formulated with a monoglyceride or siliceous extender. J. Econ. Ent. 63(1):106-110.
- Cunningham, R. T., Suda, D., Chambers, D. L., and Nakagawa, S. 1971. Aerial broadcast of free-falling pupae of the Mediterranean fruit fly for sterile-release programs. J. Econ. Ent. 64(4):948-950.
- Dresner, E. 1970. A sticky trap for Mediterranean fruit fly survey. J. Econ. Ent. 63(6):1813-1816.
- Farias, G. J. and Nakagawa, S. 1970. Host vs. nonhost plants as sites for baited traps for Mediterranean fruit flies. J. Econ. Ent. 63(2):662-663.
- Feron, M. 1970. Studies on the Mediterranean fruit-fly in Tunisia. Vienna, Int. Atomic Energy Agr. pp. 83-85. In Fr., Engl. Sum.
- Fontemachi, E. C. 1970. Evaluation of populations of fruit-flies in San Juan, estimation of damage. Estac. Expt. Agr. Tucumán Misc. Pub. 32:13-15.

- Gelti-Douka, H. 1970. Sex dimorphism on the 2nd M₂ (2nd media 2 cell) area of the wing of Ceratitis capitata² (Diptera). Israel J. Ent. 5:77-81.
- Harris, E. J., Nakagawa, S., and Urago, T. 1971. Sticky traps for detection and survey of three tephritids. J. Econ. Ent. 64(1):62-65.
- Holbrook, F. R. and Fujimoto, M. S. 1970. Mating competitiveness of unirradiated and irradiated Mediterranean fruit flies. J. Econ. Ent. 63(4):1175-1176.
- Holbrook, F. R., Steiner, L. F., and Fujimoto, M. S. 1970. Holding containers for melon flies and Mediterranean fruit flies for use in sterile fly aerial releases. J. Econ. Ent. 63(3):908-910.
- Holbrook, F. R., Steiner, L. F., and Fujimoto, M. S. 1970. Mating competitiveness of Mediterranean fruit flies marked with fluorescent powders. J. Econ. Ent. 63(2):454-455.
- Hooper, G. H. S. 1970. Use of carbon dioxide, nitrogen, and cold to immobilize adults of the Mediterranean fruit fly. J. Econ. Ent. 63(6):1962-1963.
- Hooper, G. H. S. 1971. Competitiveness of gamma-sterilized males of the Mediterranean fruit fly: effect of irradiating pupal or adult stage and of irradiating pupae in nitrogen. J. Econ. Ent. 64(6):1364-1368.
- Hooper, G. H. S. 1971. Sterilization and competitiveness of the Mediterranean fruit fly after irradiation of pupae with fast neutrons. J. Econ. Ent. 64(6):1369-1372.
- Hooper, G. H. S. and Katiyar, K. P. 1971. Competitiveness of gamma-sterilized males of the Mediterranean fruit fly. J. Econ. Ent. 64(5):1068-1071.
- Katiyar, K. P. 1970. Comparison of carrot and bagasse diets for raising Mediterranean fruit fly larvae. Turrialba 20(2):217-222. In. Sp.
- Katiyar, K. P. and Ramirez, E. 1970. Mating frequency and fertility of Mediterranean fruit fly females alternately mated with normal and irradiated males. J. Econ. Ent. 63(4):1247-1250.
- Keiser, I., Schneider, E. L., and Tomikawa, I. 1971. Species specificity among oriental fruit flies, melon flies, and Mediterranean fruit flies in susceptibility to insecticides at several loci. J. Econ. Ent. 64(3):606-610.
- Keiser, I. and Tomikawa, I. 1970. Species-specific toxicity of certain insecticides to tephritids in Hawaii suggested by unusual susceptibility relationships among oriental fruit flies, melon flies, and Mediterranean fruit flies. J. Econ. Ent. 63(6):1746-1748.

- Lower, H. F. 1970. Identification of species of fruit-fly. Specific determination from fruit-fly larvae. South Austral. Dept. Agr. Expt. Record 5:5-8.
- Madariaga, M. A., Municio, A. M., and Ribera, A. 1970. Biochemistry of development of insect Ceratitidis capitata: evolution of fatty acid composition of different lipid classes. Compar. Biochem. Physiol. 36(2):271-278.
- Madariaga, M. A., Municio, A. M., and Ribera, A. 1970. Fasting and cold-exposure effects on fatty acid composition of Ceratitidis capitata adults. Comp. Biochem. Physiol. 35(1):63-68.
- Mayer, K. 1970. Mediterranean fruit fly, Ceratitidis capitata Wied., a dangerous quarantine pest. Z. Angew. Ent. 65(3):357-363. In Ger.
- Nakagawa, S., Chambers, D. L., Urago, T., and Cunningham, R. T. 1971. Trap-lure combinations for surveys of Mediterranean fruit flies in Hawaii. J. Econ. Ent. 64(5):1211-1213.
- Nakagawa, S., Cunningham, R. T., and Urago, T. 1971. The repellent effect of high trimedlure concentrations in plastic traps to Mediterranean fruit fly in Hawaii. J. Econ. Ent. 64(3):762-763.
- Nakagawa, S., Farias, G. J., and Steiner, L. F. 1970. Response of female Mediterranean fruit flies to male lures in the relative absence of males. J. Econ. Ent. 63(1):227-229.
- Nakagawa, S. and Coauthors. 1971. Reproduction of the Mediterranean fruit fly: frequency of mating in the laboratory. Ent. Soc. Amer. Ann. 64(4):949-950.
- Ohinata, K. and Coauthors. 1971. Sterilization of the Mediterranean fruit fly by irradiation: comparative mating effectiveness of treated pupae and adults. J. Econ. Ent. 64(4):781-784.
- Peleg, B. A. and Rhode, R. H. 1970. New larval medium and improved pupal recovery method for the Mediterranean fruit fly in Costa Rica. J. Econ. Ent. 63(4):1319-1321.
- Rhode, R. H. and Calderón, W. 1971. Aerial release techniques for the Mediterranean fruit fly. J. Econ. Ent. 64(2):537-539.
- Rhode, R. H. and Coauthors. 1971. Application of the sterile-insect-release technique in Mediterranean fruit fly suppression. J. Econ. Ent. 64(3):708-713.
- Seo, S. T. and Coauthors. 1971. Fumigation with methyl bromide plus refrigeration to control infestations of fruit flies in agricultural commodities. J. Econ. Ent. 64(5):1270-1274.
- Steiner, L. F. 1970. Mediterranean fruit fly research in Hawaii for the sterile fly release program. Internatl. Atomic Energy Agency (Vienna) Panel Proc. 1968:73-82.

- Turica, A. and Valsangiacomo, F. J. 1970. Evaluation of the sterile-male technique in the integrated control of the Mediterranean fruit-fly. Estac. Expt. Agr. Tucumán Misc. Pub. 32:9-10. Sum. only.
- Vergani, A. A. 1970. Concentrations of insecticides in poison baits for the control of fruit-flies. Estac. Expt. Agr. Tucumán Misc. Pub. 32:11. Sum. only.
- Wright, R. H. 1971. Correlation of far infrared spectra and Mediterranean fruit fly (Diptera: Tephritidae) attraction. Canad. Ent. 103(2):284-285.
- Wright, R. H., Chambers, D. L., and Keiser, I. 1971. Insect attractants, anti-attractants, and repellents. Canad. Ent. 103(4):627-630.
- Zahavi, M. and Tahori, A. S. 1970. Differences in acetylcholinesterase-sensitivity to phosphamidon in Mediterranean fruit fly strains. Israel J. Ent. 5:185-191.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(44):743-746, 1972



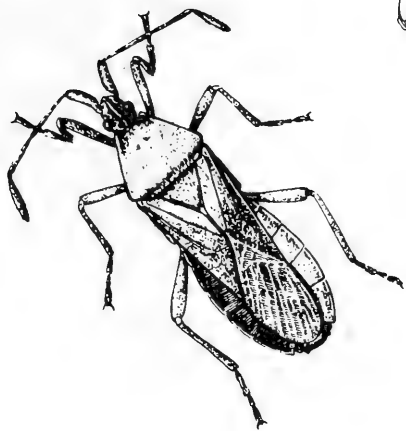
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



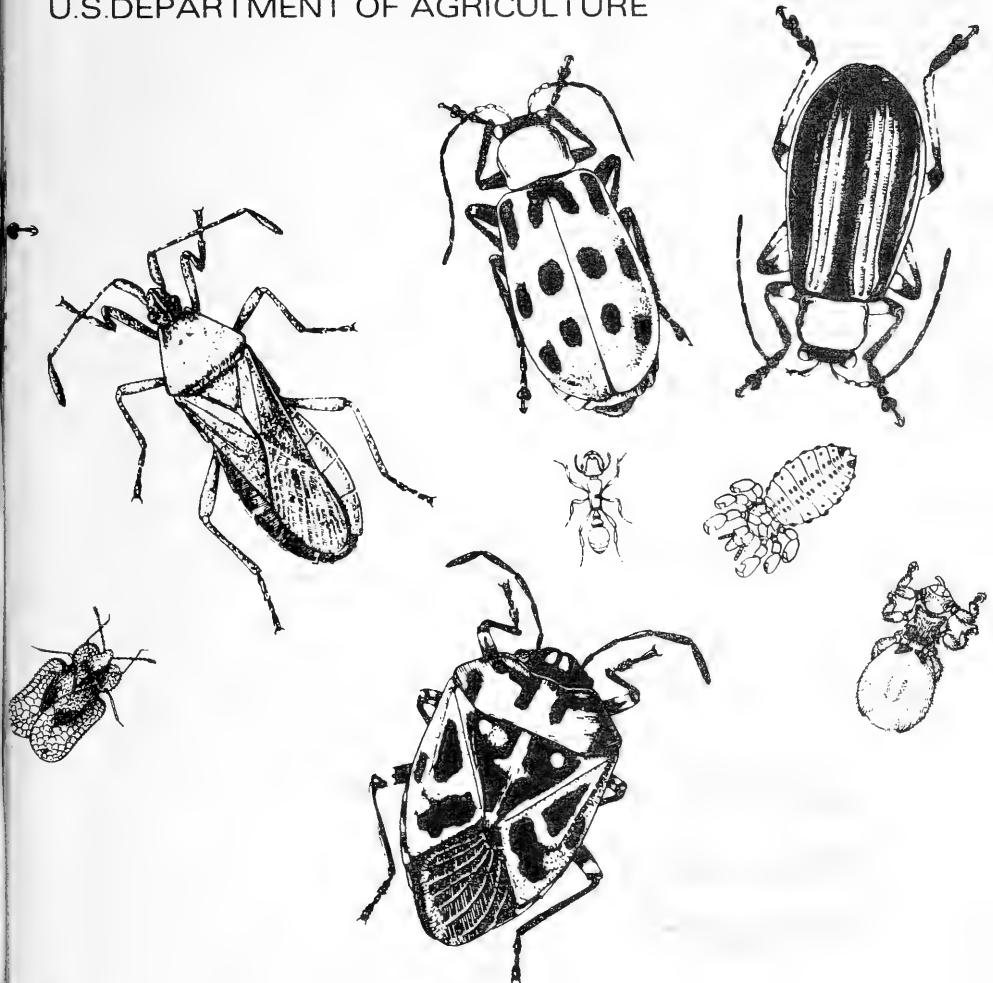
0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C77 Ent.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 Service 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:

CEIR

Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG continued to damage winter wheat in South Dakota. (p. 749).

FIRE ANT heavy on pastureland in south-central Texas past 14 days. (p. 750).

BERTHA ARMYWORM severely damaged sugar beet foliage in Columbia Basin of Washington during last half of October. (p. 750).

SOUTHERN PINE BEETLE outbreak spread southward on Uwharrie National Forest in central North Carolina. (pp. 751-752).

Special Reports

Alfalfa Weevil. Selected References 1968-1969. (pp. 755-757).

Gypsy Moth Quarantines. Map. (Centerfold).

One issue of the CEIR will be published each month for November, December, and January. This action is being taken because of the reduced insect activity during these months and the need for the editorial staff to concentrate on special projects.

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

CONTENTS

Special Insects of Regional Significance.....749

Insects Affecting

Corn, Sorghum, Sugarcane...749	Miscellaneous Field Crops....751
Small Grains.....749	Potatoes, Tomatoes, Peppers..751
Turf, Pastures, Rangeland..750	General Vegetables.....751
Forage Legumes.....750	Deciduous Fruits and Nuts...751
Soybeans.....750	Ornamentals.....751
Cotton.....750	Forest and Shade Trees.....751
Sugar Beets.....750	Man and Animals.....752

Beneficial Insects.....753

Federal and State Plant Protection Programs.....753

Light Trap Collections.....753

Hawaii Insect Report.....754

Alfalfa Weevil. Selected References 1968-1969.....755

Detection.....758

Weather of the Week.....758

Gypsy Moth Quarantines. Map. (Centerfold).

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

NOVEMBER 1972

The National Weather Service's 30-day outlook for November calls for temperatures to average below seasonal normals in the southern Rocky Mountains and over the eastern half of the Nation except for near normal along the south Atlantic coast. Above normal temperatures are indicated for the Pacific Northwest and the California coast. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal from the southern Plateau through the central and southern Plains to the Great Lakes region and the Appalachians. Subnormal totals are called for over California as well as northern and central portions of the Plateau 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.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (*Schizaphis graminum*) - MISSISSIPPI - Very light in young wheat in Lowndes and Noxubee Counties. (Robinson). TEXAS - Surveys made in wheat fields in 20 Panhandle counties. Counts per row foot by county: Hansford 60, Deaf Smith 50, Briscoe 39, Parmer 30, Hartley 30. Counts ranged 1-20 in other counties surveyed. (Green). KANSAS - Averaged from trace to 1 per row foot in 3 small grain fields in Rice County, none to trace in 3 fields in Reno County and one field in Stafford County (October 24). Lady beetles noted in all fields. Generally light or absent in southwest and south-east district wheat October 27. (Bell). SOUTH DAKOTA - Still damaging winter wheat. Counts heaviest in Lyman, Jones, and Tripp Counties; 500+ per linear row foot noted in untreated western Stanley County fields. Noneconomic in Lawrence County. Infestation and damage heavier in early planted than in late planted fields. (Jones, Oct. 20).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - MISSISSIPPI - This species and *Acyrtosiphon pisum* (pea aphid) increased in Oktibbeha County alfalfa plots. Beneficials declined. (Robinson, Oct. 27). KANSAS - Counts in alfalfa per 10 sweeps by county: Rice (2 fields) 10-42; Reno (2 fields) 35-39; Stafford (1 field) 38. (Bell, Oct. 24).

CORN, SORGHUM, SUGARCANE

SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*) - KANSAS - Larvae infested about 20 percent of stalks after harvest in cornfield in Pottawatomie County. All in overwintering form; most had not bored into lower stem. (Bell, Oct. 24).

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - KANSAS - Recent survey showed substantial infestations in some corn in Morton County in southwest district. In 3 fields checked, percent infested stalks ranged 44-64 and percent stalks girdled and lodged ranged 12-44. Infestations much lighter in other southwest counties. (Bell, Oct. 27).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - ALABAMA - Numerous full-grown larvae seen in volunteer late corn in late soybean field at Summerdale, Baldwin County. Larval surveys negative in old cornfields in Mobile, Monroe, and Wilcox Counties. (McQueen).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - VIRGINIA - Adults feeding on corn silks in Wythe County August 21 collected by P.A. Willoughby and in Montgomery County August 18 by L.T. Kok. Determined by W.A. Allen. These are new county records. (Allen, Oct. 26).

SORGHUM MIDGE (*Contarinia sorghicola*) - KENTUCKY - Problem on late planted sorghum in western area. (Barnett, Raney).

SMALL GRAINS

HESSIAN FLY (*Maveetiola destructor*) - ILLINOIS - Averaged 239 (ranged 210-260) larvae and puparia per 100 tillers in nonresistant varieties and 50 (ranged 42-58) in resistant varieties of

winter wheat in Wayne County. All varieties planted before "fly-free" dates of October 9-11 for county. All stages of immatures found. Puparia made up about 2 percent of total. Damage in these plots appeared noneconomic. (Ill. Ins. Rpt.).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Still heavy in spots throughout ryegrass pastures in Amite County. (Robinson).

FIRE ANT (Solenopsis geminata) - TEXAS - Heavy in pastureland in Brazos and Burleson Counties past 2 weeks. Heavy activity also noted on vacant lots throughout College Station, Brazos County. Infestations ranged 10-30 mounds per acre at some locations. (Green).

FORAGE LEGUMES

ALFALFA PLANT BUG (Adelphocoris lineolatus) - VIRGINIA - Adults collected in Montgomery County alfalfa field October 18, 1972, by R. Pienkowski. This is a new county record. Although probably widespread in State, this is only third record. Previously recorded from alfalfa at Purcellville, Loudoun County, and in Tazewell County. (Allen).

SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - ALABAMA - Adults heavy in late fields in Mobile and Baldwin Counties. Few larvae on kudzu and isolated greenspots in late soybeans. When leaves disappear, larvae feed freely on soybean pods and green stems. (McQueen).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Adults light in late soybean fields in Mobile and Baldwin Counties; mostly in green spots where live pods and leaves remain. (McQueen).

COTTON

BOLLWORMS (Heliothis spp.) - ARIZONA - Heavy in blooms and small bolls in northwest area of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Adults light to heavy on late squares and blooms in all fields surveyed in Wilcox, Monroe, and Montgomery Counties. Most appear to be young adults. (McQueen).

BANDEDWING WHITEFLY (Trialeurodes abutilonea) - ALABAMA - Egg laying and nypal feeding still occurring in second growth in several fields in Mitylene area of Montgomery County. Expected to continue until stalk destruction or killing frost. (McQueen).

SUGAR BEETS

BERTHA ARMYWORM (Mamestra configurata) - WASHINGTON - Larvae caused severe foliage damage to sugar beets last half of October in many sugar beet fields in Columbia Basin, Franklin, Adams, and Grant Counties. (Johansen, Foepfel).

MISCELLANEOUS FIELD CROPS

HAWAIIAN BEET WEBWORM (Hymenia recurvalis) - VIRGINIA - Adults very heavy in weedy areas, tomato fields, soybean fields, and other crops. Developed from heavy infestations occurring on pig-weed about mid-September in Accomack and Northampton Counties. (Hofmaster, Oct. 18).

POTATOES, TOMATOES, PEPPERS

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Damage heavy to untreated potato foliage, some still present in treated fields in Accomack and Northampton Counties. (Hofmaster, Oct. 18).

GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Ranged 3-5 per 20 row feet in 600 acres of spinach near Vienna, Dorchester County. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - MARYLAND - Larvae light, ranged 1-2 per 20 row feet, in 600 acres of spinach near Vienna, Dorchester County. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

GREEN PEACH APHID (Myzus persicae) - OREGON - Alates and true sexuals heavy on remaining leaves of peach trees in commercial orchards in The Dalles and Hood River area, Wasco and Hood River Counties. Most leaves infested with at least one alate and sexual. No eggs seen. (Fields).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Overwintering adults heavy (about 1 per leaflet) on non-abscised pear leaves at Yakima, Yakima County. (Landis, Oct. 24).

TWIG GIRDLER (Oncideres cingulata) - ALABAMA - Caused heavy twig fall on hickory, pecan, persimmon, and red oak trees in Tallapoosa, Lee, Randolph, and Chambers Counties. (Jackson et al.).

ORNAMENTALS

A SAP BEETLE (Conotelus mexicanus) - ARIZONA - Adults heavy in flowers of many home plantings of chrysanthemums and roses. Also up to 30 per cotton flower in Maricopa County. (Ariz. Coop. Sur.).

OLIVE SCALE (Parlatoria oleae) - DELAWARE - Common on cherry-leaf laurel in one area of Sussex County. Collected by N. Cannon at Seaford August 7. Determined by D.F. Bray. This is a new State record. (Burbutis, Kelsey).

A MEALYBUG (Conchaspis angraeci) - FLORIDA - Adults collected from umbrella tree (Grassia actinophylla) at nursery in Gainesville, Alachua County, September 18. This is a new county record. (Graham).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Evaluation of outbreak conducted on Uwharrie National Forest

(Randolph, Montgomery, and Davidson Counties) during August and September shows southward spread from northernmost section of forest. About 3,026 trees attacked (primarily shortleaf pine) in 74 spots within 220,000-acre forest. Thirty-seven percent of trees actively infested. (Hunt).

A BARK BEETLE (Ips calligraphus) - ALABAMA - Population explosion killed 80-90 percent of 6 to 10-year-old pine plantings on ornamental area around livestock coliseum at Monroeville, Monroe County. Contributing factor may be large pulpwood yard located within 150 feet where salvaged wood stacked for shipment to mills. (McQueen).

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - NEW MEXICO - Heavy populations caused defoliation of Douglas-fir in Los Alamos, Los Alamos County. Light populations caused some defoliation of spruce and fir in Santa Fe, Santa Fe County. (N. M. Coop. Rpt.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - NEW MEXICO - Heavy on blue spruce in Los Alamos, Los Alamos County; and Tesuque and Santa Fe, Santa Fe County. (Heninger).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Larvae still common on oak trees in Robbers Cave State Park area, Latimer County, October 29. (Okla. Coop. Sur.).

A NOTODONTID MOTH (Symmerista albifrons) - WEST VIRGINIA - Larvae caused light damage to white oak at New Creek, Mineral County. Collected by D. Eskridge September 6, 1972. Determined by J.D. Hacker. This is a new county record. (Hacker).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - NEW MEXICO - Heavy on large planting of mountain cotton wood in Santa Fe, Santa Fe County. (Heninger).

MAN AND ANIMALS

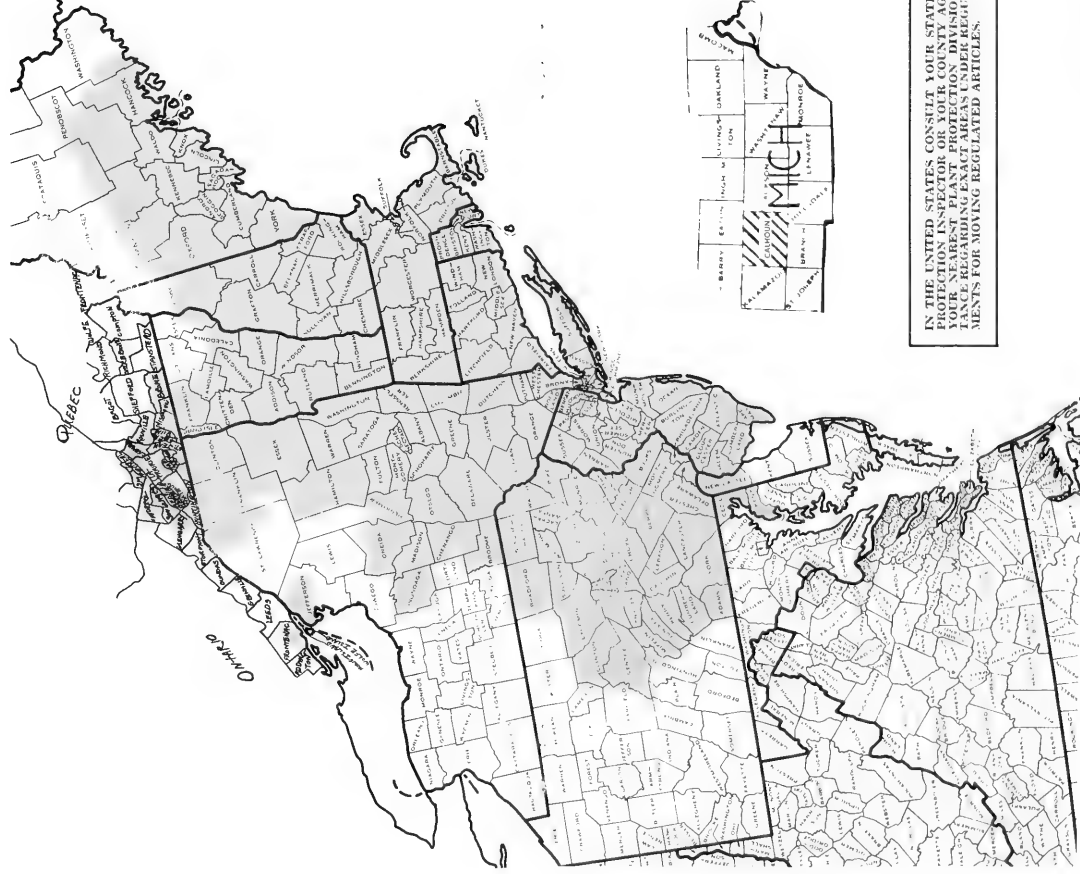
SCREWORM (Cochliomyia hominivorax) - Total of 3,309 confirmed cases reported in continental U.S. during period October 22-28 as follows: Texas 3,049; Arizona 156; Oklahoma 65; New Mexico 36; Arkansas 1; Louisiana 1; Florida 1. Arkansas case discovered near Nashville, Howard County, is sixth confirmed case from area. No recent additions to herd; outbreak may be due to gravid female which flew in from infested area in Oklahoma. Louisiana case at Jennings, Jefferson Davis Parish, in neck wound of native calf. Florida case found on native steer in herd near busy cattle shipping and concentration point at Oxford, Sumter County. Twenty-five State and Federal workers assigned to special detection operation in area. Total of 756 cases reported from Mexico. Number of sterile flies released in U.S. this period totaled 154,702,000 as follows: Texas 130,732,000; Arizona 12,260,000; New Mexico 5,660,000; California 650,000; Louisiana 200,000; Florida 4,000,000; Alabama 200,000; Georgia 1,000,000. Total of 26,486,000 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 0-13 per head (average 3 per head) on 22 cows in Payne County. (Okla. Coop. Sur.).



GYPSY MOTH QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
AND CANADA DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES



IN THE UNITED STATES CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR THE COUNTY AGENT AND IN CANADA CONSULT THE PROTECTIVE OFFICER OF THE DISTRICT OFFICE FOR THE EXACT BOUNDARIES OF THE QUARANTINE AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

- COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED
- COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED
- GENERALLY INFESTED AREA STATE, FEDERAL, AND CANADIAN REGULATIONS
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED)
- SUPPRESSIVE AREA STATE, FEDERAL, AND CANADIAN REGULATIONS
(SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)
- ERADICATED—REGULATION REMOVED

REVISED SEPTEMBER 5, 1972

- RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:
1. FROM RED INTO OR THROUGH GREEN OR WHITE.
 2. FROM GREEN INTO OR THROUGH WHITE.
 3. GREEN INTO GREEN.
 4. WITHIN GREEN.*
- *IF REQUIRED BY AN AUTHORIZED INSPECTOR.

THE FOLLOWING REGULATED ARTICLES MUST BE MOVED UNDER
CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED

1. Trees, shrubs with persistent woody stems, and parts thereof, except seeds, fruits, and cones.
Trees and shrubs, and parts thereof, are exempt if grown in a greenhouse throughout the year and so labeled on the outside of each container.
Cuttings, and scions with stems no greater than one-half inch in diameter are exempt.
Parts of trees and shrubs that have been dried, pressed, waxed, lacquered, varnished, or similarly surface-treated, are exempt.
Christmas trees are exempt.
Boughs and Christmas greenery are exempt.
2. Timber and timber products, including but not limited to lumber, planks, poles, logs, cordwood, and pulpwood.
Lumber is exempt if dressed or sawed four sides with ends clipped and free of surface bark, or if kiln dried, provided such lumber is shipped direct after processing and the waybill or other shipping document is marked to show that the lumber was shipped immediately after processing.
Manufactured wood products, such as shingles, flooring, furniture, handles, etc., are exempt.
Shavings, sawdust, wood flour, excelsior, and cedar bedding are exempt.
3. Stone and quarry products.
Stone and quarry products are exempt if processed by grinding or pulverizing.
4. Mobile homes, recreational vehicles, and associated equipment moving from hazardous parks or recreational sites.

°Exempt if not exposed to infestation after the prescribed handling.

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 20-25 per head on cattle in Payne County and 10-50 per head in Major County. Moderate in Pawnee County. (Okla. Coop. Sur.). MISSISSIPPI - Adults averaged less than 100 per animal in Oktibbeha, Noxubee, and Lowndes Counties. (Robinson).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Declined to 0.5 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - NORTH DAKOTA - Honey production by commercial apiaries (300 or more colonies) totaled 7,192,000 pounds in 1972; a 70-percent increase from 1971. This represents increase in number of colonies and yield per colony. Colonies totaled 58,000, five percent above 1971; an average yield of 124 pounds per colony is 61 percent above the average yield in 1971. Late summer rains resulted in good honey flow from sunflower and other late blooms. (Brandvik).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Cotton flooded and buried by recent flooding of Gila River at Safford, Graham County, harboring heavy larval populations. Most bolls examined contained live larvae. Larvae easily found in top crop at Deer Valley, Maricopa County. (Ariz. Coop. Sur.). ARKANSAS - Moths collected in Johnson County October 6 and in Franklin County October 16 by Cato. Determined by R.W. Hodges. These are first times collected in these counties. (PP).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Adults very heavy at Raton, Colfax County; lighter populations extend 5 miles north of Wagon Mound, Mora County. (Patterson).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSISSIPPI - Collected from soybeans at Houlka, Chickasaw County, October 4 by L.B. Clayton. Determined by V.H. Owens. Confirmed by A.M. Golden. This is a new county record. (PP).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 10/27-11/2, BL - Armyworm (Pseudaletia unipuncta) 2, beet armyworm (Spodoptera exigua) 3, fall armyworm (Spodoptera frugiperda) 3, granulate cutworm (Feltia subterranea) 3, yellowstriped armyworm (Spodoptera ornithogalli) 1.

KANSAS - Great Bend, 10/11-17, BL - Army cutworm (Euxoa auxiliaris) 248, armyworm 52, black cutworm (Agrotis ipsilon) 16, corn earworm (Heliothis zea) 87, variegated cutworm (Peridroma saucia) 56.

PENNSYLVANIA - (District) - Central, 10/23-30, BL - Black cutworm 1. Northwest, 10/23-30, BL - Armyworm 2, black cutworm 1. Southwest, 10/23-30, BL - Black cutworm 5, variegated cutworm 3, yellowstriped armyworm 1.

TEXAS - Waco, 10/2, BL - Armyworm 378, beet armyworm 81, black cutworm 4, cabbage looper (Trichoplusia ni) 1, fall armyworm 152, granulate cutworm 74, variegated cutworm 90, yellowstriped armyworm 6.

HAWAII INSECT REPORT

Corn, Sorghum - CORN EARWORM (Heliothis zea) heavy in 160+ acres of mature field corn at Kahuku, Oahu, week ending October 27. All ears with one or more late larvae. No controls applied. (Kawamura).

Sugarcane - SUGARCANE APHID (Longiunguis sacchari) nymphs and adults moderate in 100 acres at Honokaa, Hawaii. Lady beetle, lacewing, and syrphid fly predators moderate. (Ota).

General Vegetables - Larval mines of LEAFMINER FLIES (Liriomyza spp.) generally moderate to heavy in commercial snap beans at Waimanalo, Oahu; moderate on cotyledons in adjacent 0.1 acre of cucumber seedlings and 0.5 acre of soybeans in area. BEAN FLY (Melanagromyza phaseoli) trace in 3,000 square feet of long beans at Waimanalo. Remained negligible in commercial snap beans. (Kawamura).

Fruits and Nuts - About 75 coconut seedlings at Hawaii Kai, Oahu, with 30-40 percent of fronds with moderate to heavy COCONUT SCALE (Aspidiotus destructor) colonies on 30-60 percent of pinnae. Larvae and adults of Lindorus lophanthae (a lady beetle) heavy on some infested pinnae. (Kawamura). GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) nymphs and adults moderate in 200 acres of passion fruit at Kahului, Maui: previously very light in this orchard. (Miyahira).

Forest and Shade Trees - Very heavy buildup of a GEOMETRID MOTH (Semiothisa santaremaria) and KOA HAOLE LOOPER (Anacamptodes fragilaria) noted in Waianae and Kaena Point areas of Oahu during October. Totals of 4,500 S. santaremaria and 250 A. fragilaria moths taken in single light trap during 12-hour period. Larval counts averaged 10 S. santaremaria and 4 A. fragilaria per terminal foot on koa haole (Leucana leucocephala) and kiawe (Prosopis pallida), major hosts of these pests. Larvae of a NOCTUID MOTH (Melipotis indomita) numerous under bark and debris at bases of these trees. (Kashiwai). A SPIDER MITE (Olingonychus mangiferus) moderate on 750 acres of native Acacia koa trees in Laupahoehoe rain forests on Hawaii. Found at lower altitudes as well as upper limits of forests (4,000 feet). Infested trees usually showed terminal malformation, causing stunted condition which culminates in death of affected branches. Prolonged infestations have killed these native trees. (Horiuchi). A DELPHACID PLANTHOPPER (Nesosydne koae) moderate on regenerated native koa trees at Laupahoehoe Forest Reserve. Adults, up to 20 per terminal, easily jarred from infested branches. Nymphs, 20-30 per sample, congregated only on young growth. (Kashiwai).

Beneficial Insects - On Lanai, Melanagromyza phaseoli (bean fly) moderate to heavy in long bean petioles during week ending October 27. M. phaseoli 28 percent parasitized by a BRACONID WASP (Opius importatus) and 12 percent parasitized by a PTEROMALID WASP (Halticoptera patellana). O. importatus released on Lanai in August 1972. On Kauai, Opius spp. parasitized 100 percent of M. phaseoli infesting cowpea and snap bean petioles at 7 locations during September. (Miyahira, Sugawa). Field examination of Melastoma malabathricum showed average infestations of fruit to be 48 percent at Hanahanapuni and 14 percent at Knudsen Gap on Kauai. (Sugawa).

ALFALFA WEEVIL
Hypera postica (Gyllenhal)

Selected References
1968-1969

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

Armbrust, E. J., Niemczyk, H. D., Pass, B. C., and Wilson, M. C. 1969. Standardized procedures adopted for cooperative Ohio Valley States alfalfa weevil research. *J. Econ. Ent.* 62(1): 250-251.

Barnes, D. K. and Coauthors. 1969. A mass screening procedure for isolating alfalfa seedlings with resistance to the alfalfa weevil. *J. Econ. Ent.* 62(1):66-69.

Barnes, D. K. and Ratcliffe, R. H. 1969. Evaluation of annual species of Medicago as sources of alfalfa weevil resistance. *Crop Sci.* 9(5):640-642.

Ben Saad, A. A. and Bishop, G. W. 1969. Egg-laying by the alfalfa weevil in weeds. *J. Econ. Ent.* 62(5):1226-1227.

Blickenstaff, C. C. 1969. Mating competition between eastern and western strains of the alfalfa weevil, Hypera postica. *Ent. Soc. Amer. Ann.* 62(5):956-958.

Blickenstaff, C. C. and Huggans, J. L. 1969. Four methods of sampling to measure populations of alfalfa weevil larvae. *J. Econ. Ent.* 62(3):556-557.

Boulanger, L. W. 1969. A new record for a parasite of the alfalfa weevil in eastern United States, Eriplanus micator (Gravenhorst) (Hymenoptera: Ichneumonidae). *Ent. Soc. Wash. Proc.* 71(2):149-150.

Bray, D. F. and Boys, F. E. 1969. Delaware's recommendations for alfalfa weevil control. *Del. Univ. Agr. Ext. Serv.* E-21. 2 pp.

Byrne, H. D. 1969. The oviposition response of the alfalfa weevil Hypera postica (Gyllenhal). *Md. Agr. Expt. Sta. Bul.* 160. 42 pp. Ref. pp. 34-42.

Campbell, J. K. 1969. You can spray for the weevil with your mower-conditioner. *Hoard's Dairyman* 114(4):215.

Coan, R. M., Adler, V. E., Blickenstaff, C. C., and Steinhauer, A. L. 1968. Field evaluation of insecticides for control of the alfalfa weevil in Maryland, 1962-66. *U.S. Agr. Res. Serv. ARS* 33-127. 20 pp.

Day, W. H. 1969. Biological notes on Dibrachys cavus, a secondary parasite attacking parasites (Bathyplectes spp.) of the alfalfa weevil in the eastern United States. *J. Econ. Ent.* 62(5):1225-1226.

- DePew, L. J. 1969. Field evaluation of insecticides to control alfalfa weevil in Kansas, 1967-68. *J. Econ. Ent.* 62(6):1500-1501.
- DeWitt, J. R., Armbrust, E. J., Roberts, S. J., and White, C. E. 1969. Preliminary study of the bionomics of the alfalfa weevil on soybeans. *J. Econ. Ent.* 62(5):1233-1234.
- Drea, J. J., Jr. 1969. Fecundity, hatch of eggs, and duration of oviposition of mated, isolated female alfalfa weevils. *J. Econ. Ent.* 62(6):1523-1524.
- Drea, J. J., Jr., Angalet, G. W., and Day, W. H. 1969. Nosema sp. infecting a laboratory colony of the alfalfa weevil. *J. Invert. Path.* 13(2):303-304.
- Golik, Z. and Pienkowski, R. L. 1969. The influence of temperature on host orientation by the alfalfa weevil, Hypera postica. *Ent. Expt. et Appl.* 12(2):133-138. *Ger. Sum.*
- Hansen, R. W. and Simpson, R. G. 1969. Agricultural flaming for insect and weed control in Colorado. *Colo. Agr. Expt. Sta. Bul.* 538S. 9 pp.
- Hsiao, T. H. 1969. Adenine and related substances as potent feeding stimulants for the alfalfa weevil, Hypera postica. *J. Insect Physiol.* 15(10):1785-1790.
- Janes, R. L. and Ruppel, R. F. 1969. Alfalfa weevil. *Mich. State Univ. Ext. Bul.* E-639. 4 pp.
- Lavallee, A. G. and Shaw, F. R. 1969. Preferences of golden-eye lacewing larvae for pea aphids, leafhopper and plant bug nymphs, and alfalfa weevil larvae. *J. Econ. Ent.* 62(5):1228-1229.
- Niemczyk, H. D. and Flessel, J. K. 1969. Development and testing of a preventive program for control of the alfalfa weevil in Ohio. *J. Econ. Ent.* 62(5):1197-1202.
- Perron, J. P. 1969. First observations on Hypera postica in Quebec. *Ent. Soc. Quebec Ann.* 14(1):18-21. *In Fr., Engl. Sum.*
- Pienkowski, R. L. 1969. How to spray for the alfalfa weevil. *Hoard's Dairyman* 114(4):252-253.
- Pienkowski, R. L. and Golik, Z. 1969. Kinetic orientation behavior of the alfalfa weevil to its host plant. *Ent. Soc. Amer. Ann.* 62(6):1241-1245.
- Pienkowski, R. L., Hsieh, F. K., and LeCato, G. L., III. 1969. Sexual dimorphism and morphometric differences in the eastern, western, and Egyptian alfalfa weevils. *Ent. Soc. Amer. Ann.* 62(6):1268-1269.
- Pitre, H. N. 1969. Field studies on the biology of the alfalfa weevil, Hypera postica, in northeast Mississippi. *Ent. Soc. Amer. Ann.* 62(6):1485-1489.

- Scheibner, R. A. 1969. Winter flaming helps control alfalfa weevil. Hoard's Dairyman 114(4):250-251.
- Sprenkel, R. K. and Yendol, W. G. 1969. Effects of apholate on the alfalfa weevil. J. Econ. Ent. 62(1):122-125.
- Wilson, M. C. 1969. Who's afraid of the big bad weevil? Grow alfalfa in spite of him! Here's how you can do it in 1969. Hoard's Dairyman 114(4):212-214.
- Wilson, M. C., Huber, R. T., Gerhold, J. F., and Hintz, T. R. 1969. Buildup of the alfalfa weevil parasite Bathyplectes curculionis in Indiana. J. Econ. Ent. 62(6):1517-1518.
- Wilson, M. C., Pass, B. C., and Bennett, S. E. 1969. Influence of annual spring seeding of alfalfa on alfalfa weevil populations. J. Econ. Ent. 62(6):1421-1423.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(45):755-757, 1972

DETECTION

New State Record - OLIVE SCALE (Parlatoria oleae) - DELAWARE - Sussex County. (p. 751).

New County Records - ALFALFA PLANT BUG (Adelphocoris lineolatus) VIRGINIA - Montgomery (p. 750). A MEALYBUG (Conchaspis angraeci) FLORIDA - Alachua (p. 751). NORTHERN CORN ROOTWORM (Diabrotica longicornis) VIRGINIA - Wythe, Montgomery (p. 749). A NOTODONTID MOTH (Symmerista albifrons) WEST VIRGINIA - Mineral (p. 752). SOYBEAN CYST NEMATODE (Heterodera glycines) MISSISSIPPI - Chickasaw (p. 753).

WEATHER OF THE WEEK ENDING NOVEMBER 6

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: A vigorous storm spread winter weather over the western Great Plains early in the week. Snow accumulated to several inches in parts of North Dakota and Minnesota; up to 2 feet or more in spots in South Dakota, Colorado, and western Nebraska; several inches in western Kansas. Gregory, South Dakota, received 25 inches of snow of which 20 inches remained on the ground Monday morning, November 6. In Nebraska, precipitation fell as snow in the west, rain in the east, and treacherous mixtures of snow, rain and freezing rain in central sections. Southerly winds loaded the air over eastern portions of the country with moisture. As a cold front associated with the winter storm crossed the area, heavy rains fell from eastern Oklahoma to West Virginia and southward to the Gulf of Mexico. Totals ranged from 3 to 7 inches in northern Arkansas and 6 to 13 inches in the central part of that State. Flooding occurred along streams in Missouri and Arkansas. Hazelgreen, Missouri, received 7.32 inches of rain. Generous but lighter rains fell from the Great Lakes to the Ohio River Valley and east of the Appalachians. Precipitation was generally light west of the Rocky Mountains except in the Far Northwest where some heavy rains fell in the last half of the week. Southern California and western Arizona received no rain. Light precipitation occurred from eastern Arizona to western Texas. The weekend was pleasant in the Central and South but a new storm was developing in the northern Great Plains.

TEMPERATURE: The early winter storm spread cold weather over the Rocky Mountains and nearby Great Plains early in the week. Temperature at West Yellowstone, Montana, plunged to 11 degrees below zero Monday morning, October 30. Cold air continued southward. Alamosa, Colorado, recorded 4 degrees below zero Thursday morning. Subfreezing weather occurred in New Mexico and western Texas as far south as the Mexican border Wednesday and Thursday mornings. The western half of the Nation averaged cooler than normal. Temperatures over the central and southern Rocky Mountains and the western Great Plains averaged 6 to 15 degrees warmer than normal. Cold air reduced maximum temperatures over the East late in the week. Much of the area from the northern Mississippi River to New England did not warm higher than the 40's Saturday afternoon. Maximums in the 50's were common in Kentucky and Tennessee. Florida continued to warm to the 80's.

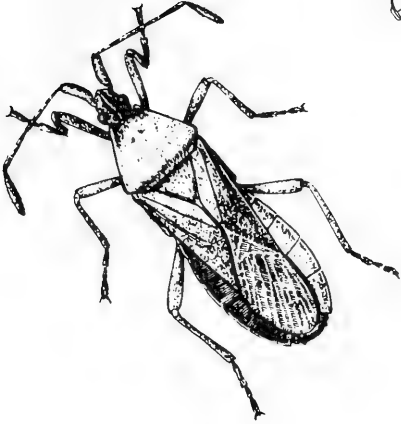
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



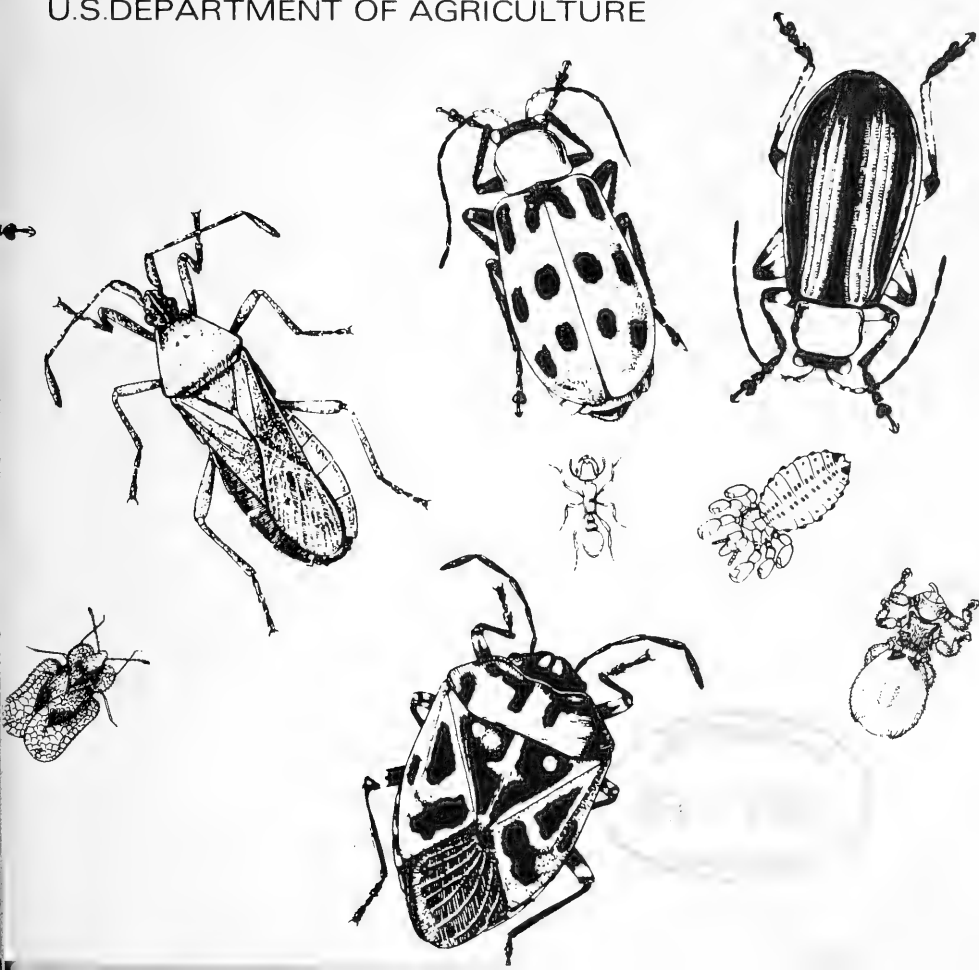
0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C 77 Ent,

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 Service 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:

CEIR

Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG damaged 3,000-4,000 acres of wheat in central Washington. (p. 761).

NANTUCKET PINE TIP MOTH unusually severe in pine plantations in eastern Virginia. (p. 763).

ORANGESTRIPED OAKWORM and a GEOMETRID MOTH heavily defoliated several thousand acres of forest in southern New Jersey. (p. 763).

Detection

New State records include WHITE PINE WEEVIL in California (p. 763), and a CALLIPHORID FLY in Virginia (p. 766).

For new county records see page 766.

Special Report

Mediterranean Fruit Fly. Selected References 1950-1955. (pp. 769-774).

NOTE: In the November 10 issue of the CEIR (Volume 22, No. 45) there was a copy of a Gypsy Moth Quarantine map dated, "Revised September 5, 1972." This map did NOT depict the regulated area resulting from 1972 surveys. It is anticipated the quarantine map with the 1972 regulated areas will be published early in 1973.

Reports in this issue are for weeks ending November 10 through November 24 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	761
Insects Affecting	
Corn, Sorghum, Sugarcane....	761
Small Grains.....	761
Forage Legumes.....	761
Soybeans.....	762
Cotton.....	762
Deciduous Fruits and Nuts...762	
Citrus.....	763
Ornamentals.....	763
Forest and Shade Trees.....	763
Man and Animals.....	764
Households and Structures..764	
Stored Products.....	765
Beneficial Insects.....	765
Federal and State Plant Protection Programs.....	765
Detection.....	766
Corrections.....	766
Hawaii Insect Report.....	767
Mediterranean Fruit Fly. Selected References 1950-1955.....	769

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-NOVEMBER TO MID-DECEMBER 1972

The National Weather Service's 30-day outlook for mid-November to mid-December calls for temperatures to average below seasonal normals in the central and southern Plains, the middle Mississippi Valley and California. Above normal temperatures are indicated for the Great Lakes region, the Northeast, Florida, and the northern intermountain region. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal in the eastern half of the Nation and west of the Divide except for near normal amounts over the southern Plateau region. Subnormal precipitation is expected to be limited to the Rio Grande Valley. In unspecified areas near normal totals 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 27

Reprinted from weekly Weather and Crop Bulletin supplied by environmental Data Service, NOAA.

PRECIPITATION: The week began with clouds covering much of the Nation. The main exceptions were an area from California across the southern Rocky Mountains to the western edge of Texas, a small portion of the middle Mississippi River Valley, and extreme southern Florida. Fog was widespread early Monday from the northern portion of the Great Basin to the upper and middle Mississippi River Valley, and from Lower Michigan to the Tennessee River Valley. A vigorous storm centered off the northern Atlantic coast continued to produce heavy rain along the coast and snow in northeastern New York and northern New England. New York City received more rain this month than any previous November and more rain in 1972 than in any previous calendar year. Weather of the week continued on page 768.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (*Schizaphis graminum*) - ARKANSAS - Survey negative in Washington County week ending November 17. (Boyer). OKLAHOMA - Averaged less than 1 per linear foot in ungrazed wheat in El Reno area, Canadian County. None found in ungrazed field near Chickasha, Grady County, week ending November 17. (Okla. Coop. Sur.). KANSAS - Economic in one wheat field; averaged 250 per drill row foot in 5-inch wheat in northern Finney County. Less than 1 percent dead leaves seen. Some treating reported in Wichita County, primarily confined to southern part. (Bell). NEBRASKA - Ranged 20-65 per linear row foot in early planted small grain fields in Osceola and Stromburg area of Polk County. Some fields destroyed, others showed minor damage. Several fields treated in October showed good control. (Keith). SOUTH DAKOTA - Continued to damage winter wheat near Kennebec, Lyman County, and other winter wheat fields in spite of accumulated snowfall of 4-8 inches October 30 and November 2. During period November 3-10, temperatures in 40's and 50's in wheat areas in western part of State. Coccinellidae also active in these fields. (Jones). WASHINGTON - Damaged 3,000-4,000 acres of wheat at Wilson Creek, Grant County, as of November 10. Ranged 500-1,000 per plant; some young plants almost destroyed. (Foepfel, Retan).

CORN LEAF APHID (*Rhopalosiphum maidis*) - KANSAS - Trace in some wheat in Finney, Haskell, Seward, and Meade Counties. None seen in Scott, Greeley, Wichita, Gray, Stanton, and Stevens Counties. (Bell).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - ARIZONA - Sorghum field south of Peoria, Maricopa County, almost total loss week ending November 17. (Shields).

SMALL GRAINS

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - KANSAS - Moderate to heavy on lower stems of wheat in some fields in west-central and southwest districts. Heaviest infestation 700 per row foot in northern Finney County field. (Bell).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - INDIANA - Oviposition in alfalfa unusually light over most of State. Egg counts per square foot by county: Knox zero, Harrison 13, Steuben 13, La Porte (study fields) 76. (Wilson, Armbrust). KENTUCKY - Eggs averaged 22 and 1.4 per square foot at 2 locations in Fayette County. Larvae averaged 0.1 per square foot at one location. (Barnett, Parr). TEXAS - Adults noted for first time this fall in Brazos River Bottoms of Brazos and Burleson Counties. Averaged 7 per 40 sweeps. (Latham). OKLAHOMA - Adults moved into alfalfa in Stephens County with mating and egg laying begun by first week in November. Eggs ranged 6-8 per square foot in Payne County November 13, averaged 18 per square foot in Stephens County November 17. (Okla. Coop. Sur.). UTAH - Adults heavy in duff near alfalfa fields west of Snowville in Curlew Valley, Box Elder County, week ending November 17. (Knowlton).

A WEEVIL (Pantomorus taeniatulus) - ALABAMA - Adults heavy on leaves of annual Lespedeza and other legumes along roads and fields in Lee County week ending November 17. Larval feeding not noted. (Barwood et al.).

PEA APHID (Acyrtosiphon pisum) - UTAH - Heavy in many Millard County alfalfa fields week ending November 17. (Chapman, Knowlton). ARKANSAS - Light, ranged 10-15 per 100 sweeps, in Washington County alfalfa week ending November 17. (Boyer).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Adults and nymphs continued very heavy in alfalfa in Washita, Custer, and Beckham Counties. (Okla. Coop. Sur.).

SOYBEANS

A CERAMBYCID BEETLE (Dectes texanus texanus) - NORTH CAROLINA - Larval damage economic for first time in Piedmont area of Anson and Cumberland Counties. Checks in southern Anson County revealed general larval infestation in weeds and soybeans. About 20 fields observed with infested soybean plants ranging 1-40 percent. One combined field estimated to have 25 percent lodging. (Hunt, Potter, Jernigan). TENNESSEE - Adults taken on soybeans in Dyer County August 6, 1971, Lauderdale and Shelby Counties August 30, 1971, and Fayette County August 5, 1971. Collected and determined by Patrick. These are new county records. (Gordon, Bruer).

COTTON

TOBACCO BUDWORM (Heliothis virescens) - OKLAHOMA - Larval determinations indicate budworms very common in treated cotton in several western and southern counties during August and September. During September, comprised about 90 percent of the bollworm population in Jackson, Harmon, and Greer Counties, and about 100 percent in Washita County. In Bryan County, about 80 percent of population was budworms by mid-August. (Okla. Coop. Sur.).

COTTON LEAFPERFORATOR (Bucculatrix thurberiella) - OKLAHOMA - Larvae collected October 9 at Chickasha, Grady County, by D.C. Arnold, D.C. Peters, R.G. Price, and J.H. Young; Caddo and Washita Counties by E. Cleveland; Noble County by J.H. Young; Cotton County by J. Coakley; and Bryan County by B. Hines. These are new county records. (Okla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Infested 60-80 percent of nuts on untreated trees in orchard in Rogers County week ending November 10. During next 7 days, infestations ranged 20-30 percent on untreated native pecans and 25-45 percent on untreated improved varieties in Noble County orchard. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Overwintering larvae heavy in shucks of nuts under all pecan trees examined during first part of November in Lee, Montgomery, Mobile, Baldwin, Monroe, and Wilcox Counties. (McQueen).

CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Taken November 16 by V.C. Brown on Valencia orange (Citrus sinensis) at Immokalee, Collier County. This is a new county record. (Dekle).

ORNAMENTALS

A GEOMETRID MOTH (Thysanopyga intractata (Walker)) - VIRGINIA - Larvae heavily damaged American holly in four counties. Northumberland, collected by E.M. Daniel October 23. Determined by D.M. Weisman. Prince George, collected by P.S. Harris November 6; Westmoreland collected by N.P. Pfucha November 14; Hanover, collected by C.W. Saunders November 11. All determined by W.A. Allen. These are new county records. (Allen).

A LACE BUG (Stephanitis takeyai) - PENNSYLVANIA - Adults collected October 12 on Pieris japonica in Boalsburg, Centre County, by T. Wolf and F. Dinsmore. Determined by T.J. Henry. This is a new county record. (Kim).

DIASPIDID SCALES - FLORIDA - Adults of Acutaspis morrisonorum and Velataspis dentata collected on palmetto (Sabal sp.) October 24 at Ft. Myers, Lee County, by W.E. Wynn and H.L. Gillis. These are new county records. (Fla. Coop. Sur.).

AN ARMORED SCALE (Phenacaspis cockerelli) - FLORIDA - All stages caused severe damage to leaves of Magnolia grandiflora at Tampa, Hillsborough County, with 99 percent of 100 sampled plants showing damage. (Baker, Lowery).

MEALYBUGS (Geococcus coffeae) - FLORIDA - This species and Phenacoccus solani collected on Sida rhombifolia and Schinus terebinthifolius October 25 at Homestead, Dade County. G. coffeae is a new county record. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

WHITE PINE WEEVIL (Pissodes strobi) - CALIFORNIA - Collected from Sitka spruce (Picea sitchensis) at Fort Dick, Del Norte County, during October 1972 by R.E. Dresser. Determined by T.N. Seeno. Confirmed by R.E. Warner. This is a new State record. (PP).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - VIRGINIA - Unusually severe damage reported to pine plantations and yard trees in Portsmouth area, Nansemond County, during week of November 24. (For. Pest Surv. Rpt.). FLORIDA - Pupae heavy on 132 loblolly pine trees, Pinus taeda, at Gainesville, Alachua County, November 10. (O'Steen).

ORANGESTRIPED OAKWORM (Anisota senatoria) - NEW JERSEY - Larvae completely defoliated several thousand acres of oaks in southern Ocean County. Present each summer in small scattered spots, this is largest single infestation ever noted in State. (McNally, Oct.).

A GEOMETRID MOTH (Lambdina pellucidaria) - NEW JERSEY - Larvae heavily defoliated about 5,000 acres of pitch pine forest in southern area during October. This pest rarely causes such extensive damage in State. (McNally).

FOREST TENT CATERPILLAR (*Malacosoma disstria*) - MINNESOTA - Egg mass surveys completed in Koochiching, northern Itasca, and northern St. Louis Counties. Number of egg masses per sample and area of infestation considerably reduced from past years. (Minn. Pest Rpt.).

MAN AND ANIMALS

SCREWORM (*Cochliomyia hominivorax*) - Total of 4,948 confirmed cases reported in continental U.S. during period October 29 to November 18 as follows: Texas 4,817; Arizona 108; New Mexico 15; California 4; Oklahoma 3; Kansas 1. Special surveillance operations around Dermopolis, Alabama, and Radium Springs, Georgia, have been discontinued with 32,888 and 25,027 head of cattle inspected respectively. Number of sterile flies released in U.S. this period totaled 470,230,700 as follows: Texas 379,658,800; Arizona 53,635,000; Florida 12,680,000; New Mexico 2,872,500; California 1,720,000; Georgia 1,000,000; Louisiana 664,400. Total of 1,398 cases reported in Mexico this period. Total of 90,591,800 sterile flies released in Mexico. (Anim. Health).

HORN FLY (*Haematobia irritans*) - MISSISSIPPI - Adults averaged less than 100 per head on cattle in Oktibbeha County week ending November 10. Counts decreased week of November 17; adults averaged less than 25 per head of 30 mixed cattle. (Robinson).

COMMON CATTLE GRUB (*Hypoderma lineatum*) - OKLAHOMA - Packing plants in several areas of State reported damage in carcasses much heavier than at this time in 1971. One lot of cattle averaged 85 percent infested. Grubs light on cattle in Comanche County. (Okla. Coop. Sur., Nov. 17).

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) - PENNSYLVANIA - Counts of 200 mites per bird seen on 6,000 layers in Bonneauville, Adams County; 10 percent loss in production. (Walker).

EAR TICK (*Otobius megnini*) - OKLAHOMA - Still heavy on cattle in Comanche County, moderate in Johnston County week ending November 17. (Okla. Coop. Sur.).

MOSQUITOES - OKLAHOMA - Adults, mainly *Culex tarsalis*, continued common and annoying in Stillwater area, Payne County, week ending November 11, despite cool weather previous 14 days. (Okla. Coop. Sur.).

DOUGLAS FIR TUSSOCK MOTH (*Hemerocampa pseudotsugata*) - OREGON - Allergic reactions to larval hairs reported by 80-100 loggers involved in salvage operations in eastern part of State. Symptoms include eczema and difficulty in breathing. (Penrose).

HOUSEHOLDS AND STRUCTURES

REDSHOULDERED HAM BEETLE (*Necrobia ruficollis*) - NEW HAMPSHIRE - Thousands of adults and larvae infesting tannery at Lebanon, Grafton County. (Pestana).

STORED PRODUCTS

NAVEL ORANGEWORM (Paramyelois transitella) - OREGON - Larvae infested 3,400 pounds of walnuts shipped from out of State to Medford. Shipment sampled week ending November 24; 28-60 percent of nuts affected. (Summers).

INDIAN MEAL MOTH (Plodia interpunctella) - FLORIDA - Larvae common in shelled corn, hundreds of adults on wall of corn crib, at Laurel Hill, Okaloosa County. (Carroll, Nov. 16).

RED-HORNED GRAIN BEETLE (Platydema ruficorne) - NEBRASKA - Damaged stored ear corn near Bruno, Butler County. Determined by T.J. Spilman. This is a new county record. (Keith, Nov. 15).

RICE WEEVIL (Sitophilus oryzae) - OKLAHOMA - Heavy in farm stored wheat in Washita County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

A FLEA BEETLE (Longitarsus jacobaeae) - WASHINGTON - About 500 adults released on tansy ragwort November 9 near Battle Ground, Clark County. (Shanks). OREGON - Released 500 adults on tansy ragwort rosettes on State land in western Marion County, November 9. (Westcott, Penrose).

A SAGE WEEVIL (Phrydiuchus tau) - OREGON - Total of 448 adults from Yugoslavia released on Mediterranean sage, Salvia aethiops, in Lakeview area, Lake County, November 2, 1972. (Andres). Few live adults observed in July 1972 at two 1971 release sites south and west of Lakeview, indicating successful completion of one life cycle. (Penrose).

A TACHINA FLY (Spathimeigenia spinigera) - OKLAHOMA - One specimen reared from 30 cocoons of Neodiprion excitans (a conifer sawfly) collected in Haskell County March 7, 1972. S. spinigera determined by C.W. Sabrosky. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Total of 94,753 acres of beet leafhopper infested Russian thistle stands in San Joaquin Valley treated October 26. Recent surveys showed much better kill this year than in fall 1971. Delayed starting date resulted in more uniform population control; 72-hour kill checks revealed almost total control in many areas. (Cal. Coop. Rpt.).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - One adult male collected at golf course near Retnon, King County, September 7, 1972, by L. Campbell. Determined by W.J. Turner. Confirmed by G.W. Byers. This is a new county record and most southern collection of this pest in State. (Campbell, Turner).

IMPORTED FIRE ANT (Solenopsis sp.) - TENNESSEE - All surveys to date in 1972 have been negative. (Gordon et al.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Non-sterile moths still trapped in sex lure traps baited with hexalure during week ending November 17. No larvae detected. Only single males trapped with total of 34 for San Joaquin Valley this season. Sterile moth releases total 95,600,000. (Cal. Coop. Rpt.). ARIZONA - Ranged 0-6 per bale in Cochise County week ending November 24. (Kozloski). NEW MEXICO - Infestations remained generally heavy in late bolls still in cotton fields in Dona Ana County week ending November 10. (N.M. Coop. Rpt.). Lint cleaner inspections during week of November 17 in Chaves and Lea Counties revealed few larvae. Inspections in southern Eddy County showed much heavier populations; lint cleaner glasses nearly obscured by larvae. (Perry).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Heavy populations on citrus trees widespread in Carlsbad, San Diego County, week ending November 17. Infestation apparently existed at undetected low level until population explosion this year with climatic conditions exceptionally favorable for many varieties. Each infested property received 25 parasites as infestation detected. (Cal. Coop. Rpt.).

DETECTION

New State Records - A CALLIPHORID FLY (Protocalliphora hirudo) - VIRGINIA - Pupae taken subcutaneously from head of house wren August 22, 1972, in Roanoke County. Collected by A.O. English. Determined by C.W. Sabrosky. (Allen). WHITE PINE WEEVIL (Pissodes strobi) - CALIFORNIA - Del Norte County. (p. 763).

New County Records - AN ARMORED SCALE (Unaspis citri) FLORIDA - Collier (p. 763). A CERAMBYCID BEETLE (Dectes texanus texanus) TENNESSEE - Dyer, Lauderdale, Shelby, Fayette (p. 762). COTTON LEAFPERFORATOR (Bucculatrix thurberii) OKLAHOMA - Grady, Caddo Washita, Noble, Cotton, Bryan (p. 762). RED-HORNED GRAIN BEETLE (Platydemus ruficornis) NEBRASKA - Butler (p. 765). DIASPIDID SCALES - Acutaspis morrisonorum, Velataspis dentata - FLORIDA - Lee (p. 763). EUROPEAN CRANE FLY (Tipula paludosa) WASHINGTON - King (p. 763). A GEOMETRID MOTH (Thysanopyga intractata) VIRGINIA - Northumberland, Prince George, Westmoreland, Hanover (p. 763). A LACE BUG (Stephanitis takeyai) PENNSYLVANIA - Centre (p. 763). A MEALYBUG (Geococcus coffeae) FLORIDA - Dade (p. 763).

CORRECTIONS

CEIR 22(44):740 - HOUSEHOLDS AND STRUCTURES: "A DERMESTID BEETLE (Anthrenus coloratus) NORTH CAROLINA ... O.L. Stephan ..." should read "... D. L. Stephan ..." (Hunt).

HAWAII INSECT REPORT

Corn - CORN EARWORM (*Heliothis zea*) heavy in 0.5 acre corn at Pupukea, Oahu; 95 percent of nearly mature ears with one or more young larvae in silks or ear tips.

General Vegetables - PEPPER WEEVIL (*Anthonomus eugenii*) heavy in 0.25 acre of sweet peppers at Hawaii Kai, Oahu; about 40 percent of fruit infested with one or more larvae or adults. (Kawamura). TOMATO PINWORM (*Keiferia lycopersicella*) moderate and light on foliage in yard plantings of potato and eggplant, respectively, at Kula, Maui. Larval parasitism by a braconid (*Apanteles scutellaris*) heavy in nearby tomato planting. (Miyahira, Kawamura). Larvae of LEAFMINER FLIES (*Liriomyza* spp.) and BEE TARMY WORM (*Spodoptera exigua*) moderate in yard planting of green onions at Manoa, Oahu; about 85 percent of plants affected. Both species moderate to heavy in commercial plantings at Waianae, Oahu. (Otsuka, Yamamoto).

Fruits and Nuts - Larval damage by a NOCTUID MOTH (*Phlegetonia delatrix*) heavy on about 75 percent of roadside Java plum trees at Hana, Maui; 75 percent of young terminal leaves damaged. (Ah Sam).

Forest and Shade Trees - EURASIAN PINE APHID (*Pinus pini*) surveys during October concentrated in Koloa district, Kauai, including Omao and Lawai. *Pinus* plants examined mainly potted bonsai but also included ornamental pines in ground. All results negative and appears increasingly doubtful that this pest is established on Garden Isle. (For last report on this pest see CEIR Vol. 22 No. 43:727). (Kashiwai).

Beneficial Insects - *Melanagromyza phaseoli* (bean fly) infesting cow pea and snap bean petioles on Kauai during October, 75-100 percent parasitized by BRACONIDS (*Opius importatus* and *O. phaseoli*). (Sugawa). Eggs of a TACHINA FLY (*Trichopoda pennipes pilipes*) present on 8 of 9 adults of *Nezara viridula* (southern green stink bug) collected in fallow corn field at Pupukea, Oahu. This fly purposely introduced from Antigua and Montserrat, British West Indies, and released in April 1962. Ninety-five adults of a CHAMAEMYIID FLY (*Leucopis nigriluna*), larvae of which are predators of nymphs and adults of *Pinus pini* (Eurasian pine aphid), were released at Waikii, Hawaii. About 500 adults have been released since the biological control project was initiated in March 1972. No recoveries have been made by November 17. (See Eurasian pine aphid, above). (Kashiwai). LANTANA GALL FLY (*Eutreta xanthochaeta*) caused heavy galling of lantana plants at Koaia Sanctuary, Kawaihae Uka, Hawaii. Heavily affected branches averaged one gall per inch. (Matayoshi).

General Pests - CARMINE SPIDER MITE (*Tetranychus cinnabarinus*) very heavy on 50 percent of papaya trees in yard plantings at Lahaina and Kahului, Maui; heavy on plumeria at Lahaina and 3 acres of snap beans at Waianae, Oahu. (Miyahira, Kawamura). GIANT AFRICAN SNAIL (*Achatina fulica*) activity light on Kauai during October; 64 snails collected at Poipu, none at Wahiawa. Baiting limited to areas of snail activity at Poipu; appears that snails remained in aestivation during this dry month. (Sugawa). NARROW WINGED KATYDID (*Elimaea punctifera*) feeding damage severe to greenhouse orchid and chrysanthemum blossoms at Kona, Hawaii. Similar activity noted on young coffee terminals at Kainaliu, Hawaii. (Matayoshi).

Weather of the week continued from page 760.

Philadelphia, Pennsylvania, also received more rain this month than in any previous November. A storm developed early Monday in the Southwest, crossed the central and southern Rocky Mountains and dumped several inches of snow on the eastern slopes of the Rockies and the western edge of the central Great Plains. One of the heaviest amounts, 7 inches, fell at Dalhart in the Texas Panhandle and at Gage in western Oklahoma. Freezing rain accompanied snow over a large area and some roads became dangerous for motorists. Snow began falling late Tuesday over a wide area from the Great Lakes to Tennessee and spread eastward over the northern Appalachians. A large storm caused rain over the South late in the week and a variety of precipitation from the Mississippi River to the Atlantic Ocean over the weekend. Weekend precipitation included wet snow from the upper and middle Mississippi River Valley to the Appalachians and thunderstorms over the South. A storm moving up the Atlantic coast caused widespread rain along the Atlantic seaboard. Wet snow and mixtures of snow and rain which fell in some areas, made highway travel risky for many motorists who were returning after being away from home for Thanksgiving.

TEMPERATURE: Southern Florida basked in summer weather. The temperature of Fort Lauderdale climbed to 88 degrees Monday afternoon, November 20. Winter temperatures prevailed over most of the Nation. Freezing weather occurred several mornings as far south as the Mexican border. Subzero temperatures were recorded at numerous stations, in Wyoming and the Colorado Rockies Wednesday morning. The mercury at Rapid City, South Dakota, did not get above 25 degrees Monday afternoon and plunged to 10 degrees Wednesday morning. Tuesday was the eleventh consecutive day the temperature at Rapid City has remained below 32 degrees in November since records began in 1888. The afternoon maximums over the Texas Panhandle Tuesday were 20 to 30 degrees colder than normal for late November. Amarillo warmed to only 26 degrees in the heat of the day Tuesday. Cold weather spread over almost the entire Nation. Temperatures in the low 40's were common along the gulf coast Wednesday morning when Mobile, Alabama, registered 42 degrees. The weekend brought warmer weather to much of the West but only slight warming in the East. Temperatures averaged warmer than normal from Washington and Oregon to Wisconsin but cooler than normal over most of the rest of the Nation. Most of the area from Kansas to Texas and eastward to the Atlantic coast averaged 6 to 10 degrees colder than normal.

MEDITERRANEAN FRUIT FLY
Ceratitis capitata (Wiedemann)

Selected References
1950-1955

- Copies of this bibliography are available from Pest Survey and Technical Support Staff.
- Ackermann, E. 1951. Erfahrungen über die Mittelmeer-fruchtfliege (Ceratitis capitata Wied.) bei citruseinfuhren. Pflanzenschutz 3(4):78-80.
- Araya, F. 1954. Un arácnido predator de las moscas de fruta. Posible utilidad para la citricultura. Cien. e Invest. 10(6): 254-260.
- Avidov, Z. 1950. Occurrence of Mediterranean fruit fly in a plum orchard at Mikveh-Israel (1945-1949). Jewish Agency Palestine, Agr. Res. Sta. 1:233-244. In He. Abridged Engl. trans. pp. 51-54.
- Avidov, Z. and Swirski, E. 1952. Laboratory tests on the effect of chlorinated hydrocarbon compounds on the Mediterranean fruit fly. Israel Agr. Res. Sta. Ktavim 2/3:191-197. In He. English translation pp. 53-56.
- Baas, J. 1955. Die Mittelmerrfruchtfliege Ceratitis capitata Wied. in Mitteleuropa. Gartenbauwissenschaft 19(3):340-365.
- Baas, J. 1955. Die Mittelmeer-fruchtfliege in Frankfurt am Main. Nat. u. Volk 85(3):65-70.
- Baggiolini, M. 1953. La lutte contre la cératite par piégeage à l'aide de gobe-mouches. Rev. Romande d'Agr. de Viticult. et d'Arboricult 9(5):43-44.
- Balachowsky, A. 1950. La mouche des fruits (Ceratitis capitata Wied.) est-elle originaire de l'Afrique tropicale? Fruits d'Outre Mer 5(9):319-324.
- Balachowsky, M. A. 1950. Sur l'origine de la mouche des fruits (Ceratitis capitata Wied). Acad. d'Agr. de France Compt. Rend. 36(9):359-363.
- Balock, J. W. 1951. Ethylene dibromide for destroying fruit fly infestations in fruits and vegetables. Science 114(2953):122.
- Bervillé, P. 1953. La mouche des fruits (Ceratitis capitata). Phytoma (n.s.) 51(6):5-7.
- Bess, H. A. 1952. Fighting the fruit flies. Hawaii Farm Sci. 1(1):7-8.
- Bess, H. A. 1953. Status of Ceratitis capitata in Hawaii following the introduction of Dacus dorsalis and its parasites. Hawaii Ent. Soc. Proc. 15(1):221-234.

- Besson, J. 1950. La mouche des fruits (Ceratitis capitata Wieds). Soc. d'Hort. de la Haute-Garonne. Ann. Ser. 5, 15:198-203.
- Bohm, H. 1951. Ein neuer fruchtschädling! Pflanzenarzt 4(10):3-4.
- Bohm, H. 1954. Die Mittelmeerfruchtfliege stellt sich vor. Bundesanst. f. Pflanzenschutz 7(12):20-21.
- Boselli, F. 1952. Experiments on use of DDT against the Mediterranean fruit fly in Sardinia in 1951. Ann. della Sper. Agr. (n.s.) 6(4):1011-1020. In Ital., Engl. Sum.
- Boselli, F. 1954. Results of experiments for the control of the Mediterranean fruit fly in Sardinia in 1952. Ann. della Sper. Agr. (n.s.) 8(1):239-270. In Ital., Engl. Sum.
- Cañizo, J. Del. 1954. La mosca de las frutas. Alcor 74:18-22.
- Costantino, G. 1951. Control of the fruit fly. Agr. Ital. 2(8): 215-219. In Ital.
- Costantino, G. 1954. I nuovi metodi di lotta artificiale contro la mosca della frutta (Ceratitis capitata, Wied.). Osserv. Region. di Fitopathol. per la Calabria Cir. 10. 3 pp. New methods of artificial control of the fruit fly.
- Cottier, W. 1952. The cold sterilization of oranges from South Africa. New Zeal. Sci. Rev. 10(7):99.
- Dalmeyer, W. H. M. 1952. Results obtained with aldrin and dieldrin against the Mediterranean fruit fly (Ceratitis capitata Wied) in peach orchards in France. Cong. Internatl. de Phytopharm. 3(2):267-274.
- Delanoue, P. 1951. Encore la ceratite! Feuille d'Inform. Vitic. et Arbor. de Tunisie 24:8-18.
- Delanoue, P. and Soures, B. 1953. Contribution a l'etude biologique de la mouche Mediterraneenne des fruits (Ceratitis capitata) Wied. Acad. d'Agr. de France Compt. Rend. 39(2): 63-66.
- Delmas, H. G. 1952. Essais toxicologiques préliminaires sur Ceratitis capitata Wied. Cong. Internatl. de Phytopharm 3(2):289-299.
- Delmas, H. G. 1953. Essai de lutte chimique contre Ceratitis capitata Wied. Acad. d'Agr. de France Compt. Rend. 39(7): 394-397.
- Delmas, H. G. 1954. Quelques problèmes pratiques soulevés par l'expérimentation de traitements contre Ceratitis capitata (Wied.) en Roussillon. Fruits 9(10):436-442.
- Delmas, H. G. and Thermes, R. 1963. Essais de destruction de Ceratitis capitata (Wied.) pendant sa vie hypogée. Acad. d'Agr. de France Compt. Rend. 39(4):222-226.

- Delmas, H. G. and Thermes, R. 1953. Sur la profondeur de pupaison de Ceratitis capitata Wied. Rev. de Path. Vég. et d'Ent. Agr. de France 32(1):44-49.
- Ebeling, W. 1953. Laboratory experiments on the control of three species of fruit flies (Tephritidae). Hilgardia 21(17):515-562.
- Féron, M. 1952. Observation sur le parasitisme de Ceratitis capitata Wied, dans le sous marocain. Rev. de Path. Vég. et d'Ent. Agr. de France 31(2):99-102.
- Follin, C. 1955. Skadegörare av internationell betydelse medelhavsfruktflugan (Ceratitis capitata). Sweden Stat. Vaxtskyddsanstalt Vaxtskyddsnotiser 19(4):60-66.
- Gast, A. and Muller, G. 1954. Beobachtungen über das auftreten der Mittelmeerfruchtfliege (Ceratitis capitata Wied.) in Basel. Schweiz. Z. f. Obst- u. Weinbau. 63:202-206.
- Geier, P. and Baggiolini, M. 1953. Observations sur la mouche Méditerranéenne, Ceratitis capitata Wied., en Suisse. Schweiz. Ent. Gesell. Mitt. 26(1):46.
- Genduso, P. 1954/1955. Prove di lotta contro la Ceratitis capitata Wied in provincia di Palermo a mezzo di derivati clorurati di sintesi ed esteri fosforici. Palermo Univ. Ist. di Ent. Agr. Bol. 1:75-85.
- Ghesquière, J. 1950. Un parasite de la Ceratitis capitata Wied. en France. Soc. Ent. de France Bul. 55(5):66-68.
- Giannotti, O. and Lepage, H. S. 1951. Preliminary note on the effect of some modern insecticides on two pests of peach, Ceratitis capitata and Grapholitha molesta. Biológico 17(9):166-168. In Por.
- Gomes, J. 1952. Sprays for fruit pests. Lav. e Criacao 7(44):37. In Por.
- Grison, P., Féron, M., and Sacantanis, K. 1950. Development de la mouche des fruits (Ceratitis capitata Wied.) en milieu nutritif synthétique. Paris. Acad. des Sci. Compt. Rend. 231(19):996-998.
- Juarez Montegrifo, F. 1952. Defensa de la naranja temprana contra la "mosca." Cám. Ofic. Sind. Agr. de la Prov. de Murcia. Bul. 111:3-4.
- Laurence, B. R. 1955. Ceratitis capitata Wied. (Trypetidae) in south London. Ent. Rec. and J. Variation 67(2):70-71.
- Leonardi, C. 1954. The fruit fly Ceratitis capitata Wied is no longer fearsome. Agr. Napoletana 21(5/6):12-17. In Ital.
- Mariconi, F. A. M. and Iba, S. 1955. The Mediterranean fruit fly. Biológico 21(2):17-32. In Por.

- Martelli, G. M. 1950. Tentative trials of olive fly control by chlorinated organic compounds dusted on the soil or incorporated in it. *Ann. della Sper. Agr. (n.s.)* 4(1):153-164. In Ital., Engl. Sum.
- Martin, H. 1950. Note préliminaire sur le comportement de Ceratitidis capitata Wied dans la région algéroise (Dipt. Trypetid.). *Schweiz. Ent. Gesell. Mitt.* 23(2):120-124.
- Martin, H. 1952. Essais de lutte contre... la mouche Méditerranéenne des fruits (Ceratitidis capitata Wied) sur peches tardives en provence. *Phytoma* 36(5):20-21.
- Martin, H. 1953. Contribution a l'etude de la mouche des fruits (Ceratitidis capitata Wied) dans la region d'Alger 1949-1951. *Rev. de Path. Veg. et d'Ent. Agr. de France* 32(4):209-246. Engl. Sum.
- Martin, H. 1953. Observations on the Mediterranean fruit fly on citrus in Tripolitania (Libya) in 1952/53. *FAO Plant Protect. Bul.* 1(9):132-136.
- Martino, E. Di. 1952. Another test on Mediterranean fruit fly control. *Ann. della Sper. Agr. (n.s.)* 6(1):5-14. In Ital., Engl. Sum.
- Martino, E. Di. 1952. Comparative tests of the attractiveness of beet and carob molasses. *Ann. della Sper. Agr. (n.s.)* 6(4):933-940. In Ital., Engl. Sum.
As bait for Ceratitidis capitata
- Mellini, E. 1952. The fruit fly (Ceratitidis capitata Wied.). *Informatore Fitopatol.* 2(5):4-5. In Ital.
- Minatta, M. J. 1950. "Mosca de las frutas", Ceratitidis capitata (Wiedemann) su biologia y control. *IDIA; Inform. de Invest. Agr.* 3(33/34):32-33.
- Mitjans Escala, J. 1952. Experiencias en la lucha contra la "Ceratitidis capitata" mosca de la fruta, en Begas (III zone agricola). *Cam. Ofic. Sind. Agr. de Barcelona Bul.* 7:139-140.
- Nasser, A. A. 1954. Notes on some insect pests in Lebanon. *FAO Plant Protect. Bul.* 2(9):138-139.
- New South Wales Department of Agriculture. Entomological Branch. 1954. Fruit flies. New South Wales Dept. Agr. Insect Pest Leaflet 11. 8 pp.
- Poisson, R. and Barbotin, F. 1950. La mouche des fruits: Ceratitidis capitata Wied dans l'Ouest de la France. *Feuille des Nat. (n.s.)* 5(7/8):79.
- Puebla, A. De La. 1950. Las frutas citricas y sus males. I-II. *Rev. Ganad.* 10(5):26; (6):34.
- Quere, L. 1950. La mouche des fruits (Ceratitidis capitata). *Vaucluse Agr.* 6(115):1. II. - Lutte contre la mouche des fruits 6(117):1.

- Riveros, J. E. 1950. Observaciones sobre la mosca de la fruta. La Chacra 21(241):36-37.
- Rivnai, I. 1954. Measures for the control of the fruit fly. Hassadeh 35:99-101. In He.
- Rivnay, E. 1950. The Mediterranean fruit fly in Israel. Bul. Ent. Res. 41(2):321-341.
- Rivnay, E. 1954. The Mediterranean fruit fly, Ceratitidis capitata Wied. Studies on its toxicants, mass migration and control in Israel. Israel Agr. Res. Sta. Ktavim 4(4):3-38.
- Rivnay, J. and Safran, B. 1955. War on fruit-fly in peaches in the Negev - successes and failures. Hassadeh 35(8):627-628. In He.
- Ruiz Castro, M. 1951. Ampelophages des racines et des souches de vigne, etudies dans le vignoble espagnol. Off. Internatl. du Vin. Bul. 24(244):67-79.
- Ryan, F. E. 1950. Trials with new insecticides in fruit fly control. West. Austral. Dept. Agr. J. Ser. 2, 27(2):226-238.
- Sacantanis, M. K. 1952. Etudes et observations sur les substances attractives pour Ceratitidis capitata. L'Acad. d'Agr. de France Compt. Rend. 38(1):53-55.
- Sala, R. 1953. La lucha contra la mosca de la fruta. Cult. Mod. 36(5):178-179.
- Seara, C. 1950. Fruit flies. How to control them. Rev. Agron. 14(157/159):54-55 (Porto Alegre). In Por.
- Smith, H. S. 1950. Organization and objectives of the fruit fly work in Hawaii. Calif. Citrog. 35(3):99, 128-129.
- Steiner, L. F. 1952. Fruit fly control in Hawaii with poison-bait sprays containing protein hydrolysates. J. Econ. Ent. 45(5):838-843.
- Steiner, L. F. 1954. Fruit fly control with poisoned-bait sprays in Hawaii. U.S. Agr. Res. Serv. ARS-33-3. 4 pp.
- Tirelli, M. 1951. New method for the control of the cherry fly (Rhagoletis cerasi L.) and the fruit fly (Ceratitidis capitata Wied.). Riv. Fitosanit. 2(5):9. In Ital.
- Turica, A. 1953. Ciclo biologico de Ceratitidis capitata Wied. en el Delta del Parana. Argentina Dir. Gen. de Invest. Agr. IDIA 63:1-3.
- Valent, A. 1951. Un fleau des vergers la mouche Mediterraneenne des fruits. Bul. des Engrais 330:71-73.
- Varela, A. 1952. La mosca oriental de la fruta es un problema internacional. Fitofilo 6(6):5-10.

- Vergani, A. R. 1950. Ceratitis capitata (Wied.), "mosca del Mediterraneo." IDIA; Inform. de Invest. Agr. 3(33/34):33-34.
- Vieira, R. 1952. Packing of fruit as preventive in the control of "fruit fly." Frutas da Madeira 12(1):216-217. In Por.
- Zocchi, R. 1954. Control of Ceratitis capitata Wied. and Anthonomus pomorum L. Florence Sta. di Ent. Agr. Nota Prat. 26. 14 pp. In Ital.

Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(46-48):769-774, 1972



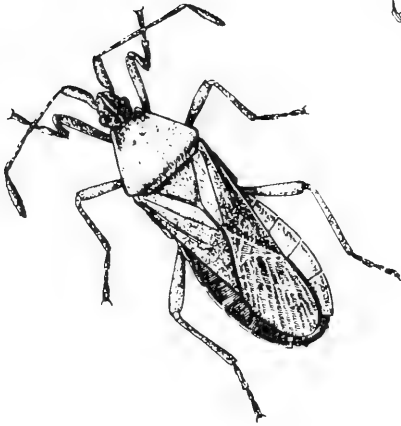
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



0004 SMINLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560



SB
823
C77 ENT.

Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 Service 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:

CEIR

Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

SOUTHERN CORN ROOTWORM caused economic damage to 50,000 acres of peanuts in northeast North Carolina. (p. 778).

A GEOMETRID MOTH damaged holly for first time in Maryland. (p. 779).

SOUTHERN PINE BEETLE outbreak still widespread in several Southern States. (p. 779).

WALKINGSTICK caused widespread defoliation of hardwoods on Ozark and Ouachita National Forests in Arkansas. (p. 780).

Prediction

CHINCH BUG not expected to be problem in Illinois during 1973. (p. 777-778).

Detection

New State records include an APHID in Missouri (p. 779), an ENCYRTID WASP in Arizona (p. 781), a LIPARID MOTH in Arizona (p. 779), a MYMYRID WASP and a PTEROMALID WASP in Indiana (p. 781), a REDUVIID in Oklahoma (p. 781).

For new county and island records see page 782.

Special Reports

A Method of Determining the Relative Importance of Economically Important Insects. (pp. 785-787).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods - 1971. (pp. 788-805).

Reports in this issue are for weeks ending December 1 through December 22 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....	777
Insects Affecting	
Corn, Sorghum, Sugarcane...777	Citrus.....778
Small Grains.....777	Small Fruits.....779
Turf, Pastures, Rangeland..777	Ornamentals.....779
Forage Legumes.....778	Forest and Shade Trees....779
Peanuts.....778	Man and Animals.....780
General Vegetables.....778	Households and Structures..781
	Stored Products.....781
Beneficial Insects.....	781
Federal and State Plant Protection Programs.....	782
Detection.....	782
Hawaii Insect Report.....	783
Corrections.....	784
A Method of Determining the Relative Importance of Economically Important Insects.....	785
Estimated Losses and Production Costs Attributed to Insects and Related Arthropods - 1971.....	788
Weather of the Week.....	806

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-DECEMBER 1972 to MID-JANUARY 1973

The National Weather Service's 30-day outlook for mid-December to mid-January is for temperatures to average above seasonal normals over the western three quarters of the Nation except for near normal in the upper Mississippi Valley, the upper Great Lakes, and the central and southern Intermountain Region. Near normal temperatures are indicated for the eastern quarter of the Country except for below normal in New England. Precipitation is expected to exceed normal in New England, the Pacific Northwest, and northern portions of the northern Plains. Subnormal totals are indicated for the Far Southwest and also from the central Plains eastward through the middle Mississippi Valley to the Ohio Valley. Elsewhere near normal precipitation is in prospect.

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

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - ARIZONA - No buildup seen in 6 barley fields on west side of Salt River Valley, Maricopa County, week ending December 1. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 5-10 per linear foot in wheat fields in Clovis, Curry County, and Portales, Roosevelt County, week ending December 8. (Mathews). TEXAS - Survey of small grain in 10 Panhandle counties week ending November 24 showed infestations in 8 counties. Heaviest population, 100 per row foot of wheat, in Hale County. (Daniels). OKLAHOMA - Very light, averaged 1 per 10 linear feet, in wheat checked in Stillwater area, Payne County. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - VIRGINIA - Adult taken November 28 at light in Independent City of Virginia Beach. (Allen).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - NEW MEXICO - Fields checked around Roswell, Chaves County, ranged 10-100 percent of stalks infested week ending December 8. Infested 10 percent of stalks in cornfields near Hobbs and Lovington, Lea County. (Mathews).

CORN ROOTWORMS (Diabrotica spp.) - ILLINOIS - Soil samples collected in 3 counties during November yielded the following average counts of D. virgifera (western corn rootworm) and D. longicornis (northern corn rootworm) eggs per pint of soil: Henderson 32; Woodford 36; Warren 43. From 89 to 96 percent of the eggs were D. longicornis. (Ill. Ins. Rpt.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Light (10-15 per row foot) in drilled wheat in northwest area and 5-10 per row foot in Washington County week ending December 1. (Boyer).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - KANSAS - Light to moderate infestations found in western area wheat in surveys made during week ending December 1. Highest counts per drill row foot found in Lane (trace to 200) and Decatur (20-100) Counties. (Bell).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Some stands of small grain fields in Geneva County damaged by developing larvae week ending December 1. (Reynolds).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus leucopterus) - ILLINOIS - Overwintering populations in native roadside grasses very light this year as in past several years. Of 14 counties surveyed, 8 produced no chinch bugs at all and only 3 had noticeable populations; Iroquois, 10.1 bugs per square foot of hibernating material,

Champaign, 15.1 per square foot, and Marion, 21.7 per square foot. Minimum population for potential economic damage is considered 250 bugs per square foot. No problem for 1973 expected. (Ill. Ins. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Egg counts continued to average 106 and 100 per square foot in Stephens County alfalfa December 8 and December 16. Averaged 1 per square foot in Grady County December 16 and 7 per square foot in Payne County December 6 and December 19. Adults ranged 81-97 per 30 sweeps in alfalfa in Stephens County on December 1. (Okla. Coop. Sur.). TEXAS - Adult activity decreased during week ending December 15 in central areas. Counts in Brazos and Burleson Counties were very low but up to 20 eggs per square foot were still present. (Latham).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Adults per 100 sweeps in alfalfa: Yuma Valley 10; Gila Valley zero; Yuma Mesa 140. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Ranged 8-12 per square foot in alfalfa at Roswell and Dexter, Chaves County, during week ending November 24 and 0-2 per square foot at Roswell week ending December 15. (Mathews).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Moderate in alfalfa in Washita, Beckham, and Custer Counties week ending December 1. (Okla. Coop. Sur.).

PEANUTS

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NORTH CAROLINA - Larvae caused economic damage on 50,000 acres in Northampton, Halifax, Edgecombe, Martin, Bertie, and Hertford Counties. Losses 3-5 times more severe than 1971. About 25,000 acres treated in Edgecombe, Northampton, Martin, and Hertford Counties. (Hunt).

GENERAL VEGETABLES

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae damaging Swiss chard plantings in Fremont, Alameda County, and artichokes in Castroville, Monterey County. (Cal. Coop. Sur.).

CITRUS

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Taken on grapefruit November 16 at Immokalee, Collier County by W.E. Wynn and H.L. Gillis. This is a new county record. (Fla. Coop. Sur.).

GLOVER SCALE (Lepidosaphes gloverii) - FLORIDA - Taken on grapefruit at Immokalee, Collier County, November 16 by W.E. Wynn and H.L. Gillis. This is a new county record. (Fla. Coop. Sur.).

A DIASPIDID SCALE (Howardia biclavis) - FLORIDA - Adults taken on lemon on motel property at Naples, Collier County, November 15 by V.G. Brown. This is a new host and county record. (Fla. Coop. Sur.).

SMALL FRUITS

GRAPE PHYLLOXERA (*Phylloxera vitifoliae*) - FLORIDA - Nymphs and adults collected August 14, on wild grape, *Vitis* sp., along U.S. 441 in Palm Beach County, one mile north of Broward County line. Determined by G.W. Dekle. Confirmed by L. Russell. This is a new county record. (Fla. Coop. Sur.).

ORNAMENTALS

A GEOMETRID MOTH (*Thysanopyga intractata*) - MARYLAND - Larvae caused moderate to heavy defoliation to holly for first time in State. Collected in Calvert County by W. Gaiser and St. Marys County by E. Swecker October 9; Ann Arundel County by O. Broome and Worcester County by J.L. Hellman October 10; Montgomery County by K. Anderson and R. Biggs and Charles County by J.L. Hellman October 27; Talbot County by R. Rouse December 21. All determined by J.L. Hellman. These are new county records. (U. Md., Ent. Dept.).

FERN SCALE (*Pinnaspis aspidistrae*) - FLORIDA - Collected on *Citrus sinensis* at Ft. Drum, Okeechobee County, November 21, 1972, by H.C. Levan. This is a new county record. (Fla. Coop. Sur.).

AN APHID (*Sanbornia juniperi*) - MISSOURI - Collected from juniper August 3, 1972, at Carthage, Jasper County, by Joseph E. Francka. Determined by L.M. Russell. This is a new State record. (Munson).

FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - NORTH CAROLINA - Late season increase in population observed on Beech Creek Seed Orchard in Cherokee County. Infestations reached 88 percent on portion of one shortleaf pine geographic source not sprayed; infestation reached 40 percent on treated portion. (USFS).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - Outbreaks continued in November with widespread timber losses and heavy beetle populations occurring in ALABAMA, GEORGIA, LOUISIANA, MISSISSIPPI, NORTH CAROLINA, SOUTH CAROLINA, TEXAS, TENNESSEE, and VIRGINIA. (So. For. Pest Rptr.).

BARK BEETLES (*Ips* spp.) - FLORIDA - Results of a 1972 statewide survey indicated 38 percent increase in insect-caused tree mortality, primarily by this species. An estimated two million trees representing 250,000 cords killed during 1972. (So. For. Pest Rptr.).

A SCOLYTID BEETLE (*Coccotrypes dactyliperda*) - CALIFORNIA - Adults heavy on fruit of *Phoenix canariensis* (an ornamental date palm) on Fort MacArthur grounds in San Pedro, Los Angeles County. Infestation reported generally heavy by C.L. Smola. (Cal. Coop. Rpt.). This scolytid has been present in State for several years. (PP).

A LIPARID MOTH (*Orgyia rindgei*) - ARIZONA - Pupal cases and ovipositing females taken at Oak Creek Canyon, Coconino County, September 7, 1972, by D. Carver and J. May. Determined by D.C. Ferguson. Egg masses collected from ash, sycamore, willow, choke cherry, California buckthorne, beech, walnut, box elder, poison ivy, and under boulders and wood litter during delimiting survey October 12. This is a new State record. (Ariz. Coop. Sur.).

WALKINGSTICK (Diapheromera femorata) - ARKANSAS - Widespread defoliation over 16,000 acres was reported on the Ozark National Forest during November. An estimated 25,000 acres of upland hardwood were defoliated in the Ouachita National Forest. Defoliation was light compared with the last 3 years. (So. For. Pest Rptr.).

AN ARMORED SCALE (Protodiaspis didymus) - ARIZONA - Collected in Coconino County October 12, 1972, at Oak Creek and at Cherry, Yavapai County, October 21, 1972, on Quercus gambelli (Gambel oak) by T. Halstead. Determined by D.R. Miller. These are new county records. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Phenacaspis heterophyllae) - FLORIDA - Adults taken on slash pines at Windermere, Orange County, December 4, 1972, by F.L. Ware. This is a new county record. (Fla. Coop. Sur.).

AN ARMORED SCALE (Quadraspidiotus taxodii) - FLORIDA - Taken on bald cypress at Daytona Beach, Volusia County, June 3 by H.N. Pott and west of Lake Worth, Palm Beach County, by W.H. Pierce. Both determined by S. Nakahara. These are new county records. (Fla. Coop. Sur.).

A DIASPIDID SCALE (Comstockiella sabalis) - FLORIDA - Nymphs and adults taken on palmetto, Serenoa repens, few miles south of Lake Placid, Highlands County, October 16 by W.H. Pierce. Determined by G.W. Dekle. This is a new county record. (Fla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 976 confirmed cases reported in continental U.S. during period November 19 to December 16 as follows: Texas 951; Arizona 17; California 8. New Mexico was free of screwworms for the first time in more than 6 months. Number of sterile flies released in U.S. this period totaled 444,702,000 as follows: Texas 416,748,600; Arizona 17,520,000; Florida 8,352,000; California 1,815,000; Louisiana 266,400. Total of 1,537 cases reported in Mexico this period. Total of 357,232,100 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Heavy on cattle in Comanche County and light in Pawnee County week ending December 1. Unusually heavy in some cattle at packing houses. Ranged 20-30 per head in Major County cattle herd. Heavy in cattle in Pawnee County, moderate in Comanche and Hughes Counties. Averaged 3 per head on cattle in Payne County week ending December 8. Moderate to heavy on cattle in Okfuskee County and moderate in Comanche County week ending December 15. (Okla. Coop. Sur.).

EAR TICK (Otobius megnini) - OKLAHOMA - Continued heavy in ears of cattle checked in Comanche County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), moderate on cattle in Garfield, Okfuskee, Comanche, Oklahoma, Pawnee, and Hughes Counties. Light in Payne County. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ALABAMA - Specimen taken from home in Franklin County week ending November 1. (McQueen).

HOUSEHOLDS AND STRUCTURES

A POWDERPOST BEETLE (Lyctus brunneus) - ALABAMA - Larvae and adults severely damaged wood paneling of cottage in Gulf State Park in southern Baldwin County. Collected November 15, 1972, by G.M. McLeod. Determined by J.T. Spilman. (McQueen). Previously reported as moderate in subflooring in house November 17, 1933, by J.M. Robinson. No specific location in State given. (PP).

STORED PRODUCTS

LESSER MEALWORM (Alphitobius diaperinus) - OREGON - Heavily infesting chicken litter in poultry house in Canby area, Clackamas County. This is a new county record. (Westcott).

BENEFICIAL INSECTS

A REDUVID (Empicoris orthoneuron) - OKLAHOMA - One specimen of this predator taken on corn near Hough, Texas County, July 25, 1972, by D.C. Arnold. Determined by J.L. Herring. This is a new State record. (Okla. Coop. Sur.).

A LADY BEETLE (Coleomegilla maculata) - MISSISSIPPI - Clusters of 200-300 overwintering adults found in trash around Oktibbeha County alfalfa fields week ending December 1. (Nichols).

A PTEROMALID WASP (Sceptrothelys grandiclava) - INDIANA - Adults of this hyperparasite emerged from a cocoon of Bathyplectes curculionis taken March 14 by M.C. Wilson from an alfalfa field in Knox County. Determined by B.D. Burks. This is a new State record. (Wilson).

A MYMARID WASP (Patasson luna) - INDIANA - Adults emerged from Hypera postica (alfalfa weevil) eggs collected by M.C. Wilson April 5 in Harrison County. Determined by B.D. Burks. This is a new State record. (Wilson).

AN ENCYRTID WASP (Aphycus fumipennis) - ARIZONA - Collected October 10, 1972, by T. Halstead on oak infested with Eriococcus euphorbiae in Yavapai County. Determined by D.R. Miller. This is a new State record. This rare parasite of mealybugs reported only twice since described in 1918, both from California. (Ariz. Coop. Sur.).

A CHALCIDID WASP (Hockeria unipunctatipennis) - OKLAHOMA - Single specimen reared from 30 cocoons of Neodiprion excitans (a conifer sawfly) collected in Haskell County March 7, 1972. H. unipunctatipennis determined by B.D. Burks. (Okla. Coop. Sur.).

PARASITIC WASPS - KANSAS - Following species reared from Contarinia sorghicola (sorghum midge) collected from infested sorghum heads October 17, 1972, in Woodson County by K.O. Bell: Eupelmus popa (a eupelmid wasp), Aprostocetus diplosidis (a eulophid wasp), and Tetrastichus sp. (a eulophid wasp, possibly more than one species). Determined by B.D. Burks. Also laboratory reared from heads of milk-stage sorghum collected October 17 and 18 in following counties: Crawford, 4 Tetrastichus sp., 11 E. popa; Montgomery, 10 Tetrastichus sp.; Labatte, 1 Tetrastichus sp., 3 E. popa; Linn, 28 Tetrastichus sp., 12 E. popa. (Bell).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - NEW MEXICO - Various species averaged 8 or more per square yard on rangeland in northwest Chaves County. (N.M. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Large infestation involving about 50 acres located in Fremont Township in Isabella County. Large number of egg masses in area. Determined by R. Moore and M. Hanna. Confirmed by D.M. Weisman. (Sauer, Nov. 17).

RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Taken at Palmdale and another site in Glades County November 22, 1972. Determined by D.R. Smith. This is a new county record. (Fla. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Adults heavy and depositing eggs on rangeland in northwest Chaves County. (N.M. Coop. Rpt.).

DETECTION

New State Records - MADEIRA COCKROACH (Leucophaea maderae) - CALIFORNIA - Nymphs inhabiting residence in Cheli Air Force Base, Maywood, Los Angeles County, week ending November 17. Considered serious pest of homes and warehouses. Collected by C. Olson, November 9. Determined by A. Hardy. (Cal. Coop. Rpt.).

AN APHID (Sanbornia juniperi) - MISSOURI - Jasper County. (p. 779). (p. 779). AN ENCYRTID WASP (Aphycus fumipennis) - ARIZONA - Yavapai County. (p. 781). A LIPARID MOTH (Orgyia rindgei) - ARIZONA - Coconino County. (p. 779). A MYMARID WASP (Patasson luna) - INDIANA - Harrison County. (p. 781). A PTEROMALID HYPERPARASITE (Sceptrothelys grandiclava) - INDIANA - Knox County. (p. 781). A REDUVID (Empicoris orthoneuron) - OKLAHOMA - Texas County. (p. 781).

New County and Island Records - EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Several specimens taken at Newberry, Luce County, residence week ending December 8. Infestation moderate. First record from Upper Peninsula. Collected by Mrs. F. Nomand. (Sauer).

AN APHID (Lachnus salignus) - HAWAII - Oahu (p. 784). ARMORED SCALES - Phenacaspis heterophyllae - FLORIDA - Orange (p. 780). Protodiaspis didymus - ARIZONA - Coconino, Yavapai (p. 780). AN ARMORED SCALE (Quadraspidotus taxodii) FLORIDA - Volusia, Palm Beach (p. 780). DIASPIDID SCALES - Comstockiella sabalis - FLORIDA - Highlands (p. 780). Howardia biclavis - FLORIDA - Collier (p. 778). FERN SCALE (Pinnaspis aspidistrae) FLORIDA - Okeechobee (p. 779). A GEOMETRID MOTH (Thysanopyga intractata) MARYLAND - Calvert, St. Marys, Ann Arundel, Worcester, Montgomery, Charles, Talbot (p. 779). GLOVER SCALE (Lepidosaphes gloverii) FLORIDA - Collier (p. 778). GRAPE PHYLLOXERA (Phylloxera vitifoliae) FLORIDA - Broward (p. 779). LESSER MEALWORM (Alphitobius diaperinus) OREGON - Clackamas (p. 781). A MEMBRACID TREEHOPPER (Antianthe expansa) HAWAII - Hawaii Island (p. 783). PURPLE SCALE (Lepidosaphes beckii) FLORIDA - Collier (p. 778). RED IMPORTED FIRE ANT (Solenopsis invicta) FLORIDA - Glades (p. 782).

Corn - CORN EARWORM (*Heliothis zea*) and CORN PLANTHOPPER (*Peregrinus maidis*) severe in 3 acres of field corn at Kaaawa, Oahu; nearly 100 percent of mature ears with various instar larvae. (Kawamura). Earworm larvae heavy in 3 acres of sweet corn at Waimanalo, Oahu; about 80 percent of ears infested. (Otsuka, et al.).

General Vegetables - CHINESE ROSE BEETLE (*Adoretus sinicus*) caused heavy foliar damage in small planting of eggplant at Kahaluu, Oahu. Light damage in 0.2 acre of ginger at Waimanalo; 50 percent of leaves lightly affected. Light infestation by PEPPER WEEVIL (*Anthonomus eugenii*) in 0.1 acre of sweet peppers at Waimanalo, Oahu; about 10-15 percent of fruits infested with larvae and/or adults. All stages of GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) moderate on younger leaves in 0.2 acre of snap beans at Waimanalo, Oahu, and heavy in 2 small plantings of eggplant at Waianae and Waimanalo, Oahu. LEAFMINER FLIES (*Liriomyza* spp.) heavy in small plantings of cucumber at Waianae and Waimanalo; also heavy in small plantings of okra and club gourd at Waimanalo. Moderate to heavy in small plantings of tomato, snap beans, and soybeans at Kahaluu. (Kumashiro, Wong, Otsuka).

Fruits and Nuts - Colonies of FLORIDA RED SCALE (*Chrysomphalus aonidum*) light on coconut trees at Lahaina (50 trees) and Kihei (180 trees), Maui. (Ah Sam, Miyahira). Heavy larval infestations of MANGO SHOOT CATERPILLAR (*Bombotelia jocosatrix*) noted on leaves of mango tree at Waihee, Maui; 75 percent of young leaves affected. Treatments applied. On Hawaii, *Polistes* spp. (vespid wasps) observed preying on larvae of *B. jocosatrix* and contributed to effective control of this pest. (Miyahira). Moderate adult infestation of a MEMBRACID TREEHOPPER (*Antianthe expansa*) noted in small yard plantings of poha (*Physalis peruviana*) at Keeau, Hawaii. *A. expansa* first reported on Oahu in June 1971; this is first report of spread to neighbor island. (Matayoshi). Eggs, larvae, and pupae of CITRUS SWALLOWTAIL (*Papilio xuthus*) light on lemon tree at Nuuanu, Oahu. Unusual for this time of year. On Kauai, adult sightings past few weeks negative. *P. xuthus* apparently enters period of diapause during this period. (Sugawa, Kawamura).

Turf and Pastures - GRASS WEBWORM (*Herpetogramma licarsisalis*) light (3+ larvae per square foot) in Kikuyu grass at Haiku, Maui. Heavy, spotty damage noted at Kaupakulua, with as many as 10 larvae per square foot. (Haw. Ins. Rpt.). Average of 14 larvae per square foot in 5 acres of pasture at Pahoa, Hawaii, during September. Parasitism by larval parasites *Eucelatoria armigera* (a tachina fly), *Meteorus laphygma* (a braconid wasp), and *Trathala flavo-orbitalis* (an ichneumon wasp), heavy. (Yoshioka).

Man and Animals - Mosquito collections from 58 light traps on Oahu during November as follows: *Aedes vexans nocturnus* ranged 0-378 with total of 866; *Culex pipiens quinquefasciatus* ranged 0-710 with total of 1,815. (Mosq. Control Br., State Dept. of Health).

Miscellaneous Pests - At Poipu, Kauai, following substantial rains and heavy hand baiting during November, about 800 GIANT AFRICAN SNAIL (*Achatina fulica*) specimens observed dead or dying. No snails observed at Wahiawa during same period; baiting continues.

(Sugawa). Nymphs and adults of an APHID (Lachnus salignus) heavy on 2 weeping willow trees (Salix babylonica) at Pauoa, Oahu. This is a new island record. L. salignus was first reported on the island of Hawaii in 1911, and on the island of Maui in 1965. (Otsuka).

Beneficial Insects - During November, Melanagromyza phaseoli (bean fly) infesting cowpea and snap bean petioles on Kauai 98 percent parasitized by BRACONID WASPS (Opius phaseoli and O. importatus). At Waikapu and Lahaina parasitism by O. importatus was 86 and 100 percent. (Sugawa, Miyahira). During week ending December 8, an average of 29 percent of adult stink bugs observed throughout Oahu parasitized by a TACHINA FLY (Trichopoda pennipes pilipes). Similar samplings on Maui revealed 84 percent parasitism by Trichopoda spp. (Kumashiro, Wong, Otsuka, Miyahira). LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) caused moderate damage to foliage at Hookena, Kona, Hawaii. Larvae of LANTANA LEAF BEETLE (Octotoma scalaripennis) heavy on some leaves, adults generally light. On Kauai, field examinations of Melastoma malabathricum fruits revealed 64 and 11 percent infestations of a ARCTIID MOTH (Selca brunella) at Hanahanapuni and Knudsen Gap, respectively. Similar examination at Hilo, Hawaii, averaged 46 and 29 percent infestation of fruits and terminals, respectively. (Sugawa, Matayoshi).

CORRECTIONS

CEIR 22(44):739 - A CERAMBYCID BEETLE (Leiopus variegatus) should read Astyleiopus variegatus. This is not a new record for New Jersey. There is a specimen in the University of Minnesota labeled "New Jersey" with no further data. See Dillon, L.S. 1956. The nearctic components of the tribe Acanthocinini (Coleoptera: Cerambycidae) Part 1. Ann. Ent. Soc. Amer. 49(2):134-167. (PP).

CEIR 22(46-48):764 - MAN AND ANIMALS - SCREWORM - "... Special surveillance operations around Dermopolis, ..." should read "... Demopolis ..."

Economically Important Insects

W. A. Allen

In many States, it is the responsibility of the Survey Entomologist to determine the relative importance of insects in that State. To accomplish this he must use accurate survey techniques coupled with available research and statistical data. In Virginia, preliminary selection and ranking of 10 currently important insects was begun by using quantitative measurements. The relative importance of insects can be measured on at least three scales: 1) management costs (i.e. the costs to control insects); 2) changes in the value of goods or property due to the presence or activity of insects (i.e. crop losses); and 3) the impact that insects have upon man and his environment. The summation of these three values, if accurately obtained, reflect the net economic evaluation of a particular species. Net evaluation is mentioned because it must be recognized that even destructive insects may also be, in part, beneficial (e.g. mosquito larvae provide food for small fish). For many crops, we are able to measure the cost of controlling crop pests and the losses they cause with current methodology. The technology to measure environmental impact of a crop pest remains, in large part, to be developed.

The accompanying table shows the estimated crop losses and control costs for 10 of the more important crop pests in Virginia. The list does not include all of the important pests in the State. It is merely a best estimate based upon available data. This method of presenting information may prove valuable to survey entomologists as a guideline for ranking economically important pests by itemizing crop loss and control costs. In subsequent listings of important crop pests in Virginia, additional species may be added and attempts will be made to supply missing information. Consequently, net evaluation estimates will be changed as new information becomes available. The total environmental impact was not included because of the scarcity of information in this area.

Sources of Information

- Mosquitoes - R.E. Dorer.
- Spider Mites - Peaches, M.L. Bobb; apples, C.H. Hill; soybeans, R.N. Hofmaster; ornamentals, J.A. Weidhaas.
- Corn Earworm - Tomatoes, snap beans, sweet corn, R.N. Hofmaster; soybeans, field corn, W.A. Allen.
- Armyworm - W.A. Allen.
- Southern Corn Rootworm - J.C. Smith and A.H. Allison.
- Alfalfa Weevil - W.A. Allen.
- Mexican Bean Beetle - W.A. Allen.
- Japanese Beetle - Apples, C.H. Hill; peaches, W.L. Bobb; ornamentals, J.A. Weidhaas; turf, W.H. Robinson.
- Cabbage Looper - R.N. Hofmaster.
- Termites - W.H. Robinson.

Current Partial Estimates of Crop Losses and Costs of Control for 10 of the More Important Insects in Virginia

W. A. Allen

Insect	Crop	A # Acres treated	B # Applica- tions/acre	C Total Est. Cost to Control In- sects/Acre	D Est. Cost to Protect All Crops (A)(B)(C)	E Est. Yield Loss if In- sects not Controlled	F Total Est. Cost in Virginia
Mosquitoes (All species)	-	-	-	-	\$1,600,000 ^a	-	\$1,600,000 ^b
Spider mites (All species)	Peaches	5,922	1	\$ 4.50	26,649	-	
	Dormant Seasonal	5,922	1	4.00	23,688	-	
	Apples						
	Dormant	39,500	1	4.50	177,750	-	
	Seasonal	39,500	3	24.00	948,000 ^c	-	
	Soybeans	36,000 ^c	1	5.00	180,000 ^c	-	
	Ornamentals ^f					225,200 ^{c,d}	
Corn earworm (<u>Heliothis zea</u>)	Tomatoes						1,581,287 ^b
	(Fall)	2,000	3	15.00	30,000	-	
	Snap Beans	7,500	3	15.00	112,500	-	
	Soybeans		1	4.00 ^c	157,160 ^c	647,505	
	Field corn					356,000 ^e	
	Sweet corn	1,250	10	40.00	50,000	-	
	fresh	1,250	3	12.00	15,000	-	
	canning						1,367,665 ^b
Armyworm (<u>Pseudaletia unipuncta</u>)	Field corn	-	1	4.00	162,600 ^c	627,914 ^c	
	Small grain	1,000	1	4.00	4,000	-	794,514 ^b
Southern corn rootworm (<u>Diabrotica duodecimpunctata howardi</u>)	Peanuts	82,400	1	9.50	782,000	-	782,000 ^b
Alfalfa weevil (<u>Hypera postica</u>)	Alfalfa	-	2	7.00	291,452 ^c	353,780 ^c	645,232 ^b

<u>Insect</u>	<u>Crop</u>	A # Acres treated	B # Applica- tions/acre	C Total Est. Cost to Control In- sects/Acre	D Est. Cost to Protect All Crops (A)(B)(C)	E Est. Yield Loss if In- sects not Controlled	F Total Est. Cost in Virginia
Mexican bean beetle (<u>Epilachna</u> <u>varivestis</u>)	Soybeans			\$ 4.00	\$187,450 ^C	\$215,255 ^C	\$402,705
Japanese beetle (<u>Popillia</u> <u>japonica</u>) ^f	Apples Peaches Ornamentals ^f Turf ^e	10,000 5,922	3 2	24.00 24.00	240,000 142,128	- -	
Cabbage Looper (<u>Trichoplusia</u> <u>ni</u>)	Cabbage Broccoli (Kale, Turnips, Mustard Collards) Irish potatoes Tomatoes Southern peas	2,500 1,500 1,500 2,000 2,000 700	2 10 6 1 1 2	13.00 65.00 39.00 6.50 6.50 13.50	32,500 97,500 58,500 13,000 13,000 9,100	- - - - - -	382,128
Termites ^f				-	-	-	321,100

a) Cost of abatement.
b) For sources of information see page .
c) Based on a 5-year average (1967-1971).
d) Average number of acres needing but not receiving control (40 percent of 60,000 (i.e. 24,000) minus 15,000 (no. acres treated)) and estimated yield loss (8 bu.) and 1971 prices (\$2.90 bu.).
e) Based on a 2-year average (1971-1972).
f) Although we believe this insect to be highly important, we were unable to assign it a value.

COOPERATIVE ECONOMIC INSECT REPORT
ESTIMATED LOSSES AND PRODUCTION COST ATTRIBUTED TO
INSECTS AND RELATED ARTHROPODS - 1971

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 seventh 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 13 States. The entomologists submitting the 1971 estimates are listed below.

H.F. McQueen	Alabama
J.E. May	Arizona
W.P. Boyer	Arkansas
K.F. Kawamura	Hawaii
K.O. Bell, Jr.	Kansas
D.E. Barnett	Kentucky
J.L. Hellman	Maryland
R.G. Flaskerd	Minnesota
W.J. Brandvik	North Dakota
D.C. Arnold	Oklahoma
C.D. Gordon	Tennessee
L.R. Green	Texas
W.A. Allen	Virginia

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.
22(49-52):788-865, 1972

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Control Cost			Total Loss	
					Loss Per Acre (dollars)	Non-treated Acres	Cost Per Acre (dollars)	Treated Acres	Sub-total		
ALFALFA (Hay)											
Arizona	AC, BA, CwS, EWA, Gh, L, LB, M, SAA, TCAH, WbW		201,000	.500	16.00	20,000	320,000	4.50	20,000	90,000	610,000a
Arkansas	AlW		50,000	.875	26.25	10,000	262,000	2.00	30,000	60,000	322,500
Kansas	AlW		1,125,000	.173	4.67	1,400	6,530	3.00	400	1,200	7,730
	Gh		"	.115	3.11	49,000	152,400	2.90	11,000	31,900	184,300
	PA		"	.115	3.11	46,000	143,070	2.00	4,000	8,000	151,070
	SAA		"	.114	3.89	13,000	50,540	3.00	8,000	24,000	74,540
	WbW		"	.114	3.89	13,000	50,540	2.50	10,000	25,000	75,540
Maryland	PA, AlW, PL, LB, MS, PB, GFh		73,000	.640	25.60	2,000	51,200	7.00	28,000	196,000	247,200
North Dakota	Gh, A, AlW, PB, WbW		1,398,000	.140	2.52	50,000	126,000	2.50	30,000	75,000	201,000
Oklahoma	AlW, SAA, PA, Gh, FA		598,000	.825	27.40	222,456	6,095,294	5.04	136,344	687,174	6,782,468
Tennessee	AlW		52,000	.490	23.52	10,000	235,200	7.00	40,000	280,000	515,200
Virginia	AlW, Slb, PA		87,000	1.060	42.40	5,000	212,000	7.00	45,000	315,000	602,000a
					Subtotal		<u>7,704,774</u>	<u>1,793,274</u>		<u>9,773,548</u>	
ALFALFA (Seed)											
Arizona	AC, BA, CEW, CSc, Cws, EAW, L, LB, StB, SAA, TCHAH		6,800	.090	3.02	2,800	8,456	6.00	4,000	24,000	74,456a
					Subtotal		<u>8,456</u>	<u>24,000</u>		<u>74,456</u>	

a Quality loss included in total.

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Subtotal	Cost Per Acre (dollars)	Control Cost		Subtotal	Total Loss
					Loss Per Acre (dollars)	Non-treated Acres			Treated Acres	Subtotal		
ANTHRURIUM												
Hawaii	K, M, T		247	321	831	47	205,353	90.28	200	18,056	223,409	223,409
						Subtotal	205,353			18,056	223,409	223,409
APPLES												
Arkansas	CdM, RAA, LR		1,600	-	-	-	-	56.00	1,600	89,600	129,600a	129,600a
Maryland	A, CdM, LR, M, SpM		Lbs. 71,000,000	-	-	-	-	Lbs. .01	71,000,000	710,000	710,000	710,000
Minnesota	AM, CdM, ApC, M, LR		3,000	-	-	-	-	160.00	3,000	480,000	480,000	480,000
Virginia	CdM, A, M, AM		490	-	-	-	-	0.0048	490	2,352,000	2,352,000	2,352,000
						Subtotal				3,631,600	3,671,600	3,671,600
ASPARAGUS												
Maryland	AB		4,000	-	-	-	-	3.00	2,500	7,500	7,500	7,500
						Subtotal				7,500	7,500	7,500
BARLEY												
Arizona	AW, Gb, Cws, M, T		119,000	7.6	10.18	-	-	4.50	30,000	135,000	135,000	135,000
North Dakota	A, T, Gh, AL, WW		2,218,000	4.0	3.08	10,000	30,800	2.50	30,000	75,000	105,800	105,800
						Subtotal	30,800			210,000	240,800	240,800

a Losses incurred despite control.

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Subtotal	Subtotal	Control Cost	Subtotal	Total Loss
					Loss Per Acre (dollars)	Non-treated Acres					
BROCCOLI											
Arizona	A, BA, CL, DB		1,000	45	697.50	-	-	75.00	1,000	75,000	75,000
							Subtotal			<u>75,000</u>	<u>75,000</u>
CABBAGE											
Arizona	A, CL, BA		14,000	10	40.20	700	28,140	105.00	700	73,500	101,640
							Subtotal			<u>73,500</u>	<u>101,640</u>
CANTALOUPE (Spring)											
Arizona	A, CL, M		8,900	8.75	77.26	1,500	115,890	5.00	1,500	7,500	123,390
(Early Summer)											
Arizona	A, Ch, L, M		1,600	10.50	88.41	700	61,887	15.00	900	13,500	75,387
(Early Fall)											
Arizona	A, CL, L		1,200	17.25	94.88	600	56,928	20.00	600	12,000	68,928
							Subtotal			<u>33,000</u>	<u>267,705</u>
CARROTS											
Arizona	BA, CaB, GPA		2,600	19.00c	156.37c	-	-	5.00	1,600	8,000	8,000
							Subtotal			<u>8,000</u>	<u>8,000</u>

b Losses incurred despite control.

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Sub-total	Control Cost	Total Loss		
					Loss Per Acre (dollars)	Non-treated Acres					
CATTLE (Beef)											
Arkansas	CaL		1,787,000	-	-	-	-	.20	422,500	84,500	84,500
	HoF, LST		1,787,000	10%	1,533,500	24,824,000		.75	253,500	190,125	25,014,000
	Mo		1,787,000	10%	260,000	4,160,000		-	-	-	4,160,000
Oklahoma	HoF, CaG, Li, Ti, HrF, S		2,194,000	1.1	40.92	1,701,945	28,082,700	1.98	3,303,775	6,541,474	34,624,174
						Subtotal	57,066,700			6,816,099	63,882,674
CATTLE (Dairy)											
Arkansas	Hf		97,000	5.72	39.47	49,000	1,934,030	5.40	48,000	259,200	2,193,230
Oklahoma	HoF, Li, CaG, Sf, HrF, Ti		1,260,000	9.6	59.71	20,880	1,246,745	2.66	109,620	291,589	1,538,334
						Subtotal	3,180,775			550,789	1,538,334
CAULIFLOWER											
Arizona	Aw, CL, DB		810	49	882.00	-	-	120.00	810	97,200	97,200
						Subtotal	-			97,200	97,200
CLOVER (Timothy)											
Maryland	CoA, FB, Gh, LB, Ms, PB		210,000	.19	5.70	2,000	11,400	3.50	8,000	28,000	39,400
						Subtotal	11,400			28,000	39,400

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Sub-total	Cost Per Acre (dollars)	Control Cost		Sub-total	Total Loss
					Loss Per Acre (dollars)	Non-treated Acres			Treated Acres	Control Cost		
CORN (Grain)												
Arizona		BA, CEW, FB, Gh, LCB, M, SCH, SwCB, STB, WCR	14,000	9.60 Lbs. 241	12.38	10,000	123,800	5.00	4,000	20,000	643,800	
Hawaii		CEW, CSpM, CP	220	Bu.	31.33	-	6,892	76.94	220	16,926	23,818	
Kansas		CR (larvae)	1,311,000	14.74	15.92	65,000	1,477,550	3.00	820,000	2,460,000	3,937,550	
		CR (adults)	"	-	-	-	-	2.50	100,000	250,000	250,000	
		CEW	"	1.03	1.11	1,216,000	1,348,868	3.80	76,000	288,800	1,637,668	
		ECB	"	5.04	5.43	111,000	603,895	3.50	54,000	189,000	792,895	
		WBC	"	-	-	-	-	3.90	95,000	370,500	370,500	
		CLA	"	-	-	-	-	2.25	42,000	94,500	94,500	
		SpM	"	-	-	-	-	3.40	260,000	884,000	884,000	
		Gh	"	4.6	4.97	19,800	98,410	2.00	10,200	20,400	118,810	
		FA	"	-	-	-	-	2.00	27,000	54,000	54,000	
		CwS	"	4.6	4.97	3,950	19,630	2.00	10,500	21,000	40,630	
		CB	"	4.6	4.97	5,300	26,340	2.00	2,100	4,200	30,540	
Kentucky		ECB	92,900	1.24	1.53	168	259	6.75	27	182	1,109	
Maryland		CLA, Aw, CEW, CR, ECB, FA, DSB	500,000	7.2	8.57	40,000	342,800	5.00	10,000	50,000	392,800	
Minnesota		ECB	6,533,000	2.49	2.86	-	20,658,154	2.75	136,000	374,000	21,032,155	
		CR, Cws, Ww	"	6.64	7.64	600,000	4,581,000	3.00	1,663,000	4,989,000	9,570,000	

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Subtotal	Control Cost		Subtotal	Total Loss	
					Loss Per Acre (dollars)	Non-treated Acres		Cost Per Acre (dollars)	Treated Acres			
CORN (Grain) Cont.												
	North Dakota	CR, Ww, CLA, Gh	172,000	1.7	1.71	30,000	51,300	15,000	37,500	88,800		
	Tennessee	CEW	675,000	.55	.64	125,000	80,437	75,000	375,000	455,437		
	Virginia	Aw, Cws, CEW, JB	461,000	51.00	62.22	13,300	827,526	125,000	312,500	1,140,026		
						Subtotal	<u>30,246,861</u>			<u>10,811,508</u>	<u>41,559,038</u>	
CORN (Silage)												
	North Dakota	ECB, CR, Ww, CLA, Gh	322,000	.36	2.52	70,000	176,400	10,000	25,000	201,400		
						Subtotal	<u>176,400</u>			<u>25,000</u>	<u>201,400</u>	
CORN (Sweet)												
	Maryland	Aw, CEW, CR, ECB, DSB, FA	18,300	.29	7.26	2,300	16,698	16,000	160,000	176,698		
	Minnesota	ECB, CEW, CR	108,100	-	-	-	-	87,328	873,280	873,280		
						Subtotal	<u>16,698</u>			<u>1,033,280</u>	<u>1,049,978</u>	
COTTON												
	Arizona	LB, Blw, PBw	285,400	255	78.70	12,000	944,400	230,000	7,820,000	9,064,400		
	Arkansas	BW, Blw, PB, M	1,135,000	51	12.34	90,800	1,120,472	873,950	8,739,500	10,079,972		
	Oklahoma	BW, Blw, T, F	396,000	111	30.53	79,942.5	493,629	101,218	1,010,156	6,503,785		
	Tennessee	BW	425,000	24	6.72	20,000	134,400	120,000	1,920,000	2,054,600		
		Blw	"	90	25.20	40,000	1,008,000	160,000	2,560,000	3,568,400		

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Sub-total	Cost Per Acre (dollars)	Control Cost		Total Loss	
					Loss Per Acre (dollars)	Non-treated Acres			Treated Acres	Sub-total		
COTTON (Cont.)												
Texas		Blw, BW, F, TB, BA, CLP, A, T, Gh, SpM	4,700,000	65.75	16.04	121,551	1,949,678	4.88	2,228,449	10,870,654	12,941,883	
				Subtotal			<u>1,949,678</u>			<u>32,920,310</u>	<u>44,213,040</u>	
FLAX												
North Dakota		Gh, Cr, Wbw, AL	861,000	1.0	2.25	10,000	22,500	2.50	20,000	50,000	72,500	
				Subtotal			<u>22,500</u>			<u>50,000</u>	<u>72,500</u>	
GRAPEFRUIT												
Arizona		CPM, CT	7,450	53.85	68.93	2,450	168,879	10.50	5,000	52,500	343,879	
				Boxes			<u>168,879</u>			<u>52,500</u>	<u>343,879</u>	
HAY												
Arizona		A, BA, AC, CL	39,000	.22	5.50	2,700	14,850	4.00	300	1,200	16,050	
Minnesota		Gh, PA, L	3,250,000	.08	1.46	248,000	361,832	2.50	4,000	10,000	371,832	
				Subtotal			<u>376,682</u>			<u>11,200</u>	<u>387,882</u>	
HEN & PULLETS												
Arkansas		Hf	16,000,000	-	-	-	-	.036	12,800,000	46,080	46,080	
		NFM	"	-	-	-	-	.112	9,600,000	107,520	107,520	
				Subtotal						<u>107,520</u>	<u>107,520</u>	

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Subtotal	Subtotal	Cost Per Acre (dollars)	Treated Acres	Sub total	Total Loss
					Loss Per Acre (dollars)	Non-treated Acres						
HOGS												
Arkansas	Li		392,000	6%	1.26	190,000	239,400		.10	10,000	1,000	240,400
						Subtotal	<u>239,400</u>				<u>1,000</u>	<u>240,400</u>
HONEYDEWS												
Arizona	A, CL, L, M		1,200	16.50	138.44	-	-		20.00	1,200	24,000	24,000
						Subtotal					<u>24,000</u>	<u>24,000</u>
LEMONS												
Arizona	M, L, T		14,500	69.75	113.69	500	56,845		21.00	14,000	294,000	371,345
						Subtotal	<u>56,845</u>				<u>294,000</u>	<u>371,345</u>
LETTUCE (Early Spring)												
Arizona	A, BA, CL		15,200	135.5	723.45	-	-		86.50	15,200	1,358,050	1,358,050
	Late Fall		10,300	131.25	1,614.38	-	-		90.00	10,300	927,000	927,000
	Winter		18,400	165.75	919.91	-	-		133.50	18,400	2,456,400	2,456,400
						Subtotal					<u>4,741,450</u>	<u>4,741,450</u>
MACADAMIA NUTS												
Hawaii	T, EM		4,900	353	77.66	1,405	137,069		369.00	360	132,840	269,909
						Subtotal	<u>137,069</u>				<u>132,840</u>	<u>269,909</u>

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Subtotal	Cost Per Acre (dollars)	Treated Acres	Subtotal	Total Loss
					Loss Per Acre (dollars)	Non-treated Acres					
OATS											
	North Dakota	Gh, Ww, Aw, A	2,015,000	5	2.35	10,000	23,500	2.50	10,000	25,000	48,500
						Subtotal	<u>23,500</u>			<u>25,000</u>	<u>48,500</u>
ONIONS (Green)											
	Hawaii	BA, LMF, OT	75	2,356	730.36	-	54,777	142.59	75	10,694	65,471
	Arizona (Dry)	BA, CL, OT	1,500	114	372.78	500	186,390	20.00	1,000	20,000	206,390
						Subtotal	<u>241,167</u>			<u>30,694</u>	<u>271,861</u>
ORANGES											
	Arizona	K, L, T, Sc	23,000	60	148.20	500	74,100	12.80	22,500	288,000	372,100
						Subtotal	<u>74,100</u>			<u>288,000</u>	<u>372,100</u>
PASSION FRUIT											
	Hawaii	BSc, CSpm, BM, Mb, MF	200	9,234	554.04	164	110,808	83.02	36	2,989	113,797
						Subtotal	<u>110,808</u>			<u>2,989</u>	<u>113,797</u>
PASTURES											
	Kansas	Gh	20,339,000	-	-	262,000	-	2.50	28,000	70,000	70,000
						Subtotal				<u>70,000</u>	<u>70,000</u>

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Subtotal	Subtotal	Cost Per Acre (dollars)	Treated Acres	Subtotal	Total Loss
					Loss Per Acre (dollars)	Non-treated Acres						
PEACHES												
Arkansas		OFM, SB, Sc, PTB, PC, TpB	3,500	-	-	-	-	-	40.00	3,500	140,000	455,000
Maryland		OFM, M, PTB, PC, PB	Lbs. (mill.) 23	-	-	-	-	-	Per Lb. .005	Mill 23	115,000	115,000
											<u>255,000</u>	<u>570,000</u>
PEANUTS												
Oklahoma		LCB, CEW, RPW, T, FA	118,000	456	61.10	24,214	1,479,475	6.01		20,626	123,962	1,603,437
Texas												
Virginia		SCR, T, M, CEW	93,000	69.6	9.74	1,000	9,740	7.75		92,000	713,000	727,740
PEAS												
Maryland		PA, AC	6,600	.14	16.38	-	-	3.00		6,600	19,800	19,800
Minnesota		PA, Lo	63,900	-	-	-	-	4.00		33,936	135,744	135,744
											<u>155,744</u>	<u>155,744</u>
POTATOES												
Arizona		GPA, PP	10,000	.03	.08	-	-	5.00		10,100	50,500	50,500
Minnesota		L, FB, CPB, A, Ww, Cws	97,500	17.2	24.76	2,500	61,900	10.00		95,000	950,000	1,011,900
North Dakota		L, FB, CPB, Ww	119,000	4.7	6.72	1,000	6,720	6.20		44,000	272,800	279,520
											<u>1,273,300</u>	<u>1,296,320</u>

Crop	State	Pest Complex	Total Acres Produced	Loss Per Acre (Units)	Yield Loss		Sub-total	Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
					Loss Per Acre (dollars)	Non-treated Acres					
RICE											
	Arkansas	RSB, Gh,	442,000	-	-	-	-	2.00	25,000	50,000	50,000
	"	RWW	"	-	-	-	-	.35	442,000	154,700	154,700
						Subtotal				<u>204,700</u>	<u>204,700</u>
RYE											
	North Dakota	Gh, AL	300,000	3.6	2.34	5,000	11,700	2.50	5,000	12,500	24,200
						Subtotal	<u>11,700</u>			<u>12,500</u>	<u>24,200</u>
SAFFLOWER											
	Arizona	LB	20,000	Ton .14	14.70	15,000	220,500	4.50	5,000	22,500	243,000
						Subtotal	<u>220,500</u>			<u>22,500</u>	<u>243,000</u>
SMALL GRAIN (Wheat, Oats, Barley)											
	Minnesota	A, Gh, AWS	5,348,000	-	-	-	-	2.50	4,000	10,000	10,000
						Subtotal				<u>10,000</u>	<u>10,000</u>
SNAP BEANS											
	Hawaii	LMF, CSPM, GHWF BF, CRB, BM	90	Lbs. 764	282.68	-	25,441	310.04	.90	27,903	53,344
	Maryland	ECB, CEW, PL, T, M, MBB	9,000	Ton .19	14.48	1,000	14,480	10.00	8,000	80,000	94,480
						Subtotal	<u>39,921</u>			<u>117,903</u>	<u>157,824</u>

Crop	State	Pest Complex	Total Acres Produced	Yield Loss			Sub-total	Cost Per Acre (dollars)	Treated Acres	Sub-total	Total Loss
				Loss Per Acre (dollars)	Non-treated Acres	Sub-total					
SORGHUM (Grain)											
Arizona		BA, CEW, CWS, FA, FB, Gb, LCB, SM, SwCB, SpM, Wf	174,000	10.95	14.45	12,000	173,400	7.70	58,000	446,600	620,000
Arkansas		SM, CEW, SWw	239,000	1.26	2.39	11,711	27,962	2.00	41,347	82,694	110,656
Kansas		Gb	4,325,000	8.1	8.10	200,000	1,620,000	2.25	1,000,000	2,250,000	3,870,000
		CLA	"	-	-	-	-	2.25	60,000	135,000	135,000
		CB	"	-	-	12,000	-	2.50	14,000	35,000	35,000
		SpM	"	-	-	-	-	3.25	12,500	40,600	40,600
		FA	"	-	-	-	-	3.00	10,000	30,000	30,000
Oklahoma		Gb, CEW, FA, SM, SWw, CLA	750,000	10.8	12.20	219,000	2,671,800	2.88	81,000	233,280	2,905,080
Tennessee		SM	16,601	10.8	11.12	4,000	44,496	5.00	4,000	20,000	64,496
Texas		Gb, ScBo, SM, CEW, SWw, CB, SwCB, SCR	5,827,000	26.0	29.12	58,270	1,696,822	3.25	815,800	2,651,350	14,799,086
						Subtotal	6,234,480			5,924,524	22,609,918
SOYBEANS											
Arkansas		CEW	4,227,000	3.15	9.37	3,190	29,890	2.00	126,810	253,620	283,510
Kansas		Gh	871,000	-	-	-	-	2.50	5,000	12,500	12,500
Maryland		BLB, CEW, MBB, T, Gh, GCw, JB	217,000	3.00	8.85	20,000	177,000	5.00	30,000	150,000	327,000

Crop	State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre (Units)	Yield Loss		Subtotal	Subtotal (\$1000)	Cost Per Acre (dollars)	Control Cost		Subtotal (\$1000)	Total Loss (\$1000)
					Loss Per Acre (dollars)	Non-treated Acres (1000)				Treated Acres (1000)	total (\$1000)		
SOYBEANS (Cont.)													
Minnesota		BLB, GCW, Gh	2,851,000	-	-	-	-	-	2.00	12,000	24,000	24,000	
North Dakota		Gh	208,000	1.4	3.99	10,000	39,900	2.50	30,000	75,000	114,900		
Tennessee		SCN	1,302,000	2.6	7.54	550,000	4,147,000	-	-	-	-	4,147,000	
		CEW	"	.0026	.01	-	13,020	-	-	-	-	13,020	
Virginia		MBB, CEW, StB	353,000	3.5	10.22	5,000	51,112	4.00	165,000	660,000	716,112		
						Subtotal	<u>4,457,922</u>				<u>1,117,520</u>	<u>5,638,042</u>	
STRUCTURES													
Tennessee		EST	-	-	-	4,629	-	87.05	46,230	4,024,894	8,184,594		
						Subtotal					<u>4,024,894</u>	<u>8,184,594</u>	
SUGAR BEETS													
Arizona		BA, A, M	11,700	3.06	38.25	1,700	65,025	8.00	5,000	40,000	105,025		
Minnesota		WbW, Cws, RM, Ww	106,800	-	-	-	-	4.00	1,806	7,224	7,224	7,224	
North Dakota		Ww, Gh, FB, SBRM	74,500	.5	9.00	5,000	225,000	3.50	20,000	70,000	295,000		
						Subtotal	<u>290,025</u>				<u>117,224</u>	<u>407,249</u>	
SUGAR CANE													
Hawaii		NGSW	115,800	.35	59.50	8,400	499,800	-	-	-	-	499,800	
						Subtotal	<u>499,800</u>					<u>499,800</u>	
SUNFLOWERS													
North Dakota		Ww, SFB, Gh, SSM, SUM, SSM	237,000	50.6	2.56	7,000	17,920	2.50	3,000	7,500	25,420		
						Subtotal	<u>17,920</u>				<u>7,500</u>	<u>25,420</u>	

Crop	State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre (Units)	Yield Loss		Sub-total (\$1000)	Cost Per Acre (dollars)	Control Cost		Sub-total (\$1000)	Total Loss (\$1000)
					Loss Per Acre (dollars)	Non-treated Acres (1000)			Treated Acres (1000)	Total Loss (\$1000)		
TANGERINES												
Arizona		K, Gh, M, Od, T	900	30	75.00	-	-	12.00	900	10,800	10,800	10,800
						Subtotal				<u>10,800</u>		<u>10,800</u>
TOBACCO												
Maryland		GPA, TbH, TFB, TB, TH	28,000	106	86.78	7,000	607,460	15.00	20,000	300,000	907,460	907,460
Tennessee		TbH	53,600	21	15.67	-	-	5.00	53,900	269,500	269,500	269,500
		FB	"	10.56	7.88	-	-	8.00	53,600	428,800	428,800	428,800
						Subtotal	<u>607,460</u>			<u>998,300</u>	<u>1,605,760</u>	
TOMATOES												
Hawaii		TPw, LMF, TFw, GHWF, CSpM, MF	170	2,924	584.80	-	99,416	320.81	170	54,537	153,953	153,953
Maryland		A, CPB, L, TFw VF, ECB, TH	3,500	2.54	107.19	500	53,600	15.00	3,000	45,000	98,600	98,600
						Subtotal	<u>153,016</u>			<u>99,537</u>	<u>252,553</u>	
WATERMELON												
Arizona		A, CL, CcB, L	3,900	17.50	63.53	2,100	133,413	15.00	1,800	27,000	160,413	160,413
Hawaii		LMF, CSpM, GHWF	200	4,883	537.13	-	107,426	122.29	200	24,458	131,884	131,884
						Subtotal	<u>240,839</u>			<u>51,458</u>	<u>292,297</u>	

Crop	State	Pest Complex	Total Acres Produced (1000)	Loss Per Acre (Units)	Yield Loss		Sub-total (\$1000)	Cost Per Acre (dollars)	Treated Acres (1000)	Sub-total (\$1000)	Total Loss (\$1000)	
					Loss Per Acre (dollars)	Non-treated Acres (1000)						
WHEAT												
Arizona		Aw, Gb, Cws, M, T	173,000	10.20	17.54	10,000	175,400	5.00	20,000	100,000	275,400	
Kansas		HF	9,061,000	.53	.70	5,700,000	3,970,650	-	-	-	3,970,650	
		Gh	"	2.07	2.71	23,000	62,330	2.00	63,000	126,000	188,330	
		Gb	"	2.07	2.71	40,000	108,480	2.50	10,000	25,000	133,480	
		ACw, PWC	"	4.14	5.42	9,200	49,900	2.15	6,800	14,620	64,520	
		AW	"	1.73	2.26	15,000	33,900	-	-	-	33,900	
Oklahoma		Gb, FA, BWM, Gh, ACW	3,475,000	5.4	7.61	659,555	5,019,214	2.57	243,945	627,039	5,646,253	
North Dakota		A, AL, WSM, Ww, Gh	8,982,000	1.9	2.38	500,000	1,190,000	2.50	300,000	750,000	1,940,000	
Texas		Gb, WGM, FA	1,496,000	3.15	4.66	173,000	806,180	2.70	500,000	1,350,000	2,156,180	
WHEAT (HRS)												
North Dakota		WSSF	6,514,000	.3	.38	1,500,000	507,000	-	-	-	520,000	
			Subtotal			8,413,054				2,992,659	14,978,713	
			Total									

LEGEND

AC	- Alfalfa Caterpillar	CdM	- Codling Moth	L	- Leafhoppers
AlW	- Alfalfa Weevil	CPB	- Colorado Potato Beetle	LMF	- Leaf Miner Flies
A	- Aphids	CEW	- Corn Earworm	LR	- Leafrollers
ApC	- Apple Curculio	CFB	- Corn Flea Beetle	LCB	- Lesser Cornstalk Borer
AM	- Apple Maggot	CLA	- Corn Leaf Aphid	LPTB	- Lesser Peach Tree Borer
ACW	- Army Cutworm	CP	- Corn Planthopper	Li	- Lice
AWs	- Armyworms	CR	- Corn Rootworms	LST	- Lone Star Tick
AB	- Asparagus Beetle	CLP	- Cotton Leaf Perforator	Lo	- Loopers
AL	- Aster Leafhopper	CF	- Cranberry Fruitworm	MB	- Maize Billbug
BGM	- Banks Grass Mite	CG	- Cranberry Girdler	MS	- Meadow Spittlebug
BSC	- Barnacle Scale	Cr	- Crickets	Mb	- Mealybug
BF	- Bean Fly	CcB	- Cucumber Beetles	MA	- Melon Aphid
BLB	- Bean Leaf Beetle	Cws	- Cutworms	MF	- Mealon Fly
BA	- Beet Armyworm	DB	- Darkling Beetles	MBB	- Mexican Bean Beetle
BL	- Beet Leafhopper	DM	- Diamondback Moth	M	- Mites
BLM	- Beet Leaf Miner	DsB	- Dusky Sap Beetle	Mo	- Mosquitoes
BWw	- Beet Webworm	EST	- Eastern Subterranean Termite	NGSW	- New Guinea Sugar-cane Weevil
EC	- Black Cutworm	EAW	- Egyptian Alfalfa Weevil	NFM	- Northern Fowl Mite
BHF	- Blackheaded Fireworm	EGA	- English Grain Aphid	OM	- Onion Maggot
BB	- Blister Beetles	ECB	- European Corn Borer	OT	- Onion Thrips
BW	- Boll Weevil	FA	- Fall Armyworm	OD	- Orangedog
Blw	- Bollworm	FB	- Flea Beetles	OFF	- Oriental Fruit Fly
BM	- Broad Mite	F	- Fleahoppers	OFM	- Oriental Fruit Moth
BWM	- Brown Wheat Mite	GfH	- Garden Fleahopper	PWC	- Pale Western Cutworm
CL	- Cabbage Looper	GW	- Garden Webworm	PA	- Pea Aphid
CWw	- Cabbage Webworm	GM	- Ginger Maggots	PTB	- Peach Tree Borer
CFF	- Caribbean Fruit Fly	G	- Grass bugs	PNC	- Pecan Nut Casebearer
CSpM	- Carmine Spider Mite	Gh	- Grasshoppers	PW	- Pepper Weevil
CaB	- Carrot Beetle	Gb	- Greenbug	P	- Phylloxera
CaG	- Cattle Grub	GCW	- Green Cloverworm	PBw	- Pink Bollworm
CaL	- Cattle Lice	GHWf	- Greenhouse Whitefly	PB	- Plant Bugs
C	- Chalcids	GPA	- Green Peach Aphid	PC	- Plum Curculio
CB	- Chinch Bugs	HF	- Hessian Fly	PFB	- Potato Flea Beetle
CRB	- Chinese Rose Beetle	HS	- Hickory Shuckworm	PL	- Potato Leafhopper
Cic	- Cicadas	HL	- Hog Louse	PP	- Potato Psyllid
CtBM	- Citrus Bud Mite	Hof	- Horn Fly	RfM	- Red Flat Mite
CPM	- Citrus Peel Miner	HrF	- Horse Fly		
CRM	- Citrus Rust Mite	Hf	- House Fly		
CT	- Citrus Thrip	IC	- Imported Cabbageworm		
CoA	- Clover Aphid	JB	- Japanese Beetle		
CLW	- Clover Leaf Weevil	K	- Katydid		
CsC	- Clover Seed Chalcid	LFB	- Leaf-footed Bug		

LEGEND
(Cont.)

RPW	- Rednecked Peanutworm	SpM	- Spider Mites	Tb	- Tobacco Flea Beetle
RSB	- Rice Stink Bug	SLM	- Spinach Leaf Miner	TbH	- Tobacco Hornworm
RWW	- Rice Water Weevil	Slb	- Spittle Bugs	Tb	- Tomato Bug
RA	- Root Aphids	SAA	- Spotted Alfalfa Aphid	TFw	- Tomato Fruitworm
RM	- Root Maggots	SVB	- Squash Vine Borer	TH	- Tomato Hornworm
RW	- Root Weevils	SF	- Stable Fly	TPw	- Tomato Pinworm
RAA	- Rosy Apple Aphid	SB	- Stalk Borer	Tsm	- Tumid Spider Mite
SMC	- Saltmarsh Caterpillar	StB	- Stink Bugs	TSM	- Twospotted Spider Mite
SJS	- San Jose Scale	StCB	- Striped Cucumber Beetle	VC	- Variegated Cutworm
Sc	- Scales	SBRM	- Sugarbeet Root Maggot	VbC	- Velvetbean Caterpillar
SCB	- Seedcorn Beetle	SuB	- Sugarcane Beetle	Vf	- Vinegar Flies
SCM	- Seedcorn Maggot	ScBo	- Sugarcane Borer	Wbw	- Webworms
S	- Slugs	SfB	- Sunflower Beetle	W	- Weevils
SN	- Snails	SfM	- Sunflower Maggots	WBC	- Western Bean Cutworm
SW	- Sod Webworms	SuM	- Sunflower Moth	WCR	- Western Corn Rootworm
SI	- Soil Insects	SSM	- Sunflower Seed Midge	WCM	- Wheat Curl Mite
SM	- Sorghum Midge	SHW	- Sweetpotato Hornworm	WSM	- Wheat Stem Maggot
SWW	- Sorghum Webworm	SpW	- Sweetpotato Weevil	WSSF	- Wheat Stem Sawfly
SCR	- Southern Corn Rootworm	TpB	- Tarnished Plant Bug	Wf	- Whitefly
SCSB	- Southern Corn Stalk Borer	TCM	- Texas Citrus Mite	WFB	- Whitefringed Beetles
SwCB	- Southwestern Corn Borer	TC	- Thistle Caterpillar	WG	- White Grubs
SL	- Soybean Looper	TCAH	- Threecornered Alfalfa Hopper	WPS	- White Peach Scale
SCN	- Soybean Cyst Nematode	T	- Thrips	WGM	- Winter Grain Mite
		Ti	- Ticks	Ww	- Wireworms

Reprinted from weekly Weather and Crop Bulletin supplied by the environmental Data Service, NOAA.

PRECIPITATION: A storm centered off the coast of British Columbia early in week moved southward to the Washington coast by midweek and intensified. It caused rain along the coast with snow in nearby hills and mountains. By midweek, heavy rain in the Pacific Northwest was accompanied by strong winds. Light snow fell over the Northern Great Plains to the Great Lakes. Treacherous mixtures of snow, freezing rain, freezing drizzle, and fog hampered travel by automobile from the northern and central Great Plains to the Mississippi River Valley and the Great Lakes. Snow accumulated a foot or more in spots of interior New England. Thunderstorms, accompanied by heavy rain, occurred in the Deep South. Up to 5 inches or more fell early Thursday. As the weekend approached, more severe thunderstorms threatened the Deep South and the Pacific storm became more intense. The weekend brought rain to the Pacific Northwest with snow in the western mountains, treacherous mixtures of snow with freezing rain, or freezing drizzle accompanied by strong winds from the central Great Plains to the Great Lakes and combinations of drizzle and fog from the southern Great Plains to the middle Atlantic Coast. Rain, snow, clouds or fog covered much of the area from the Mississippi River to the Atlantic Ocean. In general, snow fell in northern portions, freezing precipitation glazed the area south of the snow belt, and rain, drizzle, and fog occurred farther south. The weekly rainfall totals ranged from heavy up to more than 8 inches along the Washington Coast to light sprinkles or snow flurries over the northern Great Plains. The far southwest received no rain and only light amounts fell in the Great Plains. More generous precipitation occurred over the Appalachians, the Atlantic Coastal Plains and the Deep South.

TEMPERATURE: Bitter cold continued over much of the Nation early in the week. Subfreezing temperatures occurred over northern Florida, 32 degrees in Jacksonville Monday morning. Moisant Airport, New Orleans, Louisiana, registered 31 degrees Monday. Subzero weather occurred in Northern Maine and the central Rocky Mountains. Warmer weather returned to Florida Tuesday by midweek, maximums reached the 60's and 70's generally with 84 degrees at Palm Beach Thursday. A warming trend over the western Great Plains pushed the afternoon temperatures in the 40's and 50's. A warming trend continued through the rest of the week and brought the average temperatures to above normal over almost the entire Nation. Much of the country averaged 6 to 12 degrees or more warmer than normal.



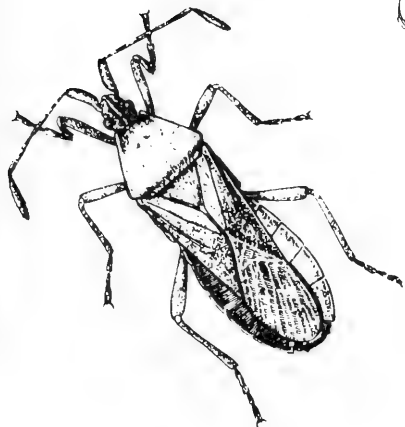
U.S. DEPARTMENT OF AGRICULTURE
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101



0004 SMNLISMIA122 34037 0001
SMITHSONIAN INSTITUTION LIBR-
ARIES SMITHSONIAN INST
WASHINGTON DC 20560







C77 Ent.
COOPERATIVE ECONOMIC INSECT REPORT
Volume 22 Index 1972

SPECIAL REPORTS

Alfalfa leaf blotch-miner - Situation in Eastern U.S. 132, taxonomy 134

Alfalfa weevil: Distribution map 113, selected references 1970-1971 669, 1968-1969 755

Banks grass mite situation in U.S. - 1971 218

Beet leafhopper: Surveys in desert areas of central Arizona, southeastern California, southern Nevada, and southern Utah and in Texas 267

Boll weevil: Hibernation survey, fall 1971 35, review of literature on the pheromone of 200, survival surveys - spring 1972 259, additional selected references 1968-1969 366, 1970-1971 589

Cereal leaf beetle: Infestation of oats in 1970 and 1971 371

Changes in scientific names 182

Conotelus mexicanus in California 728

Cooperative survey entomologists 72

European corn borer: Estimates of damage to grain corn in U.S. in 1971 510, status in 1971 50

Golden nematode - Spread since 1949 (map) 224, in the U.S. 264

Grasshopper adult survey, fall 1971 8

Gypsy moth: Chronological spread from 1869 to 1971 (map) 181, quarantine maps 442, 752, selected references 1970-1971 688, additional selected references 1967-1969 717

Hawaii insect report 7, 20, 33, 44, 61, 80, 111, 131, 149, 168, 216, 232, 246, 258, 273, 283, 310, 323, 363, 392, 414, 431, 445, 467, 487, 507, 531, 543, 567, 585, 603, 625, 644, 666, 686, 699, 714, 727, 754, 767, 783

Imported fire ant: Ecological range based on plant hardiness (map) 48, quarantine map 286, two species in U.S. 103

Insect detection in the United States - 1971 10

Insects not known to occur in U.S.: An African honey bee 158, a bark beetle 234

Japanese beetle: Quarantine map 216, selected references 1970-1971 395

Khapra beetle: Additional selected references 1967-1969 628, selected references 1947-1966 647, 1970 512

Larinus carlinae: A European weevil collected in Maryland 418

Light trap collections 9, 21, 33, 111, 131, 186, 217, 233, 247, 263, 274, 284, 311, 324, 340, 364, 393, 416, 432, 446, 466, 488, 508, 532, 548, 568, 586, 608, 626, 645, 667, 687, 700, 715, 726, 742, 753

Losses: Estimated losses and production costs attributed to insects and related arthropods - 1971 788, report of the committee on insect surveys and losses - 1972 101

Maps (distribution): Alfalfa weevil 103, brown wheat mite 100, European red mite 151, Hessian fly 248, southern corn rootworm 342, spotted alfalfa aphid 570

Maps (quarantines): European chafer 198, gypsy moth 442, 752, imported fire ant 286, Japanese beetle 216, pink bollworm 712, whitefringed beetle 698, witchweed 740

Measuring insect infestations 314

Mediterranean fruit fly: Selected references - 1950-1955 769, 1960-1966 729, 1967-1969 702, 1970-1971 743

Method of determining the relative importance of economically important insects 785

Periodical cicadas: Outlook for 1972 369

Pink bollworm: Collections of moths in a light trap, 1953 to 1971 448, quarantine map 712

Preparation of notes for Cooperative Economic Insect Report 313

State survey coordinators 68

Summary of insect conditions in the U.S. - 1971. Bean and peas 140. Beneficial insects 178-180. Citrus 154-155. Cole crops 140. Contributors 198-199. Corn, sorghum, sugarcane 89-96. Cotton 120-122. Deciduous fruits and nuts 150-154. Federal and State plant protection programs 63-67. Forage legumes 112-118. Forest insect highlights 195-198. Forest and shade trees 169-174. General vegetables 141. Hawaii 45-49. Households and structures 178. Introduction 63. Man and animals 174-178. Miscellaneous field crops 124. Ornamentals 156-157. Peanuts 120. Potatoes, tomatoes, peppers 138-140. Small fruit 155-156. Small grains 96-98. Soybeans 118-120. Special insects of regional significance 81-88. Sugar beets 123-124. Tobacco 122-123. Turf, pastures, rangeland 98-99.

Survey methods: Selected references for last half of 1970, part XXXV 285

Scientific names should be used to locate all page references, except for those insects or groups of insects where scientific names were not reported. In such instances, page references will be found under common names. A combination of common and scientific names of an insect or pest may not appear on the page referred, but one or the other will be present. Underlined page numbers represent references to "Summary of Insect Conditions in the United States - 1971." Light trap collections for a particular species are listed at the end of pagination for that species under this heading.



Acalitus vaccinii (blueberry bud mite)
156, 166
Acalymma vittata (striped cucumber beetle)
253, 320, 356
Achatina fulica (giant African snail)
7, 48, 61, 131, 246, 414, 487, 529, 567,
625, 686, 714, 767, 783
Acinia picturata (sourbush seed fly)
49
Acleris gloverana (western blackheaded
budworm) 195
Acleris minuta (a tortricid moth)
12
Acleris variana (eastern blackheaded
budworm) 170
Acrobasis carvae (pecan nut casebearer)
153, 255, 270, 357, 387, 408, 427, 441,
482, 621
Acrolepia assectella (leek moth)
33, 45, 531
Acronicta americana (American dagger moth)
605
Acrosternum hilare (green stink bug)
119, 577, 617, 679, 695
Aculops lycopersici (tomato russet mite)
680
Aculus comatus (an eriophyid mite)
10, 150, 154, 441
Acutaspis morrisonorum (a diaspidid scale)
763
Acyrtosiphon festucae (an aphid)
10
Acyrtosiphon pisum (pea aphid)
19, 31, 59, 78, 88, 108, 117, 128, 145,
146, 164, 178, 190, 212, 229, 241, 253,
269, 279, 304, 319, 332, 353, 404, 407,
424, 439, 456, 477, 481, 499, 521, 540,
557, 576, 600, 606, 616, 623, 635, 659,
679, 710, 723, 749, 762, 778
Acyrtosiphon solani (foxglove aphid)
460
Adalia bipunctata (twospotted lady beetle)
178, 582
Adelges cooleyi (Cooley spruce gall aphid)
255, 307, 483, 639, 752
Adelges piceae (balsam woolly aphid)
197
Adelges tsugae (an adelgid)
109, 111, 129, 130
Adelphocoris lineolatus (alfalfa plant bug)
750, 758
Adoretus sinicus (Chinese rose beetle)
48, 339, 445, 666, 699, 783
Aedes spp. (mosquitoes)
7, 44, 131, 177, 216, 256, 281, 310, 321,
337, 360, 363, 389, 411, 428-429, 463,
505, 543, 625, 683, 727
Aedes abserratus
12, 230, 256, 281
Aedes canadensis
215, 281
Aedes cantator (brown saltmarsh mosquito)
579, 582
Aedes cinereus
281, 582
Aedes dianthaeus
428
Aedes dorsalis
337, 545, 579, 582, 641, 664, 683
Aedes excrucians
230, 256, 272, 281
Aedes fitchii
230, 256, 281
Aedes flavescens
281
Aedes nigromaculis
442, 545
Aedes riparius
12, 281
Aedes sollicitans (saltmarsh mosquito)
528, 579, 582
Aedes spencerii
256, 281
Aedes sticticus
281, 528

Aedes stimulans
230, 256, 272, 281, 528, 641, 643
Aedes triseriatus
177, 215, 463, 528
Aedes trivittatus
528, 697
Aedes vexans
177, 281, 337, 360, 389, 411, 428-429,
463, 505, 528, 564, 582, 641, 663, 664,
683
Aedes vexans nocturnus
7, 44, 48, 131, 216, 310, 363, 507, 543,
625, 727, 783
Ageneotettix deorum (a grasshopper)
65, 193, 273, 338, 460, 529, 546, 550,
685, 698, 741
Agkistrocerus megerlei (a tabanid)
12
Agrius anxius (bronze birch borer)
156, 321, 682, 685
Agromyza sp. (a leaf blotch-miner fly)
117
Agromyza frontella (alfalfa leaf blotch-
miner) 132, 241, 304, 319, 332, 383,
386, 405, 424, 439, 456, 478, 499, 539,
557, 561, 576, 600, 616, 620, 659
Agromyza parvicornis (corn blotch
leafminer) 303, 351
Agrotis ipsilon (black cutworm)
89, 92, 119, 123, 242, 318, 330, 351,
381, 403, 414. Light traps: 9, 21, 33,
111, 186, 217, 233, 247, 263, 274, 284,
311, 312, 324, 340-341, 364-365, 393-394,
416-417, 432-433, 446-447, 468-469, 488-
489, 508-509, 532-533, 548-549, 568-569,
586-587, 608-609, 626-627, 645-646,
667-668, 687, 700, 715, 726, 742, 753
Agrotis orthogonia (pale western cutworm)
211, 331, 477
Aleurocybotus occiduus (a whitefly)
438, 694
Aleurothrixus floccosus (woolly whitefly)
43, 194, 392, 444, 466, 507, 547, 584,
741, 766
Alfalfa leaf blotch-miner
(Agromyza frontella)
Alfalfa caterpillar
(Colias eurytheme)
Alfalfa looper
(Autographa californica)
Alfalfa plant bug
(Adelphocoris lineolatus)
Alfalfa seed chalcid
(Bruchophagus roddi)
Alfalfa snout beetle
(Brachyrhinus ligustici)
Alfalfa webworm
(Loxostege commixtalis)
Alfalfa weevil
(Hypera postica)
Alkali bee
(Nomia melanderi)
Alphitobius diaperinus (lesser mealworm)
781, 782
Alsophila pometaria (fall cankerworm)
172, 336, 388, 484
Altica ignita (a flea beetle)
280
Amathes c-nigrum (spotted cutworm)
242, 253, 477, 557
Amblyomma americanum (lone star tick)
308, 414, 442, 505, 528, 582
Amblyomma maculatum (Gulf Coast tick)
280, 282
American black flour beetle
(Tribolium audax)
American dagger moth
(Acronicta americana)
American dog tick
(Dermacentor variabilis)
American grasshopper
(Schistocerca americana)
Amitus sp. (a platygasterid wasp)
444

Amphimallon majalis (European chafer)
 63, 322, 464
Amphitornus coloradus (a grasshopper)
 24, 338, 430, 546
Amphitornus coloradus ornatus
 (a grasshopper) 529
Anabrus simplex (Mormon cricket)
 66, 231, 338, 391, 413, 506, 642, 665
Anacampodes fragilaria (koa haole looper)
 48, 246, 754
Anagrapha falcifera (celery looper)
 334
Ananca kanack (an oedemerid)
 10, 45
Anaphes flavipes (a mymarid wasp)
 63
Anaphothrips obscurus (grass thrips)
 382
Anarsia lineatella (peach twig borer)
 253, 408
Anastrepha suspensa (Caribbean fruit fly)
 153, 179, 193
 Angoumois grain moth
 (Sitotroga cerealella)
Anisota senatoria (orangestriped oakworm)
 622, 663, 682, 696, 701, 763
Anisota stigma (spiny oakworm)
 712
Anomala obliqua (pine chafer)
 441, 445
Anomis flava (hibiscus caterpillar)
 363
Anopheles spp. (mosquitoes)
 389, 505
Anopheles quadrimaculatus (common malaria
 mosquito) 389
Anthonomus eugeni (pepper weevil)
 45, 191, 258, 333, 467, 644, 767, 783
Anthonomus grandis (boll weevil)
 31, 35, 120, 121, 164, 187, 200, 213,
 242, 259, 279, 305, 320, 333, 354, 366-
 368, 384, 405, 406, 425, 439-440, 458, 478-
 479, 500-501, 522, 541, 558-559,
 577, 589, 601, 618, 637, 660, 680, 711,
 750
Anthonomus signatus (strawberry weevil)
 358
Anthophila pariana (apple-and-thorn
 skeletonizer) 525
Anthrenus coloratus (a dermestid beetle)
 741, 766
Antianthe expansa (a membracid)
 12, 45, 80, 246, 273, 323, 782, 783
Anticarsia gemmatilis (velvetbean
 caterpillar) 119, 600, 601, 613, 636,
 657, 679, 710, 750
Antonina graminis (Rhodesgrass scale)
 635, 694
Anuraphis maidiradicis
 See Aphis maidiradicis
Aonidiella aurantii (California red
 scale) 155
Aonidiella citrina (yellow scale)
 42, 79, 129, 165, 213, 243, 270, 306,
 358, 409, 462, 483, 526, 580, 638
Apanteles congregatus (a braconid)
 88, 583
Apanteles scutellaris (a braconid)
 767
Aphelinus sp. (a eulophid wasp)
 401
Aphelinus maidis (a eulophid wasp)
 363
Aphidius sp. (a braconid)
 557, 606
 Aphids
 42, 129, 154, 165, 189, 213, 243, 270,
 385
Aphis fabae (bean aphid)
 12, 561
Aphis gossypii (melon aphid)
 7, 191, 242, 305, 354, 524
Aphis hederæ (ivy aphid)
 12, 157, 255
Aphis maidiradicis (corn root aphid)
 330
Aphis nasturtii (buckthorn aphid)
 460, 578
Aphis pomi (apple aphid)
 153, 165, 243, 357, 408, 482
Aphis spiraeicola (spirea aphid)
 543
Aphrophora parallela (pine spittlebug)
 171, 281, 307, 441
Aphrophora saratogensis (Saratoga
 spittlebug) 171, 197
Aphycus fumipennis (an encyrtid wasp)
 781, 782
Apion antiquum (South African emex
 weevil) 49, 111
Apion longirostre (hollyhock weevil)
 60, 61
Apion ulicis (a gorse weevil)
 42
Apis mellifera (honey bee)
 43, 110, 148, 167, 180, 215, 231, 322,
 684, 753
Apis mellifera adansonii (an African
 honey bee) 158
Aphycus mexicanus (an encyrtid wasp)
 12, 45
Apotoforma sp. (a tortricid moth)
 232, 585
 Apple-and-thorn skeletonizer
 (Anthophila pariana)
 Apple aphid
 (Aphis pomi)
 Apple curculio
 (Tachyterellus quadrigibbus)
 Apple grain aphid
 (Rhopalosiphum fitchii)
 Apple maggot
 (Rhagoletis pomonella)
 Apple mealybug
 (Phenacoccus aceris)
Aprostocetus diplosidis (an eulophid
 wasp) 193, 781
Archips argyrospilus (fruittree
 leafroller) 427, 638
Archips rosanus (a tortricid moth)
 243, 638, 643
Archips semiferranus (a tortricid moth)
 697, 739
Argyrotaenia pinatubana (pine tube moth)
 12
Argyrotaenia velutinana (redbanded
 leafroller) 270, 280
Aristotelia sp. (a gelechiid moth)
 699
 Army cutworm
 (Euxoa auxiliaris)
 Armyworms
 477, 499, 557
 Armyworm
 (Pseudaletia unipuncta)
Aroga websteri (sagebrush defoliator)
 12, 352, 403, 477, 498, 722
Arphia conspersa (a grasshopper)
 257, 439
 Artichoke plume moth
 (Platyptilia carduidactyla)
 Ashgray blister beetle
 (Epicauta fabricii)
 Asiatic oak weevil
 (Cyrtopistomus castaneus)
 Asiatic rice borer
 (Chilo suppressalis)
 Asparagus aphid
 (Brachycolus asparagi)
 Asparagus beetle
 (Crioceris asparagi)
Aspidiotus destructor (coconut scale)
 48, 61, 131, 194, 232, 363, 414, 431,
 543, 625, 644, 666, 699, 714, 754
 Aster leafhopper
 (Macrostelus fascifrons)
Asteromyia modesta (a cecidomyiid)
 4, 6

Astyleiopus variegatus (a cerambycid beetle) 784
Aulocara eliotti (a grasshopper) 64, 65, 309, 338, 412, 429-430, 529, 685
Autographa californica (alfalfa looper) 191, 212, 229, 269, 477, 694
 Azalea lace bug (Stephanitis pyrioides)
Azya luteipes (a lady beetle) 47, 194

B

Bagworm (Thyridopteryx ephemeraeformis)
 Balsam twig aphid (Mindarus abietinus)
 Balsam woolly aphid (Adelges piceae)
 Banded sunflower moth (Phalonia hospes)
 Bandedwing whitefly (Trialeurodes abutilonea)
 Banks grass mite (Oligonychus pratensis)
 Bark beetles 195, 196
 Barley thrips (Limothrips denticornis)
 Barnacle scale (Ceroplastes cirripediformis)
Bathyplectes sp. (an ichneumon wasp) 252, 331, 384
Bathyplectes anurus (an ichneumon wasp) 179, 322, 334, 337, 412
Bathyplectes curculionis (an ichneumon wasp) 112, 115, 179, 252, 361, 383, 412, 456, 781
Bathyplectes stenostigma (an ichneumon wasp) 438, 528, 534
 Bean aphid (Aphis fabae)
 Bean fly (Melanagromyza phaseoli)
 Bean leaf beetle (Ceratomya trifurcata)
 Bean pod borer (Maruca testulalis)
Bedellia orchilella (sweetpotato leafminer) 168, 194, 310
 Beet armyworm (Spodoptera exigua)
 Beet leafhopper (Circulifer tenellus)
 Beet webworm (Loxostege sticticalis)
Bembecia marginata (raspberry crown borer) 724
Bemisia giffardi (Giffard whitefly) 585
 Bertha armyworm (Mamestra configurata)
Berytinus minor (a stilt bug) 685
 Birch leafminer (Fenusa pusilla)
 Birch skeletonizer (Bucculatrix canadensisella)
 Black blister beetle (Epicauta pennsylvanica)
 Black carpenter ant (Camponotus pennsylvanicus)
 Black cherry aphid (Myzus cerasi)
 Black citrus aphid (Toxoptera aurantii)
 Black cutworm (Agrotis ipsilon)
 Black horse fly (Tabanus atratus)
 Blackmargined aphid (Monella costalis)

Black pecan aphid (Tinocallis caryaefoliae)
 Black pineleaf scale (Nuculaspis californica)
 Black scale (Saissetia oleae)
 Black swallowtail (Papilio polyxenes asterius)
 Black thread scale (Ischnaspis longirostris)
 Black turpentine beetle (Dendroctonus terebrans)
Blissus insularis (southern chinch bug) 99, 659, 665
Blissus leucopterus hirtus (hairy chinch bug) 643
Blissus leucopterus leucopterus (chinch bug) 92, 98, 99, 163, 227, 251, 268, 382, 403, 423, 456, 539, 634, 777
 Blueberry bud mite (Acalitus vaccinii)
 Blueberry maggot (Rhagoletis mendax)
 Bluegrass billbug (Sphenophorus parvulus)
 Boll weevil (Anthonomus grandis)
Bombotelia jocosatrix (large mango tip borer) 46, 111, 216, 273, 783
Boopdon nubilum (a grasshopper) 338
Botettix argentatus (a grasshopper) 635
Bothynus gibbosus (carrot beetle) 501
 Boxelder leafroller (Gracillaria neregundella)
 Boxwood leafminer (Monarthropalpus buxi)
Brachycolus asparagi (asparagus aphid) 12, 141
Brachymeria intermedia (a chalcid wasp) 698
Brachymeria obscurata (a chalcid) 467
Brachyrhinus cribricollis (a weevil) 585
Brachyrhinus ligustici (alfalfa snout beetle) 304, 319, 332
Brevicoryne brassicae (cabbage aphid) 724
Brevipalpus lewisi (citrus flat mite) 503
 Broad mite (Polyphagotarsonemus latus)
 Bronze birch borer (Agrilus anxius)
 Brown citrus aphid (Toxoptera citricida)
 Brown dog tick (Rhipicephalus sanguineus)
 Brown garden snail (Helix aspersa)
 Brown recluse spider (Loxosceles reclusa)
 Brown saltmarsh mosquito (Aedes cantator)
 Brown soft scale (Coccus hesperidum)
 Brown spider beetle (Ptinus clavipes)
 Brown stink bug (Buschistius servus)
 Browntail moth (Nygmia phaerorrhoea)
 Brown wheat mite (Petrobia latens)
Bruchofaphis roddi (alfalfa seed chalcid) 635
Bruchus pisorum (pea weevil) 140
Bucculatrix ansliella (oak skeletonizer) 172
Bucculatrix canadensisella (birch skeletonizer) 172

Bucculatrix thurberiella (cotton
leafperforator) 12, 45, 602, 637, 723,
738, 762
Buckthorn aphid
(Aphis nasturtii)

C
Cabbage aphid
(Brevicoryne brassicae)
Cabbage looper
(Trichoplusia ni)
Cabbage maggot
(Hyalemya brassicae)
Cabbage webworm
(Hellula rogatalis)
Cactoblastis cactorum (a cactus moth)
49
Caenurgina erecta (forage looper)
722
Cales sp. (a chalcid wasp)
444
California fivespined ips
(Ips confusus)
California flatheaded borer
(Melanophila californica)
California oakworm
(Phryganidia californica)
California red scale
(Aonidiella aurantii)
Caliroa cerasi (pearslug)
153, 461, 503, 621
Caliroa lineata (a sawfly)
544, 550
Callopietria sp. (a noctuid moth)
49
Calomycterus setarius (a Japanese
weevil) 457, 521
Calosoma scrutator (a carabid beetle)
171
Camula pellucida (clearwinged grass-
hopper) 64, 322, 338, 361, 362, 391,
412, 429, 443, 465, 486, 546, 565, 664
Camponotus caryae discolor (carpenter
ant) 79
Camponotus pennsylvanicus (black
carpenter ant) 79
Cane leafhopper egg sucker
(Tyttus mandulus)
Cardiophorus spp. (elaterids)
644
Cardiophorus stolatus (an elaterid)
643, 644
Caribbean fruit fly
(Anastrepha suspensa)
Carmine spider mite
(Tetranychus cinnabarinus)
Carneoccephala sagittifera (a cicadellid)
579, 585, 625
Carolina grasshopper
(Dissosteira carolina)
Carpenter ant
(Camponotus caryae discolor)
Carpophilus lugubris (dusky sap beetle)
475, 574, 579
Carrot beetle
(Bothynus gibbosus)
Carulaspis juniperi (Juniper scale)
12
Casiniaria infesta (an ichneumon wasp)
80, 467
Cattle lice
130, 148, 256, 780
Cattle tail louse
(Haematopinus quadripertusus)
Caulocampus acericaulis (maple petiole
borer) 427, 431
Cecidomyia texana (guar midge)
117, 616, 679
Celama spp. (webworms)
84

Celama sorghiella (sorghum webworm)
93, 92, 555, 599, 615, 658, 694, 710,
721
Celery looper
(Anagrapha falcifera)
Cephus cinctus (wheat stem sawfly)
97, 678
Ceramica picta (zebra caterpillar)
619
Ceratitis capitata (Mediterranean fruit
fly) 702, 729-734, 743-746, 769-774
Ceratocombus vagans (a jumping ground
bug) 12
Cereal leaf beetle
(Oulema melanopus)
Cerrococcus kalmiae (a pit scale)
157
Cerrococcus parrotti (a soft scale)
12
Ceroplastes cirripediformis (barnacle
scale) 7, 49, 108, 339
Ceroplastes floridensis (Florida wax
scale) 621
Cerotoma trifurcata (bean leaf beetle)
119, 304, 333, 355, 384, 407, 457,
478, 540, 558, 617, 636, 660, 679, 695
Ceutorhynchus litura (a weevil)
684
Chaetocnema confinis (sweetpotato flea
beetle) 320, 356, 386, 681
Chaetocnema pulicaria (corn flea beetle)
239, 278, 302
Chaetophloeus heterodoxus (a bark
beetle) 13
Chaff scale
(Parlatoria pergandii)
Chalcid wasps
99
Chalcoedermus aeneus (cowpea curculio)
502, 524
Chelipistes meleagridis (large turkey
louse) 13
Cherry fruit fly
(Rhagoletis cingulata)
Chilocorus nigritus (a lady beetle)
644
Chilocorus stigma (twicestabbed lady
beetle) 179
Chilo suppressalis (Asiatic rice borer)
363
Chinch bug
(Blissus leucopterus leucopterus)
Chinese rose beetle
(Adoretus sinicus)
Chlorochroa ligata (conchuela)
423, 476, 497, 520, 539, 542, 556,
599
Choristoneura conflictana (large aspen
tortrix) 172, 359, 410
Choristoneura fumiferana (spruce
budworm) 169, 197, 388, 427, 441,
483, 503
Choristoneura occidentalis (western
spruce budworm) 169, 195, 196
Choristoneura pinus (jack pine budworm)
169, 483
Chorthippus curtipennis (a grasshopper)
529
Chortinaspis subchortina (an armored
scale) 498, 502
Chromaphis juglandicola (walnut aphid)
152, 179
Chrysodeixis chalcites (a noctuid moth)
392, 467
Chrysolina spp. (chrysomelid beetles)
585
Chrysolina quadripennis (a klamathweed
beetle) 179, 390
Chrysomphalus acridum (Florida red
scale) 20, 216, 604, 666, 783
Chrysopa spp. (green lacewings)
565, 606, 633
Chrysopa californica (a lacewing)
606

- Cinara canadensis (a conifer aphid)
712, 714
- Cinara carolina (a conifer aphid)
47, 168, 363
- Cinara pinivora (an aphid)
13
- Cinara strobi (white pine aphid)
178, 725
- Circulifer tenellus (beet leafhopper)
3, 31, 83, 189, 211, 227, 267, 301, 317,
349, 401, 709, 765
- Citrus flat mite
(Brevipalpus lewisi)
- Citrus red mite
(Panonychus citri)
- Citrus rust mite
(Phyllocoptruta oleivora)
- Citrus thrips
(Scirtothrips citri)
- Citrus whitefly
(Dialeurodes citri)
- Clastoptera achatina (pecan spittlebug)
482
- Clavaspis subsimilis (an armored scale)
13
- Clearwinged grasshopper
(Camula pellucida)
- Clouded plant bug
(Neurocolpus nubilis)
- Cloudywinged whitefly
(Dialeurodes citrifolii)
- Clover leaf weevil
(Hypera punctata)
- Clover seed weevil
(Microtrogus picirostris)
- Coccidoxenus mexicanus (an encyrtid wasp)
49
- Coccinella novemnotata (a lady beetle)
443
- Coccinella transversoguttata (transverse lady beetle)
178, 443
- Coccinella trifasciata (a lady beetle)
178
- Coccus hesperidum (brown soft scale)
46
- Coccus viridis (green scale)
409, 462, 483, 526, 581, 639
- Cochliomyia hominivorax (screwworm)
5, 19, 32, 42, 60, 79, 129, 147, 166,
174, 192, 214, 230, 244, 256, 271, 281,
336, 360, 388, 410, 428, 441, 463, 484,
504, 527, 545, 563, 581, 605, 622, 640,
663, 683, 697, 713, 725, 740, 752, 780,
784
- Coconut leafroller
(Hedylepta blackburni)
- Coconut scale
(Aspidiotus destructor)
- Codling moth
(Laspeyresia pomonella)
- Coelophora inaequalis (a lady beetle)
46, 47, 111, 363, 431, 445
- Colaspis brunnea (grape colaspis)
119
- Colemegilla maculata (a lady beetle)*
178, 193, 308, 361, 443, 464, 485, 582,
781
- Coleophora laricella (larch casebearer)
195
- Coleotechnites milleri (lodgepole needleminer)
195
- Coleotichus blackburniae (koa bug)
445
- Colias eurytheme (alfalfa caterpillar)
191, 229, 353, 355, 477, 576, 600, 616,
635, 659, 694, 710, 722
- Collaps spp. (melyrid beetles)
546
- Colorado potato beetle
(Leptinotarsa decemlineata)
- Common cattle grub
(Hypoderma lineatum)
- Common malaria mosquito
(Anopheles quadrimaculatus)
- Comstock mealybug
(Pseudococcus comstocki)
- Comstockiella sabalis (a diaspidid scale)
780, 782
- Concephalus spp. (grasshoppers)
499
- Conchaspis angraeci (a mealybug)
751, 758
- Conchuela
(Chlorochroa ligata)
- Confused flour beetle
(Tribolium confusum)
- Conoderus falli (southern potato wireworm)
94
- Conotelus mexicanus (a sap beetle)
728, 751
- Conotrachelus nenuphar (plum curculio)
153, 213, 335, 387
- Contarinia sp. (a gall midge)
124
- Contarinia schulzi (sunflower blossom midge)
459, 480, 501, 523, 619
- Contarinia sorghicola (sorghum midge)
7, 31, 45, 46, 89, 93, 95, 330, 351,
403, 423, 438, 455, 476, 497, 498, 520,
556, 557, 599, 634, 658, 678, 710, 722,
749, 781
- Convergent lady beetle
(Hippodamia convergens)
- Cooley spruce gall aphid
(Adelges cooleyi)
- Coptosoma xanthogramma (a plataspid bug)
507
- Coquillettia perturbans (a mosquito)
177, 360, 429, 463
- Cordillacris cinerea (a grasshopper)
4, 6
- Cordillacris crenulata (a grasshopper)
193
- Corn earworm
(Heliothis zea)
- Corn flea beetle
(Chaetocnema pulicaria)
- Corn leaf aphid (Rhopalosiphum maidis)
41
- Corn planthopper
(Peregrinus maidis)
- Corn root aphid
(Aphis maidiradicis)
- Coryphista meadii (a geometrid moth)
604
- Corythucha ciliata (sycamore lace bug)
545
- Corythucha confraterna (a lace bug)
484
- Corythucha montivaga (a lace bug)
13
- Cosmobaris americana (a weevil)
619, 620
- Cosymbia serrulata (kiawe flower looper)
47
- Cotinis nitida (green June beetle)
480
- Cotton fleahopper
(Pseudatomoscelis seriatus)
- Cotton leafperforator
(Bucculatrix thurberiella)
- Cotton square borer
(Strymon melinus)
- Cottonyushion scale
(Icerya purchasi)
- Cowpea curculio
(Chalcodermus aeneus)
- Crapemyrtle aphid
(Tinocallis kahawaluokalani)
- Crioceris asparagi (asparagus beetle)
524
- Crioceris duodecimpunctata (spotted asparagus beetle)
356

*Also carried as Coleomegilla maculata fuscilabris in Vol. 22

Croesia albicomana (oak leaf-tier)
 172, 214, 388, 410
Cryptarcha ampla (a sap beetle)
 574, 579
Cryptoblabes aliena (a pyralid moth)
 46
Cryptochetum iceryae (a cryptochetid fly)
 49, 60
Cryptolaemus spp. (lady beetles)
 390, 464, 624, 684
Cryptolaemus montrouzieri (a lady beetle)
 194, 414, 431
Cryptolestes sp. (a cucujid beetle)
 684
Cryptolestes pusillus (flat grain beetle)
 43
Cryptorhynchus lapathi (poplar-and-willow
 borer) 545
 Cuban laurel thrips
 (*Gynaikothrips ficorum*)
Culex spp. (mosquitoes)
 7, 44, 131, 216, 310, 363, 528, 543,
 625, 683, 727
Culex pipiens pipiens (northern house
 mosquito) 428, 505, 606, 663, 664, 683
Culex pipiens quinquefasciatus (southern
 house mosquito) 7, 44, 48, 131, 216,
 310, 363, 485, 507, 543, 625, 727, 783
Culex restuans (a mosquito)
 664
Culex salinarius (a mosquito)
 664
Culex tarsalis (a mosquito)
 177, 337, 545, 579, 582, 666, 764
Culex territans (a mosquito)
 664
Culicoides spp. (biting midges)
 177
Culicoides furens (a biting midge)
 177
Culicoides hollensis (a biting midge)
 177
Culicoides spinosus (a biting midge)
 177
Culicoides stellifer (a biting midge)
 177
Culliseta inornata (a mosquito)
 281, 337
Culliseta minnesotae (a mosquito)
 579
Curculio caryae (pecan weevil)
 154, 580, 621, 662, 682, 738, 762
Curinus coeruleus (a lady beetle)
 727
 Cutworms
 107, 354
 Cyclamen mite
 (*Stenotarsonemus pallidus*)
Cyclocephala borealis (northern masked
 chafer) 678
Cylas formicarius elegantulus (sweetpotato
 weevil) 257, 579
Cyrtopistomus castaneus (Asiatic oak
 weevil) 123, 427, 431, 544, 550, 620,
 622, 640, 643, 697
Cyrtopeltis modestus (a plant bug)
 273, 431
Cyrtorhinus fulvus (a predacious mirid
 bug) 45, 666
Cyrtorhinus lividipennis (a predacious
 mirid bug) 194

D

Dacus cucurbitae (melon fly)
 507
Dacus dorsalis (oriental fruit fly)
 391, 584
 Damsel bugs
 623
Dasychira plagiata (pine tussock moth)
 166, 307, 526

Datana contracta (a notodontid moth)
 13, 173
Datana integerrima (walnut caterpillar)
 150, 154, 408, 427, 482, 503, 662, 712,
 724
Decorosiphon corynothrix (an aphid)
 231, 232
Dectes sayi (a cerambycid beetle)
 13
Dectes texanus texanus (a cerambycid
 beetle) 78, 119, 540, 762
Deloyala guttata (mottled tortoise beetle)
 386
Delphacodes propinqua (a delphacid
 planthopper) 635
Dendroctonus adjunctus (roundheaded pine
 beetle) 169, 170, 196
Dendroctonus frontalis (southern pine
 beetle) 4, 166, 169, 170, 196, 197,
 254, 255, 410, 504, 563, 604, 622, 639,
 682, 696, 724, 739, 751, 779
Dendroctonus ponderosae (mountain pine
 beetle) 32, 195, 196, 526, 639
Dendroctonus pseudotsugae (Douglas fir
 beetle) 195, 196, 358
Dendroctonus rufipennis (spruce beetle)
 195, 196
Dendroctonus terebrans (black turpentine
 beetle) 604
Dermacentor albipictus (winter tick)
 5, 20
Dermacentor variabilis (American dog tick)
 361, 505, 546, 623
Diabrotica spp. (corn rootworms)
 89, 93, 278, 455, 475, 496, 519, 538,
 574, 598, 601, 614, 634, 658, 695, 722,
 737, 777
Diabrotica longicornis (northern corn
 rootworm) 13, 89, 94, 403, 455, 475,
 496, 519, 538, 556, 574, 598, 614-615,
 634, 737, 749, 758, 777
Diabrotica undecimpunctata howardi
 (southern corn rootworm) 31, 94, 128,
 304, 305, 318, 334, 342, 351, 407, 496,
 574, 579, 598, 601, 658, 695, 778
Diabrotica undecimpunctata undecimpunctata
 (western spotted cucumber beetle) 524
Diabrotica virgifera (western corn root-
 worm) 13, 89, 94, 455, 475, 496, 502,
 519, 538, 550, 556, 561, 574, 579, 598,
 610, 614-615, 620, 634, 643, 658, 665,
 695, 737, 741, 777
Diadegma insularis (an ichneumon wasp)
 363
Dialeurodes spp. (whiteflies)
 155
Dialeurodes citri (citrus whitefly)
 255, 443
Dialeurodes citrifolii (cloudywinged
 whitefly) 585
 Diamondback moth
 (*Plutella xylostella*)
Diaparsis
 412
Diaperomera femorata (walkingstick)
 545, 563, 616, 622, 683, 780
Diaprepes abbreviatus (West Indian
 sugarcane root borer) 67, 643, 698
 Diaspidid scales
 763
Diatraea crambidoidea (southern cornstalk
 borer) 677, 749
Diatraea grandiosella (southwestern corn
 borer) 3, 92, 189, 227, 303, 351, 497,
 658, 677, 685, 693, 710, 714, 721, 737,
 749, 761, 776
Diatraea saccharalis (sugarcane borer)
 92
Diceroprocta vitripennis (a cicada)
 13
 Differential grasshopper
 (*Melanoplus differentialis*)
Diocalandra taitensis (Tahitian coconut
 weevil) 567

Dioryctria zimmermani (Zimmerman pine moth) 462, 696
Diplonera punctata (Pacific beetle) 149
Dissosteira carolina (Carolina grasshopper) 439
Dissosteira longipennis (High Plains grasshopper) 430
Douglas fir beetle
(*Dendroctonus pseudotsugae*)
Douglas fir tussock moth
(*Hermerocampa pseudotsugata*)
Drepanopterna femoratum (a grasshopper) 65, 338, 430, 698
Drosophila spp. (vinegar flies) 661
Dusky sap beetle
(*Carpophilus lugubris*)
Dysaphis plantaginea (rosy apple aphid) 192, 243
Dysaphis tulipae (tulip bulb aphid) 157

E

Ear tick
(*Otobius megnini*)
Eastern blackheaded budworm
(*Accleris variana*)
Eastern pineshoot borer
(*Buccosa gloriosa*)
Eastern subterranean termite
(*Reticulitermes flavipes*)
Eastern tent caterpillar
(*Malacosoma americanum*)
Eburia quadrigeminata (a longhorned beetle) 622
Ectomocoris biguttulus (a reduviid bug) 561, 567
Eggplant flea beetle
(*Epitrix fuscula*)
Egyptian alfalfa weevil
(*Hypera brunneipennis*)
Elasmopalpus lignosellus (lesser cornstalk borer) 120, 351, 455, 457, 497, 499, 521, 539, 540, 542, 555, 558, 561, 577, 617, 637, 722, 777
Eleodes spp. (false wireworms) 303
Elimaea punctifera (narrow winged katydid) 567, 767
Elm leaf beetle
(*Pyrralta luteola*)
Emmesomyia socia (an anthomyiid fly) 10
Epicoris orthoneuron (a reduviid) 781, 782
Empoasca fabae (potato leafhopper) 81, 88, 302, 422, 437, 454, 474, 495, 518, 537, 555, 598, 614
English grain aphid
(*Macrosiphum avenae*)
Eotetranychus multidigituli (a spider mite) 321
Eotetranychus sexmaculatus (sixspotted mite) 42, 79, 128, 165, 213, 243, 270
Ephestia elutella (tobacco moth) 5, 60, 148, 723
Epicauta spp. (blister beetles) 616
Epicauta fabricii (ashgray blister beetle) 616
Epicauta lemniscata (threestriped blister beetle) 457
Epicauta occidentalis (a blister beetle) 457
Epicauta pennsylvanica (black blister beetle) 576, 616
Epicauta vittata (striped blister beetle) 576
Epilachna varivestis (Mexican bean beetle) 118, 140, 353, 355, 384, 386, 405, 407,

424, 439, 457, 478, 499, 521, 524, 540, 558, 561, 576, 601, 617, 636, 660, 679
Epinotia meritana (white fir needleminer) 359, 662
Epiphyas postvittana (light brown apple moth) 246
Epitrimerus pyri (pear rust mite) 503
Epitrix cucumeris (potato flea beetle) 355, 356, 542
Epitrix fuscula (eggplant flea beetle) 531, 579
Epitrix hirtipennis (tobacco flea beetle) 13, 122, 354, 385, 407, 425, 459, 523, 560, 578, 602, 619, 686, 714
Eretmocerus sp. (a eulophid wasp) 444
Eriococcus euphorbiae (a parasite) 781
Eriophyes canestrinii (an eriophyid mite) 13
Eriophyes litchii (an eriophyid mite) 714
Eriophyes theospyri (an eriophyid mite) 12
Eriosoma lanigerum (woolly apple aphid) 357, 724
Erythroneura comes (a leafhopper) 155
Erythroneura variabilis (a leafhopper) 214
Estigmene acrea (saltmarsh caterpillar) 637. Light traps: 9, 131, 186, 217, 233, 247, 263, 311, 324, 340, 364-365, 393-394, 416, 432-433, 446-447, 468-469, 488-489, 508-509, 532-533, 548-549, 568-569, 587, 608-609, 626-627, 645, 646, 667, 687, 700, 726
Esperanza texana (an aldyid bug) 738, 741
Excelatoria armigera (a tachina fly) 49, 80, 467, 603, 783
Eucosma gloriosa (eastern pineshoot borer) 13
Eudecatoma marylandica (an eurytomid wasp) 13, 173
Englandina rosea (a snail) 7
Eupelmus popa (a eupelmid wasp) 46, 781
European chafer
(*Amphimallon majalis*)
European chafer quarantines 187
European corn borer
(*Ostrinia nubilalis*)
European crane fly
(*Tipula paludosa*)
European earwig
(*Forficula auricularia*)
European elm scale
(*Gossyparia spuria*)
European pine sawfly
(*Neodiprion sertifer*)
European pine shoot moth
(*Rhyacionia buoliana*)
European red mite
(*Panonychus ulmi*)
Eurytetranychus buxi (a spider mite) 604, 610
Eurytoma gigantea (an eurytomid wasp) 99
Eurytoma obtusiventris (an eurytomid wasp) 13, 99
Buscelis ohausi (a leafhopper) 10
Buschistus servus (brown stink bug) 423, 577, 711
Eutetranychus banksi (Texas citrus mite) 42, 78, 79, 128, 154, 155, 165, 213, 243, 270, 306, 357, 408, 461, 482, 525, 580, 638
Eutreta xanthochaeta (lantana gall fly) 625, 767

Entombicula belkini (a chigger mite)
13
Buxoa sp. (a cutworm)
166
Buxoa auxiliaris (army cutworm)
77, 81, 107, 127, 145, 163, 189, 211,
227, 239, 251, 277, 301, 317, 349, 381,
386, 453, 460. Light traps: 263, 274,
284, 311, 324, 340, 364, 393-394, 416,
432, 446, 468-469, 488-489, 509, 532-
533, 548-549, 569, 645, 667, 687, 715,
753
Buxoa detera (a noctuid moth)
330
Buxoa ochrogaster (redbacked cutworm)
253, 279, 280, 355
Exenterus amictorius (an ichneumon wasp)
307
Exenterus canadensis (an ichneumon wasp)
14
Exorista scorbillans (a tachina fly)
363
Exuviaspis enceliae (an armored scale)
10
Eysarcoris ventralis (a pentatomid)
323

F

Face fly
(Musca autumnalis)
Fall armyworm
(Spodoptera frugiperda)
Fall cankerworm
(Alsophila pometaria)
Fall webworm
(Hyphantria cunea)
False chinch bug
(Nysius ericae)
Faronta diffusa (wheat head armyworm)
Light traps: 233, 263, 311, 324, 340,
364, 393-394, 416, 432, 446, 468-469,
488, 508-509, 532-533, 568-569, 586-587,
608-609, 626, 645, 667, 687, 715
Feltia subterranea (granulate cutworm)
280, 457, 522, 541, 558, 678. Light
traps: 9, 21, 33, 111, 131, 186, 217,
233, 247, 263, 274, 284, 311, 324, 340,
364-365, 393-394, 416-417, 432-433, 446-
447, 468-469, 488-489, 508-509, 532-533,
548-549, 568-569, 586-587, 608-609, 626-
627, 645-646, 667-668, 687, 700, 715,
726, 742, 753
Fenus pusilla (birch leafminer)
173
Fern scale
(Pinnaspis aspidistrae)
Filbert aphid
(Myzocallis corvili)
Fiorinia floriniiae (an armored scale)
6, 7
Fiorinia theae (tea scale)
696
Fire ant
(Solenopsis geminata)
Fir engraver
(Scolytus ventralis)
Flat grain beetle
(Cryptolestes pusillus)
Florida red scale
(Chrysomphalus aonidium)
Florida wax scale
(Ceroplastes floridensis)
Flower thrips
(Frankliniella tritici)
Forage looper
(Caenurgina erechtea)
Forcipomyia (Pterobosca) fusicornis (a
ceratopogonid fly) 283
Forest tent caterpillar
(Malacosoma disstria)
Forficula auricularia (European earwig)
604, 610, 620, 641, 643, 782

Foxglove aphid
(Acyrtosiphon solani)
Frankliniella spp. (thrips)
305, 333, 354, 405, 406
Frankliniella bispinosa (a thrips)
242
Frankliniella fusca (tobacco thrips)
120, 122, 305, 332, 354, 405
Frankliniella occidentalis (western
flower thrips) 3, 165, 229, 242, 253,
269, 467, 567, 659
Frankliniella tritici (flower thrips)
122
Fruitree leafroller
(Archips argyrospilus)
Fuller rose beetle
(Pantomorus cervinus)

G

Galeruca ruda (a chrysomelid beetle)
599, 610
Garden fleahopper
(Halticus bractatus)
Garden symphylan
(Scutigereella immaculata)
Gargara genitsae (a treehopper)
14
Geococcus coffeae (a mealybug)
80, 763
Geocoris punctipes (a big-eyed bug)
180, 604
Giant African snail
(Achatina fulica)
Giffard whitefly
(Bemisia giffardi)
Glover scale
(Lepidosaphes gloverii)
Gnathobleda litigiosa (a reduviid bug)
741
Golden nematode
(Heterodera rostochiensis)
Gossyparia spuria (European elm scale)
109
Gracillaria negundella (boxelder leaf-
roller) 173, 359
Granulate cutworm
(Feltia subterranea)
Grape berry moth
(Paralobesia viteana)
Grape colaspis
(Colaspis brunnea)
Grape mealybug
(Pseudococcus maritimus)
Grape phylloxera
(Phylloxera vitifoliae)
Graphocephala cythura (a cicadellid)
334, 339
Graphomathus spp. (whitefringed beetles)
33, 67, 194, 245, 273, 362, 392, 444,
487, 502, 507, 530, 547, 607, 610, 617,
698
Graphomathus leucoloma fecundus (a
whitefringed beetle) 607
Graphomathus leucoloma striatus (a
whitefringed beetle) 607
Graphomathus perigrinus (a whitefringed
beetle) 507
Grapholitha molesta (oriental fruit moth)
150, 269, 335, 408, 525, 562, 724
Grapholitha prunivora (lesser appleworm)
695
Grass bugs
1, 6, 65, 322, 390, 443
Grasshoppers
4, 64, 98, 193, 257, 272, 279, 282, 309,
322, 338, 361, 382, 384, 390, 403, 412,
423, 424, 429-430, 439, 443, 457, 465,
476, 477, 486, 498, 499, 505-506, 521,
529, 539, 546, 558, 560, 565, 576, 583,
606, 624, 635, 642, 664, 684, 685, 694,
698, 725, 741, 782

Grass thrips
(*Anaphothrips obscurus*)
Grass webworm
(*Herpetogramma licarsialis*)
Greenbug
(*Schizaphis graminum*)
Green cloverworm
(*Plathypena scabra*)
Greenhouse thrips
(*Heliothrips haemorrhoidalis*)
Greenhouse whitefly
(*Trialeurodes vaporariorum*)
Green June beetle
(*Cotinis nitida*)
Green peach aphid
(*Myzus persicae*)
Green scale
(*Coccus viridis*)
Green stink bug
(*Acrosternum hilare*)
Gryllus spp. (field crickets)
738
Guar midge
(*Cecidomyia texana*)
Gulf Coast tick
(*Amblyomma maculatum*)
Gymnocarena diffusa (a tephritid fly)
124
Gynaikothrips ficorum (Cuban laurel
thrips) 531
Cypsy moth
(*Porthetria dispar*)

H

Haematobia irritans (horn fly)
147, 167, 174, 175, 193, 215, 230, 244,
256, 271, 281, 308, 321, 336, 359, 389,
410, 428, 442, 464, 484, 504, 528, 545,
564, 581, 605, 623, 641, 663, 683, 697,
713, 725, 740, 753, 764
Haematocha rubescens (a reduviid bug)
10, 45
Haematopinus spp. (cattle lice)
5, 20, 43, 109
Haematopinus eurysternus (shortnosed
cattle louse) 5, 20, 32, 43, 79, 109,
130, 148, 256, 740, 780
Haematopinus quadripertusus (cattle tail
louse) 109
Haematopinus suis (hog louse)
32, 109, 697, 740
Hairy chinch bug
(*Blissus leucopterus hirtus*)
Halticoptera patellana (a pteromalid
wasp) 45, 310, 507, 644, 754
Halticus bractatus (garden flea hopper)
616
Harrisina brillians (western grapeleaf
skeletonizer) 155, 270, 356, 362, 391,
462, 507, 530, 547, 566, 620, 624, 685,
713, 724
Hawaiian beet webworm
(*Hymenia recurvalis*)
Hawaiian thrips
(*Taeniothrips hawaiiensis*)
Hedylepta accepta (sugarcane leafroller)
46
Hedylepta blackburni (coconut leafroller)
46, 149, 283, 323, 414, 431, 467, 567
Heliothis spp. (bollworms)
120, 121, 180, 320, 333, 354, 385, 406,
425, 440, 458, 479, 496, 499, 522, 541,
559, 577, 602, 618, 636, 660, 677, 680,
750
Heliothis paradoxa (a noctuid moth)
694
Heliothis virescens (tobacco budworm)
88, 121, 227, 320, 354, 385, 406, 425,
440, 459, 500, 519, 541-542, 577-578,
602, 618, 636, 658, 660, 677, 680, 695,
723, 762. Light traps: 131, 233, 247,
274, 284, 311, 324, 340, 364, 393, 416-
417, 432-433, 446, 468-469, 488-489,
508-509, 532-533, 548-549, 568-569, 586-
587, 608-609, 626-627, 645, 667, 687,
700, 715, 726, 742
Heliothis zea (corn earworm)
20, 31, 48, 81, 83, 88, 120, 121, 189,
211, 239, 246, 251, 273, 302, 317, 320,
329, 339, 351, 385, 392, 403, 406, 421,
438, 440, 445, 453, 458, 479, 487, 493,
500, 507, 517, 522, 531, 537, 541, 553-
554, 559-560, 567, 573, 577-578, 597,
602, 613, 618, 633, 636, 644, 657, 660,
677, 680, 686, 693, 709, 722, 738, 754,
767, 783. Light traps: 217, 247, 263,
274, 284, 311, 324, 340, 364-365, 393-
394, 416-417, 432-433, 446-447, 468-469,
488-489, 508-509, 532-533, 548-549, 568-
569, 586-587, 608-609, 626-627, 645-646,
667-668, 687, 700, 715, 726, 753
Heliothrips haemorrhoidalis (greenhouse
thrips) 80, 531, 699, 754
Helix aspersa (brown garden snail)
129
Hellula rogatalis (cabbage webworm)
45, 339, 661, 666
Hemerocampa pseudotsugata (Douglas fir
tussock moth) 170, 195, 196, 504, 562,
752, 764
Hemerocampa vetusta (western tussock moth)
307
Hemiberlesia lataniae (an armored scale)
108
Hemileuca hualapai (a saturniid moth)
130
Hemileuca oliviae (range caterpillar)
6, 67, 130, 391, 413, 481, 486, 547,
726, 753, 782
Hemispherical scale
(*Saissetia coffeae*)
Hemlock looper
(*Lambda fiscellaria*)
Herpetogramma licarsialis (grass webworm)
44, 46, 80, 283, 392, 445, 467, 507, 543,
603, 727, 783
Hesperophanes pubescens (a longhorned
beetle) 14
Hesperotettix speciosus (a grasshopper)
338, 430
Hessian fly
(*Mayetiola destructor*)
Heterocampa guttivitta (saddled prominent)
171, 197, 527
Heterocampa mantee (variable oakleaf
caterpillar) 169, 171, 196, 197, 544,
563, 639, 640, 663, 682, 696, 701, 712,
725, 739, 752
Heterocoocus tuttlei (a mealybug)
678
Heterodera glycines (soybean cyst
nematode) 14, 33, 67, 430, 460, 531,
579, 584, 643, 753, 758
Heterodera lespedezae (a cyst nematode)
14, 118
Heterodera rostochiensis (golden nematode)
224, 264
Hexacola hexatoma (a pteromalid wasp)
10
Hibiscus caterpillar
(*Anomis flava*)
Hickory shuckworm
(*Laspesyesia caryana*)
High Plains grasshopper
(*Disasosteira longipennis*)
Hippodamia convergens (convergent lady
beetle) 86, 97, 110, 145, 148, 178,
193, 215, 231, 245, 256, 269, 272, 411,
429, 443, 464, 473, 485, 555, 564-565,
582, 633, 684, 721
Hippodamia parenthesis (a lady beetle)
231
Hippodamia tredecimpunctata (a lady beetle)
beetle) 178
Hockeria unipunctatipennis (a chalcidid
wasp) 781

Hog louse
(*Haematopinus suis*)

Holcencyrtus physokermis (an encyrtid wasp) 179

Hollyhock weevil
(*Apion longirostre*)

Homadula anisocentra (mimosa webworm)
173, 502, 503, 527, 544, 561, 563, 581,
640, 643, 663, 665, 739

Homaledra sabalella (palm leaf skeletonizer) 14

Homoeosoma electellum (sunflower moth)
124, 501, 523, 560, 578

Honey bee
(*Apis mellifera*)

Hop aphid
(*Phorodon humuli*)

Hop looper
(*Hyphenia humuli*)

Horn fly
(*Haematobia irritans*)

House fly
(*Musca domestica*)

Homardis biclavus (a diaspidid scale)
778, 782

Hyalopteris pruni (mealy plum aphid)
306

Hybomitra spp. (horse flies)
245

Hybomitra nigricans (a horse fly)
245

Hylemya antiqua (onion maggot)
141

Hylemya brassicae (cabbage maggot)
356

Hylemya platura (seedcorn maggot)
33, 304

Hylephila phylaeus (a skipper)
46

Hyles lineata (whiteline sphinx)
255

Hylobius aliradicis (southern pine root weevil) 4, 6

Hylobius radialis (pine root collar weevil)
197

Hylotrupes bafulus (oldhouse borer)
178

Hylyurgopinus rufipes (native elm bark beetle) 173

Hymenia recurvalis (Hawaiian beet webworm) 751

Hymenopterous parasites
179

Hyphenia humuli (hop looper)
480

Hyphenia strigata (lantana defoliator caterpillar) 283, 784

Hypera spp. (weevils)
164

Hypera brunneipennis (Egyptian alfalfa weevil) 78, 116, 190, 778

Hypera nigrostris (lesser clover leaf weevil) 190

Hypera postica (alfalfa weevil)
4, 19, 31, 41, 59, 77, 107, 112, 113,
128, 146, 149, 163, 164, 179, 190, 211,
212, 228, 240-241, 245, 252, 268-269,
273, 278-279, 303-304, 318, 331, 332,
337, 352-353, 356, 383, 386, 404, 405,
412, 415, 423-424, 429, 431, 438-439,
456, 460, 477, 498-499, 521, 528, 539,
557, 561, 576, 600, 659, 665, 669, 679,
694, 723, 755-757, 761, 778, 781

Hypera punctata (clover leaf weevil)
108, 116, 146, 164, 190, 212

Hyphantria cunea (fall webworm)
306, 335, 408, 410, 427, 461, 482, 484,
503, 525, 562, 580, 605, 638, 639, 662,
682, 695, 697, 711, 712, 724

Hypoaspis nidicorva (a mesostigmatic mite)
310

Hypoderma spp. (cattle grubs)
176, 214, 361, 389

Hypoderma bovis (northern cattle grub)
214, 272, 389

Hypoderma lineatum (common cattle grub)
5, 20, 32, 42, 79, 109, 130, 147, 167,
176, 214, 683, 740, 752, 764, 780

Icerya purchasi (cottony cushion scale)
49, 60, 214, 462, 642

Ichneumon wasps
282, 411

Imported cabbageworm
(*Pieris rapae*)

Imported fire ant
(*Solenopsis saevissima richteri*)

Incisitermes immigrans (lowland tree termite) 194

Indian meal moth
(*Plodia interpunctella*)

Ips spp. (bark beetles)
196, 779

Ips calligraphus (a bark beetle)
752

Ips confusus (California fivespined ips)
244

Irbisia spp. (grass bugs)
65, 443

Irbisia brachycera (a grass bug)
282, 390

Irbisia fuscipubescentis (a grass bug)
65

Irbisia pacifica (a grass bug)
65, 390, 443

Irbisia shulli (a grass bug)
65

Ischnaspis longirostris (black thread scale) 714

Itch mite
(*Sarcoptes scabiei*)

Ivy aphid
(*Aphis hederac*)

Jack pine budworm
(*Choristoneura pinus*)

Jack pine sawfly
(*Neodiprion pratti banksianae*)

Japanese beetle
(*Popillia japonica*)

Juniper scale
(*Carulaspis juniperi*)

Keiferia lycopersicella (tomato pinworm)
45, 111, 138, 543, 603, 620, 711, 767

Knappa beetle
(*Trogoderma granarium*)

Kiawe flower looper
(*Cosymbia serrulata*)

Kimminsia schwarzi (a brown lacewing)
14, 180

Klamath weed beetle
(*Chrysolina quadrigemina*)

Koa bug
(*Coleotichus blackburniae*)

Koa haole looper
(*Anacamptodes fragilaria*)

Kuwanja quercus (a margarodid scale)
192, 194

Labops spp. (grass bugs)
6, 65, 167, 231, 443, 505, 529

Labops hesperius
6, 65, 167, 215, 272, 322

Labops hirtus
 6, 505
Labops utahensis (a grass bug)
 443
Lachnus salignus (an aphid)
 782, 784
 Lady beetles
 272, 337, 361, 411, 429, 443, 464, 485,
 546, 564, 582, 664
Lambdaia athasaria athasaria (a geometrid
 moth) 740
Lambdaia fiscellaria (hemlock looper)
 712, 714
Lambdaia pellucidaria (a geometrid moth)
 662, 763
Lamenia caliginosa (a fulgorid planthopper)
 11, 45
Lantana defoliator caterpillar
 (Hypena strigata)
Lantana gall fly
 (Eutreta xanthochaeta)
Lantana hispid
 (Uroplata girardi)
Lantana leaf beetle
 (Octotoma scabripennis)
Larch casebearer
 (Coleophora laricella)
Large aspen tortrix
 (Choristoneura conflictana)
Large mango tip borer
 (Bombotelia jocosatrix)
Large elm leaf beetle
 (Monocesta coryli)
Large turkey louse
 (Cheilopistes meleagridis)
Larinus carlinae (a European weevil)
 415, 418
Laspeyresia caryana (hickory shuckworm)
 482, 621, 662, 724, 738, 762
Laspeyresia pomonella (codling moth)
 150, 154, 213, 243, 269, 280, 321, 357,
 387, 408, 461, 525, 562, 580, 604.
 Light traps: 548, 609
Latrodectus hesperus (a combfooted
 spider) 623
Latrodectus variolus (a combfooted
 spider) 641, 643, 683, 685
Lawn armyworm
 (Spodoptera mauritia)
Leadcable borer
 (Scobicia declivis)
Leafrollers
 197
Lecanium kuncensis (a soft scale)
 270, 273
Lecanodiaspis prunosa (a lecanodiaspidid
 scale) 156, 214
Leek moth
 (Acrolepia assectella)
Leipous variegatus (a cerambycid beetle)
 741
Lema trilineata (threelined potato
 beetle) 392
Lemphagus curtus (an ichneumon wasp)
 334, 337
Lepidosaphes beckii (purple scale)
 42, 79, 128, 165, 213, 243, 270, 306,
 358, 409, 461, 483, 526, 580, 638, 678,
 778, 782
Lepidosaphes gloverii (Glover scale)
 42, 79, 128, 165, 213, 243, 270, 306,
 358, 409, 461, 483, 526, 580, 638, 778,
 782
Lepidosaphes pini (an armored scale)
 14, 45
Lepidosaphes ulmi (oystershell scale)
 357, 752
Lepitotarsa decemlineata (Colorado
 potato beetle) 138, 253, 280, 305,
 320, 355, 385, 407, 426, 440, 459, 480,
 524, 542, 560
Leptobyrsa decora (a tingid bug)
 783, 431, 727
Leptopterna dolabrata (meadow plant bug)
 98
 Lesser appleworm
 (Grapholitha prunivora)
 Lesser clover leaf weevil
 (Hypera nigrirostris)
 Lesser cornstalk borer
 (Elasmopalpus lignosellus)
 Lesser grain borer
 (Rhizopertha dominica)
 Lesser mealworm
 (Alphitobius diaperinus)
 Lesser peachtree borer
 (Synanthedon pictipes)
Leucogonia californica (a gelechiid moth)
 3, 78
Leucophaea maderae (Madeira cockroach)
 782
Leucopsis militia (a chamaemyiid fly)
 258
Leucopsis nigraluna (a chamaemyiid fly)
 258, 727, 767
Leucopsis ocellaris (a chamaemyiid fly)
 11
 Light brown apple moth
 (Epiphyas postvittana)
Limothrips denticornis (barley thrips)
 98, 303
Lindorus lophanthae (a lady beetle)
 48, 61, 131, 414, 644, 666, 754
Linognathus vituli (longnosed cattle
 louse) 43
Liothrips urichi (a thrips)
 603, 714
Liriomyza spp. (leafminer flies)
 20, 33, 44, 78, 80, 111, 363, 392, 414,
 431, 445, 467, 531, 543, 567, 603, 644,
 666, 686, 699, 714, 727, 754, 767, 783
Liriomyza brassicae (serpentine leafminer)
 78
Liriomyza munda (vegetable leafminer)
 165
Listroderes costirostris obliquus
 (vegetable weevil) 78
Lithocolletis robinella (a gracillariid
 moth) 682
Locust leafminer
 (Xenochalepus dorsalis)
Lodgepole needleminer
 (Colectechites milleri)
Lone star tick
 (Amblyomma americanum)
Longitarsus jacobaeae (a flea beetle)
 172, 765
Longitarsus waterhousei (a flea beetle)
 531
Longiunguis sacchari (sugarcane aphid)
 754
 Longnosed cattle louse
 (Linognathus vituli)
 Longtailed mealybug
 (Pseudococcus longispinus)
Lopholeucaspis japonica (an armored
 scale) 14
Loxagrotis albicosta (western bean
 cutworm) 93, 520, 556, 599, 677, 685
Loxocoeles reclusa (brown recluse spider)
 178, 256, 442, 445, 579, 582, 780
Loxocoeles refescens (a scytotid spider)
 460, 464
Loxostege commixtalis (alfalfa webworm)
 123, 124, 229
Loxostege sticticalis (beet webworm)
 123, 124, 279, 426. Light traps: 394,
 416, 432, 446, 469, 489, 509, 533, 548
Lycтус sp. (a powderpost beetle)
 411
Lycтус brunneus (a powderpost beetle)
 168, 781
Lynis spp. (lygus bugs)
 117, 163, 165, 279, 332, 353, 384, 406,
 521, 540, 560
Lynis bugs
 161, 162
Lynis lineolaris (tarnished plant bug)
 128, 153, 242, 280, 332, 353, 384, 405,
 409, 738, 778

Lysiphlebus testaceipes (a braconid wasp).
46, 86, 110, 148, 179, 193, 363, 454,
473, 495, 505, 518, 531, 554, 721

M

Macrosiphum avenae (English grain aphid)
19, 85, 97, 127, 145, 163, 189, 331,
455, 575, 776

Macrosiphum euphorbiae (potato aphid)
140, 459, 460, 578

Macrosteles fascifrons (aster leafhopper)
83, 211, 251, 268, 301, 307, 329, 349,
381, 401, 421, 453, 737

Madeira cockroach
(Leucophaea maderae)

Magdicada spp.
308, 359

Magdicada septendecim (periodical
cicada) 271, 281, 308, 321, 359,

Magdicada tredecim
308, 359

Maize billbug
(Sphenophorus maidis)

Malacosma spp. (tent caterpillars)
129

Malacosma americanum (eastern tent
caterpillar) 32, 129, 147, 166, 171,
192, 214, 244, 255, 271, 640

Malacosma californicum (western tent
caterpillar) 190, 196, 308

Malacosma disstria (forest tent
caterpillar) 172, 196, 214, 255, 271,
282, 307, 764

Malacosma incurvum discoloratum (a tent
caterpillar) 230

Mamestra configurata (bertha armyworm)
477, 499, 558, 750

Manduca spp. (hornworms)
31, 88, 583

Manduca quinquemaculata (tomato hornworm)
88. Light traps: 247, 311, 340, 393-
394, 416-417, 432-433, 446-447, 468-
469, 488-489, 508-509, 533, 549, 568-
569, 586-587, 608-609, 626-627, 645,
667-668, 687, 700, 715

Manduca sexta (tobacco hornworm)
31, 88, 385, 406, 426, 459, 475, 496,
555, 578. Light traps: 247, 284, 340,
393-394, 417, 432-433, 446, 468-469,
488, 508-509, 532-533, 548-549, 568-569,
586-587, 608-609, 626-627, 645, 667-668,
687, 715

Maple leafcutter
(Paraclemensia acerifoliella)

Maple petiole borer
(Caulocampus acericaulis)

Maruca testulalis (bean pod borer)
363

Meyetiola destructor (Hessian fly)
3, 96, 190, 240, 248, 303, 331, 352,
455, 539, 575, 599, 615, 749

McDaniel spider mite
(Tetranychus mcdanieli)

Meadow plant bug
(Leptopterna dolabrata)

Meadow spittlebug
(Philaenus spumarius)

Mealybugs
42, 243, 270, 307, 358, 409, 462, 483,
526, 581

Mealy plum aphid
(Hyalopterus pruni)

Mediterranean fruit fly
(Ceratitis capitata)

Megachile sp. (a leafcutting bee)
666

Megachile concinna
14

Megalopyge opercularis (puss caterpillar)
173

Megaphragma mymaripenne (a trichogrammatid
wasp) 699

Melanagromyza phaseoli (bean fly)
33, 45, 49, 61, 131, 258, 310, 487, 507,
531, 644, 699, 754, 767, 784

Melanaspis obscura (obscure scale)
130, 156, 725

Melanophila californica (California
flatheaded borer) 244

Melanoplus spp. (grasshoppers)
117, 120, 193, 338, 362, 413, 423, 465,
486, 506, 539, 565, 583, 607

Melanoplus aridus (a grasshopper)
65

Melanoplus bivittatus (two-striped
grasshopper) 64, 257, 272, 282, 309,
322, 338, 362, 390-391, 412-413, 429-
430, 443, 465, 486, 506, 529-530, 565,
606, 624, 664, 685, 698

Melanoplus cinereus cinereus
529

Melanoplus confusus
439, 443

Melanoplus dawsoni
546

Melanoplus differentialis (differential
grasshopper) 64, 65, 98, 338, 390, 430,
443, 521, 606, 607, 685, 698

Melanoplus femurrubrum (redlegged grass-
hopper) 64, 65, 98, 117, 362, 382, 390,
413, 439, 457, 465, 477, 486, 521, 530,
546, 558, 583, 606, 624, 685, 698

Melanoplus franciscanus
65

Melanoplus keeleri
443

Melanoplus occidentalis
338

Melanoplus packardii (Packard grasshopper)
64, 117, 338, 390, 443, 465, 506, 530,
664

Melanoplus sanguinipes (migratory grass-
hopper) 64, 65, 117, 257, 272, 282-
309, 322, 338, 361, 362, 390, 391, 412,
413, 429, 430, 443, 457, 465, 477, 486,
506, 529, 530, 546, 565, 624, 664, 698

Melanoplus yarrowii
685

Melanotus communis (a wireworm)
94, 278, 351

Melastoma borer
(Selca brunella)

Melipotis indomita (a noctuid moth)
47, 168, 216, 232, 273, 310, 323, 431,
487, 603, 686, 754

Melon aphid
(Aphis gossypii)

Melon fly
(Dacus cucurbitae)

Melophagus ovinus (sheep ked)
272

Melormenis antillarum (a flatid bug)
46, 392

Merchant grain beetle
(Cryzaephilus mercator)

Mermiria bivittata maculipennis
(a grasshopper) 529

Mercomyza americana (wheat stem maggot)
303, 351

Metaseiulus occidentalis (a phytoseiid
mite) 480, 606

Meteorus laphygmae (a braconid wasp)
273, 783

Metrioptera roselii (a grasshopper)
481, 579

Mexican bean beetle
(Epilachna varivestis)

Micotromus picirostris (clover seed
weevil) 353

Microctonus aethiops (a braconid wasp)
179, 429, 431, 498

Microctonus colesi
179, 231, 232

Microlarinus lareynii (a puncturevine seed weevil) 179, 429, 431, 502, 505
Microlarinus lypriformis (a puncturevine stem weevil) 49, 232, 323, 334, 337, 467, 546, 550, 585
 Migratory grasshopper
 (Melanoplus sanguinipes)
 Mimosa webworm
 (Homadaula anisocentra)
Mindarus abietinus (balsam twig aphid) 321
Mocis latipes (a grassworm) 98
Monarthropalpus buxi (boxwood leafminer) 157
Monarthrum fasciatum (a bark beetle) 411, 415
Monellia spp. (yellow aphids) 662, 682
Monellia costalis (blackmargined aphid) 154, 387, 461, 662, 682
Monelliopsis nigropunctata (an aphid) 154
 Monkeypod moth
 (Polydesma umbricola)
Monoceta coryli (larger elm leaf beetle) 563, 581
Monoctenus mellicepe (a juniper sawfly) 460, 463
Monodontomerus dentipes (a Torymid wasp) 307
Montandoniella moraguesi (an anthocorid bug) 531
 Mormon cricket
 (Anabrus simplex)
 Mosquitoes
 193, 215, 230, 256, 272, 281, 321, 337, 360, 363, 389, 411, 428, 442, 463, 485, 505, 528, 545, 564, 579, 606, 623, 641, 663, 664, 683, 697, 764
 Mottled tortoise beetle
 (Deloyala guttata)
 Mountain pine beetle
 (Dendroctonus ponderosae)
 Mourningcloak butterfly
 (Nymphalis antiopa)
 Mulberry whitefly
 (Tetrалеurodes mori)
Musca autumnalis (face fly) 147, 174, 175, 245, 356, 360, 389, 410, 428, 442, 463, 484, 504, 527, 545, 563, 579, 581, 605, 610, 622, 640, 641, 643, 663, 697, 740
Musca domestica (house fly) 148, 167, 177, 231, 582
Myzocallis coryli (filbert aphid) 243
Myzus cerasi (black cherry aphid) 306
Myzus persicae (green peach aphid) 19, 41, 61, 78, 108, 123, 138, 139, 152, 166, 168, 191, 255, 306, 355, 407, 414, 440, 459, 460, 479, 480, 481, 501, 502, 523, 524, 542, 561, 578, 619, 620, 621, 644, 680, 739, 751

N

Nabis spp. (damselfly bugs) 80, 110, 231, 623, 624
Nabis americana
 623
 Nantucket pine tip moth
 (Rhyacionia frustrana)
 Narrow winged katydid
 (Elimaea punctifera)
 Native elm bark beetle
 (Hylurgopinus rufipes)
 Navel orangeworm
 (Paratyvelois transitella)
Neacoryphus bicrucis (a Lygaeid bug) 14, 45, 699, 701

Necrobia ruficollis (redshouldered ham beetle) 764
Nematus abbottii (a sawfly) 16, 174
Neodiprion spp. (conifer sawflies) 169, 170, 271, 280, 307
Neodiprion excitans 169, 170, 765, 781
Neodiprion lecontei (redheaded pine sawfly) 484, 504
Neodiprion nanulus nanulus (red pine sawfly) 409
Neodiprion pratti banksianae (jack pine sawfly) 169, 170, 427
Neodiprion pratti pratti 271, 280, 307
Neodiprion sertifer (European pine sawfly) 169, 170, 307, 335, 410, 605, 610
Neodiprion taedae linearis 166, 169, 170, 271, 280, 307, 310
Neolasioptera nodulosa (a cecidomyiid midge) 409, 415
Neophasia menapia (pine butterfly) 605
Nesosydne koeae (a delphacid planthopper) 754
Neurocolpus nubilis (clouded plant bug) 459, 460, 479, 481
Nezara viridula (southern green stink bug) 19, 44, 119, 149, 258, 323, 339, 414, 423, 467, 531, 617, 660, 711, 750, 767
Nicentrus saccharinus (a sugarcane weevil) 431, 475
 Noctuid moths
 57, 60
Nomia melanderi (alkali bee) 180
Norape ovina (a megalopygid moth) 14
 Northern cattle grub
 (Hyoderma bovis)
 Northern corn rootworm
 (Diabrotica longicornis)
 Northern fowl mite
 (Ornithonyssus sylvianum)
 Northern house mosquito
 (Culex pipiens pipiens)
 Northern masked chafer
 (Cyclocephala borealis)
Notoedres douglasi (an itch mite) 14, 178
Nuculaspis californica (black pineleaf scale) 739
Nympha phaeorrhoea (browntail moth) 63
Nymphalis antiopa (mourningcloak butterfly) 230
Nysius ericae (false chinch bug) 318

Oak leaf-tier
 (Croesia albicomana)
 Oak skeletonizer
 (Bucculatrix ainliella)
Oberea bimaculata (raspberry cane borer) 462
 Obscure scale
 (Melanaspis obscura)
Octotoma scabripennis (lantana leaf beetle) 531
Odontopus calceatus (a leafmining weevil) 281, 308
Oedaleonctus enigma (a grasshopper) 64, 282, 309, 338, 361, 362, 412, 443, 460, 465, 529
Oestrus ovis (sheep bot fly) 230
 Oldhouse borer
 (Hylotrupes bajulus)

Olesicoccus coccidivora (a coccidomyiid
midge) 20
Oligonychus spp. (spider mites)
387
Oligonychus aceris
321
Oligonychus bicolor
385, 387
Oligonychus ilicis (southern red mite)
385, 387
Oligonychus mangiferus
754
Oligonychus pratensis (Banks grass mite)
89, 95, 96, 99, 179, 218, 268, 382, 423,
498, 520, 539, 557, 575, 599, 615, 634,
678
Oligonychus ununguis (spruce spider mite)
192, 441
Oligosita sp. (a trichogrammatid wasp)
567
Olive scale
(Parlatoria oleae)
Oncideres cingulata (twig girdler)
697, 751
Onion maggot
(Hylemya antiqua)
Onion thrips
(Thrips tabaci)
Oecencyrtus kuwanai (an encyrtid wasp)
65, 642, 643, 664, 698, 713, 725
Opeia obscura (a grasshopper)
4, 6
Opius spp. (braconid wasps)
45, 61, 131, 258, 531, 644, 754
Opius cereus
179
Opius importatus
49, 258, 310, 507, 644, 754, 767, 784
Opius phaseoli
49, 131, 258, 310, 507, 644, 767, 784
Orangestriped cakworm
(Anisota senatoria)
Orcus chalybeus (steelblue lady beetle)
47
Orygia rindgei (a liparid moth)
779, 782
Oriental fruit fly
(Dacus dorsalis)
Oriental fruit moth
(Grapholitha molesta)
Orius spp. (flower bugs)
180
Orius insidiosus
231
Ornithonyssus sylviarum (northern fowl
mite) 272, 641, 764
Oryzaephilus mercator (merchant grain
beetle) 14
Oryzaephilus surinamensis (sawtoothed
grain beetle) 20, 634
Ostrinia nubilalis (European corn borer)
19, 22, 26, 27, 50, 59, 89, 107, 127,
131, 138, 140, 145, 239, 268, 277, 302,
318, 320, 330, 350-351, 382, 386, 402,
422-423, 437-438, 454-455, 475-476,
481, 496-497, 510-511, 519-520, 538,
555, 561, 575, 583, 598, 610, 615, 634,
658, 665, 677, 693, 709-710, 711, 714,
749. Light traps: 247, 263, 274, 284,
311-312, 324, 340-341, 364-365, 393-
394, 416-417, 432-433, 446-447, 468-
469, 488-489, 508-509, 532-533, 548-
549, 568-569, 586-587, 608-609, 626-
627, 645-646, 667-668, 687, 700
Otobius megnini (ear tick)
5, 178, 623, 764, 780
Oulema melanopus (cereal leaf beetle)
14, 63, 245, 256, 272, 282, 309, 310,
322, 334, 337, 361, 371-378, 386, 390,
411-412, 415, 429, 460, 464, 481, 485,
529, 582
Oystershell scale
(Lepidosaphes ulmi)

P

Pachysomoides stupidus (an ichneumon
wasp) 33, 414
Pacific beetle cockroach
(Diploptera punctata)
Pacific spider mite
(Tetranychus pacificus)
Packard grasshopper
(Melanoplus packardii)
Palearcitra vernata (spring cankerworm)
109, 129, 172, 255, 271, 336, 359, 388
Pale western cutworm
(Agrotis orthogonia)
Palmiculitor palmarum (palm mealybug)
194
Palm leaf skeletonizer
(Homaledra sabalella)
Palm mealybug
(Palmiculitor palmarum)
Pangaesus bilineatus (a burrowing stink
bug) 120
Panonychus citri (citrus red mite)
4, 42, 78, 79, 108, 128, 165, 166, 213,
244, 270, 306, 357, 408, 461, 482, 526,
580, 638
Panonychus ulmi (European red mite)
60, 150, 151, 229, 243, 255, 280, 335,
387, 408, 427, 441, 461, 482, 525, 562,
580, 639
Pantomorus cervinus (Fuller rose beetle)
20, 149, 714
Pantomorus taeniatus (a weevil)
762
Papaipema nebris (stalk borer)
93, 351
Papilio polyxenes asterius (black
swallowtail) 637, 643
Papilio nuthus (swallowtail butterfly)
7, 11, 45, 61, 111, 149, 168, 363, 431,
487, 585, 603, 783
Paraclemensia acerifoliella (maple
leafcutter) 663
Paralobesia lirioidendrana (an olethreutid
moth) 15, 173
Paralobesia viteana (grape berry moth)
155, 358, 662
Paramyeloides transitella (navel
orangeworm) 154, 765
Parasitic wasps
781
Paratrioza cockerelli (potato psyllid)
422
Parlatoria oleae (olive scale)
751, 758
Parlatoria pergandii (chaff scale)
42, 79, 128, 165, 213, 270, 306, 358,
409, 462, 483, 526, 580, 638
Patapius spinosus (a leptoipid bug)
43
Patasson luna (a mymarid wasp)
781, 782
Pea aphid
(Acyrthosiphon pisum)
Peachtree borer
(Sanninoidea exitiosa)
Peach twig borer
(Anarsia lineatella)
Pea leaf weevil
(Sitona lineatus)
Pealius hibisci (a whitefly)
4, 6
Pearleaf blister mite
(Phytoptus pyri)
Pear psylla
(Psylla pyricola)
Pear rust mite
(Epitimerus pyri)
Pearslug
(Caliroa cerasi)

Pea weevil
(*Bruchus pisorum*)

Pecan nut casebearer
(*Acrobasis caryae*)

Pecan phylloxera
(*Phylloxera devastatrix*)

Pecan spittlebug
(*Clastoptera achatina*)

Pecan weevil
(*Curculio caryae*)

Pectinophora gossypiella (pink bollworm)
6, 33, 43, 66, 194, 245, 257, 362, 444,
448-450, 466, 506, 530, 547, 566, 584,
607, 624, 642, 665, 685, 698, 713, 726,
741, 753, 766

Pediassis mutabilis (a sod webworm)
599

Penthaleus major (winter grain mite)
4, 97, 107, 127, 145, 163, 190

Pepper weevil
(*Anthonomus eugeni*)

Peregrinus maidis (corn planthopper)
194, 273, 283, 487, 666, 714, 783

Pericyma cruegeri (a noctuid moth)
11, 15, 45

Peridroma saucia (variegated cutworm)
132, 140, 269, 304, 332, 440, 501, 523,
542, 558, 560, 578, 637. Light traps:
9, 21, 111, 131, 186, 217, 233, 247, 263,
274, 284, 311, 324, 340-341, 364-365,
393-394, 416-417, 432-433, 446-447, 468-
469, 488-489, 508-509, 532-533, 548-549,
568-569, 586-587, 608-609, 626-627, 645-
646, 667-668, 687, 700, 715, 726, 742,
753

Periodical cicada
(*Magicicada septendecim*)

Perkinsiella saccharicida (sugarcane
leafhopper) 46

Petrobia harti (a spider mite)
544, 550

Petrobia latens (brown wheat mite)
59, 97, 99, 100, 145, 163, 190, 194, 211,
227, 241, 251, 253, 278, 279, 303, 318,
319, 320, 331, 737

Phalonia hospes (banded sunflower moth)
124, 619

Phanaeus vindex (a scarab)
411, 415

Phenacaspis cockerelli (an armored scale)
20, 156, 246, 686, 763

Phenacaspis heterophyllae (an armored
scale) 780, 782

Phenacoccus aceris (apple mealybug)
15

Phenacoccus solani (a mealybug)
763

Philaenus spumarius (meadow spittlebug)
241, 304, 307, 319, 326, 332, 405, 616,
694, 723

Phlegonixia delatrix (a noctuid moth)
216, 767

Phlibostroma quadrimaculatum (a grass-
hopper) 62, 338, 430, 685, 698

Phloeotribus dentifrons (a bark beetle)
15

Phoebis sennae (a pierid butterfly)
15, 156

Phorodon humuli (hop aphid)
480

Phrydiuchus tau (a weevil)
179, 765

Phryganidia californica (California
oakworm) 255

Phthorimaea operculella (potato tuberworm)
138, 323, 751

Phyllobius oblongus (a weevil)
192, 194

Phyllocoptruta oleivora (citrus rust mite)
42, 78, 128, 155, 165, 213, 243, 270,
306, 357, 408, 461, 482, 525, 580, 638

Phyllophaga spp. (white grubs)
477, 498, 521

Phyllophaga fimbripes

Phyllotreta cruciferae (a cabbage flea
beetle) 333

Phylloxera devastatrix (pecan phylloxera)
154

Phylloxera vitifoliae (grape phylloxera)
155, 462, 779, 782

Physokermes piceae (spruce bud scale)
5, 179, 561, 562

Phytoptus pyri (pearleaf blister mite)
503

Phytoseiid mites
606

Pteris rapae (imported cabbageworm)
131, 140, 542

Pikonema alaskensis (yellowheaded spruce
sawfly) 427

Pine butterfly
(*Neophasia menapia*)

Pine chafer
(*Anomala obliqua*)

Pine needle sheathminer
(*Zelleria haimbachi*)

Pine root collar weevil
(*Hylobius radicis*)

Pine spittlebug
(*Aphrophora parallela*)

Pine tube moth
(*Argyrotaenia pinatubana*)

Pine tussock moth
(*Dasychira plagiata*)

Pineus pini (an adelgid)
7, 20, 45, 47, 258, 727, 767

Pink bollworm
(*Pectinophora gossypiella*)

Pinnaspis aspidistrae (fern scale)
779, 782

Pinyonius edulicola (a cecidomyiid midge)
15

Pissodes strobi (white pine weevil)
763, 766

Pitch pine tip moth
(*Rhyacionia rigidana*)

Plagiobammus spinipennis (a lantana
cerambycid) 61, 392, 727

Plant bugs
406

Plathypena scabra (green cloverworm)
558, 576, 600, 613, 616, 617, 679, 710,
722, 738

Platyedra ruficornis (redhorned grain
beetle) 765

Platygaster obscuripennis (a platygasterid
wasp) 15, 174

Platynota flavedana (a tortricid moth)
150

Platynota stultana
129, 640

Platyptilia carduidactyla (artichoke plume
moth) 141

Platyptilia pica crataea (a plume moth)
409

Platytranychus thujae (a spider mite)
356, 358

Plecolephus basizonus (an ichneumon wasp)
307

Plodia interpunctella (Indian meal moth)
148, 623, 664, 765

Plum curculio
(*Conotrachelus nemuphar*)

Plutella xylostella (diamondback moth)
7, 147, 323, 339, 363, 543

Phnyxia scabiei (potato scab gnat)
460, 620, 637, 643, 680, 711

Podisus maculiventris (spined soldier bug)
171

Podotachina sorbillans (a tachina fly)
149

Polistes spp. (vespid wasps)
33, 216, 783

Polydesma umbricola (monkeypod moth)
47, 310, 323

Polyphagotarsonemus latus (broad mite)
431, 567

Popillia japonica (Japanese beetle)
66, 273, 322, 338, 362, 391, 413, 415,

430, 460, 465-466, 486, 506, 530, 547,
565-566, 584, 642, 665, 685

Poplar-and-willow borer
(*Cryptorhynchus lapathi*)

Porthetria dispar (gypsy moth)
15, 65, 181, 196, 197, 257, 273, 282,
309, 362, 391, 413, 430, 444, 465, 486,
506, 547, 561, 565, 583, 642, 664, 665,
688-689, 698, 713, 717-718, 725, 782

Potato aphid
(*Macrosiphum euphorbiae*)

Potato flea beetle
(*Epitrix cucumeris*)

Potato leafhopper
(*Empoasca fabae*)

Potato psyllid
(*Paratrioza cockerelli*)

Potato tuberworm
(*Phthorimaea operculella*)

Precis coenia (a nymphalid butterfly)
624

Procecidochares utilis (a gall fly)
603, 699

Prociphilus tessellatus (woolly alder
aphid) 410

Prosapia bicincta (twolined spittlebug)
98, 557

Protodiaspis didymus (an armored scale)
780, 782

Protophila australis (a piophilid fly)
11, 45

Pseudaletia unipuncta (armyworm)
3, 59, 81, 127, 189, 227, 239, 251, 277,
301, 317, 329, 349, 381, 388, 401, 437,
473, 517, 523, 531, 553, 597, 633, 721,
777. Light traps: 9, 21, 33, 111, 131,
186, 217, 233, 247, 263, 274, 284, 311,
312, 324, 340-341, 364-365, 393-394,
416-417, 432-433, 446-447, 468-469, 488-
489, 508-509, 532-533, 548-549, 568-569,
586-587, 608-609, 626-627, 645-646, 667-
668, 687, 700, 715, 726, 742, 753

Pseudaonidia clavigera (an armored scale)
696, 701

Pseudatomoscelis seriatus (cotton
leafhopper) 122, 385, 406, 425, 440,
459, 542

Pseudaulacaspis pentagona (white peach
scale) 621

Pseudococcus comstocki (comstock mealybug)
167, 390, 465, 485, 505, 565, 579, 583,
606, 624, 684, 741

Pseudococcus longispinus (longtailed
mealybug) 60

Pseudococcus maritimus (grape mealybug)
306

Pseudopiusia includens (soybean looper)
59, 60, 600, 602, 617, 637, 657, 661,
680, 695

Pseudoscymnus anomalus (a lady beetle)
644, 666

Psillocorsis faginella (an oecophorid moth)
15, 173

Psolocessa delicatula (a grasshopper)
257

Psorophora confinnis (a mosquito)
360, 389, 463

Psorophora signipennis
641, 643

Psoroptes equi (scab mite)
43

Psylla pyricola (pear psylla)
41, 108, 147, 150, 152, 230, 321, 357,
387, 427, 482, 544, 550, 712, 751

Psylla uncatoides (a psyllid)
686, 727

Pteromalus venustus (a pteromalid wasp)
15

Ptinus clavipes (brown spider beetle)
110, 111, 231, 232

Pulvinaria ericicola (a soft scale)
15

Pulvinaria mesembryanthemi
696

Purple scale
(*Lepidosaphes beckii*)

Puss caterpillar
(*Megalopyge opercularis*)

Pyrusta spp. (pyralid moth)
695, 723

Pyrusta fumalis
695

Pyrusta ochosalis
695

Pyrrhalta luteola (elm leaf beetle)
129, 147, 149, 173, 192, 194, 230, 244,
245, 271, 321, 336, 359, 388, 441, 484,
526, 544, 561, 563, 605, 621, 682, 685,
712

Q

Quadraspidotus perniciosus (San Jose
scale) 41, 60, 152, 525, 580, 604, 724

Quadraspidotus taxodii (an armored scale)
780, 782

R

Range caterpillar
(*Hemileuca oliviae*)

Range crane fly
(*Tipula simplex*)

Raspberry cane borer
(*Oberea bimaculata*)

Raspberry crown borer
(*Bembecia marginata*)

Redbacked cutworm
(*Euxoa ochrogaster*)

Redbanded leafroller
(*Argyrotaenia velutinana*)

Redbanded thrips
(*Selenothrips rubrocinctus*)

Red flour beetle
(*Tribolium castaneum*)

Redheaded pine sawfly
(*Neodiprion lecontei*)

Red-horned grain beetle
(*Platydema ruficorne*)

Redhumped caterpillar
(*Schizura concinna*)

Red imported fire ant
(*Solenopsis invicta*)

Redlegged grasshopper
(*Melanoplus femurrubrum*)

Rednecked peanutworm
(*Stegasta bosqueella*)

Red pine sawfly
(*Neodiprion nanulus nanulus*)

Redshouldered ham beetle
(*Necrobia ruficollis*)

Reticulitermes spp. (subterranean termites)
109

Reticulitermes flavipes (eastern
subterranean termite) 32, 109, 178

Reticulitermes hesperus (western
subterranean termite) 130

Reticulitermes tibialis (a subterranean
termite) 109

Rhagoletis cingulata (cherry fruit fly)
153, 357

Rhagoletis completa (walnut husk fly)
154, 544

Rhagoletis indifferens (western cherry
fruit fly) 153, 306, 357

Rhagoletis mendax (blueberry maggot)
152, 358

Rhagoletis pomonella (apple maggot)
153, 387, 562, 604

Rhinocyllus conicus (a weevil)
505, 684

Rhipicephalus sanguineus (brown dog tick)
664, 740

Rhodesgrass scale
(*Antonina graminis*)

Rhopalosiphum fitchii (apple grain aphid)
 189, 633, 635, 712, 721, 761, 777
Rhopalosiphum maidis (corn leaf aphid)
 41, 46, 85, 178, 268, 277, 302, 329,
 349, 363, 401, 421, 437, 453, 473, 494,
 517, 531, 537, 554, 573, 597, 613, 633,
 666, 693, 721, 761
Rhopalosiphum nymphaeae (waterlily aphid)
 44, 111, 666
Rhopalosiphum padi (an aphid)
 15, 77, 107, 127, 163, 189
Rhycania buoliana (European pine shoot
 moth) 696
Rhycania bushnellii (an olethreutid moth)
 15, 170, 503, 544, 739
Rhycania frustrana (Nantucket pine tip
 moth) 109, 192, 335, 763, 779
Rhycania rigidana (pitch pine tip moth)
 15
Rhyzopertha dominica (lesser grain borer)
 701
 Rice weevil
 (Sitophilus oryzae)
Ricoseius loxochelae (a phytoseiid mite)
 193, 194, 215
Rodolia cardinalis (vedalia)
 462, 642
 Rosy apple aphid
 (Dysaphis plantaginea)
 Rosy predator snail
 (Englandina rosea)
 Roundheaded pine beetle
 (Dendroctonus adjunctus)
Rumina decollata (a snail)
 15

S

Saddled prominent
 (Heterocampa guttivitta)
 Sagebrush defoliator
 (Aroga websteri)
Saissetia coffeae (hemispherical scale)
 335
Saissetia miranda (a soft scale)
 462
Saissetia nigra (a soft scale)
 644
Saissetia oleae (black scale)
 42, 79, 129, 155, 165, 213, 243, 270,
 307, 358, 408, 461, 482, 526, 580, 638
 Saltmarsh caterpillar
 (Estigmene acrea)
 Saltmarsh mosquito
 (Aedes sollicitans)
Sanbornia juniperi (an aphid)
 779, 782
 San Jose scale
 (Quadraspidiotus perniciosus)
Sanninoidea exitiosa (peachtree borer)
 32, 150, 242, 335, 638, 724
 Saratoga spittlebug
 (Aphrophora saratogensis)
Sarcoptes scabiei (itch mite)
 42
 Sawflies
 169, 196, 197
 Sawtoothed grain beetle
 (Oryzaephilus surinamensis)
 Scab mite
 (Psoroptes equi)
Sceptrorhysis grandiclavata (a pteromalid
 wasp) 11, 781, 782
Schistocerca americana (American
 grasshopper) 98, 403
Schistocerca vaga (vagrant grasshopper)
 666
Schizaphis graminum (greenbug)
 3, 15, 19, 31, 41, 59, 77, 81, 86, 107,
 110, 127, 145, 163, 178, 179, 189, 211,
 227, 239, 251, 302, 317, 329, 350, 381,
 401-402, 415, 421-422, 437, 445, 453-
 454, 460, 464, 473-474, 481, 494-495,

505, 518, 537, 554, 597, 613, 633, 643,
 657, 677, 693, 709, 721, 737, 749, 761,
 777
Schizura concinna (redhumped caterpillar)
 562
Schreckensteinia festaliella (a heliodini
 moth) 232, 585
Scirtothrips citri (citrus thrips)
 108, 155, 166, 214, 441
Scirtothrips inermis (a thrips)
 481, 483, 502, 503
Scobicia declivis (leadcable borer)
 411
Scolia dubia (a scoliid wasp)
 698, 701
Scolytus spp. (fir engravers)
 195
Scolytus multistriatus (smaller European
 elm bark beetle) 173, 386, 388, 462,
 605
Scolytus rugulosus (shothole borer)
 525, 580
Scolytus ventralis (fir engraver)
 195
 Screwworm
 (Cochliomyia hominivorax)
Scutigerella immaculata (garden
 symphylan) 562
Scymnus spp. (lady beetles)
 485
Scyphophorus acupunctatus (a weevil)
 230, 232
 Seedcorn maggot
 (Hyalemya platura)
Selca brunella (melastoma borer)
 49, 111, 232, 339, 392, 467, 585, 644,
 784
Selenothrips rubrocinctus (redbanded
 thrips) 686
Semiothisa santaremaria (a geometrid moth)
 48, 61, 246, 273, 625, 754
Sepedon macropus (a sciomyzid fly)
 531
Sepedon n. sp. (a marsh fly)
 727
Sepedon sauteri (a sciomyzid fly)
 414, 531, 727
 Serpentine leafminer
 (Liriomyza brassicae)
 Sheep bot fly
 (Oestrus ovis)
 Sheep ked
 (Melophagus ovinus)
 Shortnosed cattle louse
 (Haematopinus eurysternus)
 Shothole borer
 (Scolytus rugulosus)
Simulium spp. (black flies)
 683
Simulium congareanarum (a whitestockinged
 black fly) 174, 177
Simulium jenningsi
 683
Simulium slossonae
 174, 177
Simulium venustum
 177, 282, 428, 683
Sipha flava (yellow sugarcane aphid)
 476, 481
Sitona lineatus (pea leaf weevil)
 140, 146, 305, 310, 320, 386, 521, 524,
 557, 561
Sitona scissifrons (a weevil)
 16
Sitophilus oryzae (rice weevil)
 598, 634, 604, 765
Sitotroga cerealella (Angoumois grain
 moth) 148
 Sixspotted mite
 (Botetranychus sexmaculatus)
 Smaller European elm bark beetle
 (Scolytus multistriatus)
Solenopsis spp. (fire ants)
 61, 765

Solenopsis geminata (fire ant)
750

Solenopsis invicta (red imported fire ant)
215, 309, 310, 356, 362, 579, 584, 782

Solenopsis saevissima richteri (imported fire ant) 6, 33, 61, 66, 103

Solenopsis xyloni (southern fire ant)
111, 623

Sorghum midge
(Contarinia sorghicola)

Sorghum webworm
(Celama sorghella)

Sourbhaw seed fly
(Acinia picturata)

South African emex weevil
(Apion antiquum)

Southern chinch bug
(Blissus insularis)

Southern corn rootworm
(Diabrotica undecimpunctata howardi)

Southern cornstalk borer
(Diatraea crambidoides)

Southern fire ant
(Solenopsis xyloni)

Southern green stink bug
(Nezara viridula)

Southern house mosquito
(Culex pipiens quinquefasciatus)

Southern pine beetle
(Dendroctonus frontalis)

Southern pine root weevil
(Hylobius aliradicis)

Southern potato wireworm
(Conoderus falli)

Southern red mite
(Oligonychus ilicis)

Southwestern corn borer
(Diatraea grandiosella)

Soybean cyst nematode
(Heterodera glycines)

Soybean looper
(Pseudoplusia includens)

Spathiengenia spinigera (a tachina fly)
765

Spharagemon collare (a grasshopper)
529

Sphenophorus spp. (billbugs)
94

Sphenophorus callosus (a billbug)
94

Sphenophorus cicatristriatus (a billbug)
438

Sphenophorus maidis (maize billbug)
94, 227, 251

Sphenophorus parvulus (bluegrass billbug)
98, 239, 438, 498, 520, 557, 576, 615

Spicaria (fungus)
84

Spilococcus ventralis (a mealybug)
130

Spined soldier bug
(Podisus maculiventris)

Spiny oakworm
(Anisota stigma)

Spirea aphid
(Aphis spiraeicola)

Spissistilus festinus (threecornered alfalfa hopper) 41, 120, 146, 424, 616, 738, 762

Spodoptera exigua (beet armyworm)
7, 20, 32, 116, 124, 131, 138, 141, 191, 229, 242, 253, 332, 335, 354, 445, 467, 507, 521, 557-558, 567, 577, 579, 600, 603, 617, 618, 619, 620, 661, 666, 678, 681, 686, 695, 711, 767, 778. Light traps: 9, 233, 247, 263, 274, 284, 311, 324, 340, 364, 364, 469, 488-489, 508-509, 532, 548-549, 568-569, 586-587, 608, 626-627, 645-646, 667-668, 687, 700, 715, 726, 742, 753

Spodoptera frugiperda (fall armyworm)
89, 92, 96, 239, 277, 438, 456, 493, 497, 498, 521, 523, 539, 553, 556, 557, 575, 579, 599, 615, 618, 633, 635, 659, 678, 679, 694, 710, 722, 737, 750.

Light traps: 9, 33, 324, 340, 364, 393, 416, 432, 446, 468-469, 488-489, 508-509, 532, 548-549, 568-569, 586-587, 608-609, 626-627, 645-646, 667-668, 687, 700, 715, 726, 742, 753

Spodoptera mauritia (lawn armyworm)
283

Spodoptera ornithogalli (yellowstriped armyworm) 96, 304, 678. Light traps: 9, 21, 33, 111, 131, 186, 217, 233, 247, 263, 274, 284, 311, 324, 340, 364-364, 393-394, 416-417, 432-433, 446, 468-469, 488-489, 508-509, 532-533, 548-549, 568-569, 586-587, 608-609, 626-627, 645-646, 667-668, 687, 700, 715, 726, 742, 753

Spodoptera praefica (western yellowstriped armyworm) 140, 229, 331, 477, 481, 499, 524, 600

Spotted alfalfa aphid
(Therioaphis maculata)

Spotted asparagus beetle
(Crioceris duodecimpunctata)

Spotted cutworm
(Amathes c-nigrum)

Spring cankerworm
(Paleacrita vernata)

Spruce beetle
(Dendroctonus rufipennis)

Spruce bud scale
(Physokermes piceae)

Spruce budworm
(Choristoneura fumiferana)

Spruce spider mite
(Oligonychus ununguis)

Stable fly
(Stomoxys calcitrans)

Stalk borer
(Papaipema nebris)

Steelblue lady beetle (Orcus chalybeus)
47

Stegasta bosqueella (rednecked peanutworm)
478, 558, 577, 618, 711, 723

Stenotarsconemus pallidus (cycloclamen mite)
166

Stephanitis pyrioides (azalea lace bug)
387, 696

Stephanitis takeyai (a lace bug)
604, 610, 620, 621, 682, 685, 763

Stethorus sp. (a lady beetle)
179, 219, 564

Stethorus picipes (a lady beetle)
606

Stink bugs
617

Stomoxys calcitrans (stable fly)
167, 174, 177, 215, 245, 308, 389, 411, 442, 485, 504, 528, 545, 564, 582, 606, 623, 641, 663, 683, 697, 713, 753

Striped blister beetle
(Epicauta vittata)

Striped cucumber beetle
(Acalymma vittata)

Strauzia longipennis (sunflower maggot)
124

Strawberry spider mite
(Tetranychus turkestanii)

Strawberry weevil
(Anthonomus signatus)

Strigoderma arboricola (a scarab)
193

Striped horse fly
(Tabanus lineola)

Strymon melinus (cotton square borer)
280

Sugarbeet root maggot
(Petancop myopaeformis)

Sugarcane aphid
(Longirungius sacchari)

Sugarcane borer
(Diatraea saccharalis)

Sugarcane leafhopper
(Perkinsiella saccharicida)

Sugarcane leafroller
(Hedylepta accepta)

Sunflower beetle
 (Zygogramma exclamatoris)
Sunflower blossom midge
 (Contarinia schulzi)
Sunflower maggot
 (Strauzia longipennis)
Sunflower moth
 (Homococosa electellum)
Swallowtail butterfly
 (Papilio xuthus)
Sweetpotato flea beetle
 (Chaetocnema confinis)
Sweetpotato leaf beetle
 (Typhophorus nigritus viridicyaneus)
Sweetpotato leafminer
 (Bedellia orchilella)
Sweetpotato weevil
 (Cylas formicarius elegantulus)
Sycamore lace bug
 (Corythucha ciliata)
Symmerista albifrons (a notodontid moth)
 752, 758
Symmerista canicosta (a notodontid moth)
 171, 197, 462, 527
Sympiesis viridula (a eulophid wasp)
 579, 620
Synanthedon pictipes (lesser peachtree
 borer) 32, 150

T

Tabanus spp. (tabanid flies)
 308
Tabanus abactor
 308
Tabanus americanus
 308
Tabanus atratus (black horse fly)
 428
Tabanus cymatophorus
 16
Tabanus lineola (striped horse fly)
 308
Tachyterellus quadrigibbus (apple
 curculio) 335
Taeniothrips hawaiiensis (Hawaiian thrips)
 149
Tahitian coconut weevil
 (Diocalandra taitensis)
Takecallis arundinariae (a bamboo aphid)
 409, 415
Tarnished plant bug
 (Lygus lineolaris)
Taro leafhopper
 (Tarophagus proserpina)
Tarophagus proserpina (taro leafhopper)
 45, 666
Tathorhynchus angustiorata (a noctuid
 moth) 738
Taxodiomyia cupressiananassa (a gall
 midge) 147, 149
Tea scale
 (Fiorinia theae)
Teleonemia scrupulosa (lantana lace bug)
 283, 431
Telsimia nitida (a lady beetle)
 48, 61, 131, 363, 543, 644, 666
Tetanops myopaeformis (sugarbeet root
 maggot) 123, 279, 354, 355, 426, 501
Tetraleurodes mori (mulberry whitefly)
 244, 245
Tetralopha asperatella (a pyralid moth)
 16, 173
Tetralopha militella (a pyralid moth)
 16, 173
Tetranychus spp. (spider mites)
 191, 354, 499
Tetranychus cinnabarinus (carmine spider
 mite) 7, 45, 80, 89, 96, 131, 232, 333,
 467, 531, 699, 767
Tetranychus mcDanieli (McDaniel spider
 mite) 213, 306, 606

Tetranychus pacificus (Pacific spider
 mite) 118, 406
Tetranychus tumidus (tumid spider mite)
 339
Tetranychus turkestanii (strawberry spider
 mite) 242, 336
Tetranychus urticae (twospotted spider
 mite) 41, 89, 96, 120, 152, 156, 166,
 192, 333, 403, 406, 408, 476, 479, 480,
 502, 523, 524, 525, 540, 544, 557, 575,
 577, 601, 618, 621
Tetrastichus sp.
 781
Tetrastichus haitiensis
 67
Tetrastichus incertus
 172, 193
Tetrastichus julis
 411, 412, 415, 460, 464, 528, 561, 579,
 582
Texas citrus mite
 (Eutetranychus banksi)
Therioaphis maculata (spotted alfalfa
 aphid) 3, 19, 41, 59, 77, 81, 88, 107,
 127, 145, 163, 178, 189, 211, 227, 239,
 241, 251, 253, 277, 302, 330, 350, 404,
 422, 437, 454, 460, 474, 495, 519, 538,
 555, 564, 574, 579, 598, 614, 634, 657,
 665, 693, 709, 721, 737, 749
Threecornered alfalfa hopper
 (Spissistilus festinus)
Threelined potato beetle
 (Lema trilineata)
Threestriped blister beetle
 (Epicauta lemniscata)
Thrips
 122, 406
Thrips tabaci (onion thrips)
 33, 141, 253, 339, 487, 699, 727
Thyridopteryx ephemeraeformis (bagworm)
 109, 156, 244, 387, 483, 504, 527
Thysanopyga intractata (a geometrid moth)
 763, 779, 782
Tinocallis caryaefoliae (black pecan
 aphid) 154, 525, 562, 604, 638, 662,
 682, 712, 724
Tinocallis kahawaluokalani (crapemyrtle
 aphid) 712
Tipula paludosa (European crane fly)
 64, 282, 309, 565, 642, 664, 698, 741,
 765
Tipula simplex (range crane fly)
 146
Tobacco budworm
 (Heliothis virescens)
Tobacco flea beetle
 (Epitrix hirtipennis)
Tobacco hornworm
 (Manduca sexta)
Tobacco moth
 (Ephestia elutella)
Tobacco thrips
 (Frankliniella fusca)
Tomato hornworm
 (Manduca quinquemaculata)
Tomato pinworm
 (Keiferia lycopersicella)
Tomato russet mite
 (Aculops lycopersici)
Tomicus piniperda (a bark beetle)
 234
Toxoptera aurantii (black citrus aphid)
 445, 487
Toxoptera citricida (brown citrus aphid)
 47
Trachyrhynchus kiowa (a grasshopper)
 65, 714
Transverse lady beetle
 (Coccinella transversoguttata)
Trathala flavo-orbitalis (an ichneumon
 wasp) 467, 603, 783
Trialeurodes abutilonea (bandedwing
 whitefly) 119, 120, 122, 479, 481, 578,
 601, 602, 610, 619, 661, 695, 696, 750

Trialeurodes vaporariorum (greenhouse whitefly) 44, 46, 111, 168, 194, 246, 258, 363, 392, 445, 543, 567, 666, 699, 783

Tribolium auctax (American black flour beetle) 272, 273

Tribolium castaneum (red flour beetle) 684

Tribolium confusum (confused flour beetle) 20, 43, 80

Trichogramma spp. (minute egg parasites) 363, 431, 603

Trichogramma semifumatum (a minute egg parasite) 543

Trichomalus statutus (a pteromalid wasp) 11

Trichoplusia ni (cabbage looper) 4, 59, 60, 138, 140, 141, 189, 191, 501, 567, 578, 579, 600, 602, 619, 620, 636, 637, 657, 660, 661, 680, 681, 695, 711, 723, 751. Light traps: 186, 217, 233, 247, 263, 274, 284, 311, 324, 340, 364-365, 393-394, 417, 432-433, 446, 468-469, 488-489, 508-509, 532-533, 548-549, 568-569, 586-587, 608-609, 626-627, 645-646, 667-668, 687, 700, 715, 726, 753

Trichopoda pennipes (a tachina fly) 258, 339, 414, 467

Trichopoda pennipes pilipes (a tachina fly) 767, 784

Trichopoda pennipes var. pilipes (a tachina fly) 149

Trimerotropis latifasciata (a grasshopper) 529

Trimerotropis strenua (a grasshopper) 561

Trioxys pallidus (a braconid) 179

Trissolcus basalis (a scelionid wasp) 44, 339, 531

Trogoderma granarium (khapra beetle) 512-513, 628-630, 647-653

Tropidosteptes spp. (plant bugs) 281

Tropidosteptes illitus 281

Tropidosteptes pacificus 281, 527

Tulip bulb aphid (Dysaphis tulipae)

Tumid spider mite (Tetranychus tumidus)

Twicestabbed lady beetle (Chilocorus stigma)

Twig girdler (Oncideres cingulata)

Twolined spittlebug (Prosapia bicincta)

Twospotted lady beetle (Adalia bipunctata)

Twospotted spider mite (Tetranychus urticae)

Twostrided grasshopper (Melanoplus bivittatus)

Typhlodromus sp. (a phytoseiid mite) 213

Typhophorus nigritus viridicyaneus (sweetpotato leaf beetle) 603

Tyria jacobaeae (a cinnabar moth) 180, 505

Tytthus mundulus (cane leafhopper egg sucker) 46, 487, 714

U

Unaspis citri (an armored scale) 42, 79, 108, 129, 165, 213, 243, 270, 307, 358, 409, 461, 482, 526, 580, 638, 763

Uroplata girardi (lantana hispid) 111, 283, 431

Utabaenetes tanneri (a mole cricket) 331, 334

V

Vagrant grasshopper (Schistocerca vaga)

Variable oakleaf caterpillar (Heterocampa mantee)

Variiegated cutworm (Peridroma saucia)

Vedaia (Rodolia cardinalis)

Vegetable leafminer (Liriomyza munda)

Vegetable weevil (Listroderes costirostris obliquus)

Velataspis dentata (a diaspidid scale) 763

Velvetbean caterpillar (Anticarsia gemmatalis)

Vertigo rugosula oralis (a land snail) 168

Vexans mosquito (Aedes vexans nocturnus)

Vogtia malloi (a phycitid moth) 180

W

Walkingstick (Diaperomera femorata)

Walnut aphid (Chromaphis juglandicola)

Walnut caterpillar (Datana integerrima)

Walnut husk fly (Rhagoletis completa)

Waterlily aphid (Rhopalosiphum nymphaeae)

Weevils 684

Western bean cutworm (Loxagrotis albicosta)

Western blackheaded budworm (Acleris gloverana)

Western cherry fruit fly (Rhagoletis indifferens)

Western corn rootworm (Diabrotica virgifera)

Western flower thrips (Frankliniella occidentalis)

Western grapeleaf skeletonizer (Harrisina brillians)

Western spotted cucumber beetle (Diabrotica undecimpunctata undecimpunctata)

Western spruce budworm (Chorisonoura occidentalis)

Western subterranean termite (Reticulitermes hesperus)

Western tent caterpillar (Malacosoma californicum)

Western tussock moth (Hemerocampa vetusta)

Western yellowstriped armyworm (Spodoptera praefica)

West Indian sugarcane root borer (Diaprepes abbreviatus)

Wheat stem maggot (Meromyza americana)

Wheat stem sawfly (Cephus cinctus)

White fir needleminer (Epinotia meritana)

Whiteflies 42, 129, 165, 213, 243, 270, 307, 358, 409, 462, 483, 526, 581, 639

Whiterringed beetles (Graphognathus spp.) 187, 194

Whitelined sphinx
(Hyles lineata)
White peach scale
(Pseudaulacaspis pentagona)
White pine aphid
(Cinara strobi)
White pine weevil
(Pissodes strobi)
Winter grain mite
(Penthaeus major)
Winter tick
(Dermacentor albipictus)
Wireworms
94, 303
Woolly alder aphid
(Prociphilus tessellatus)
Woolly apple aphid
(Eriosoma lanigerum)
Woolly whitefly
(Aleurothrix floccosus)

X

Xanthippus corallipes (a grasshopper)
257
Xanthopimpla punctata (an ichneumon wasp)
356, 363
Xenochalepus dorsalis (locust leafminer)
174, 544
Xylomyges curialis (a noctuid moth)
306
Xylosandrus compactus (a bark beetle)
45, 47, 80
Xylosandrus germanus (a scolytid beetle)
640, 643

Y

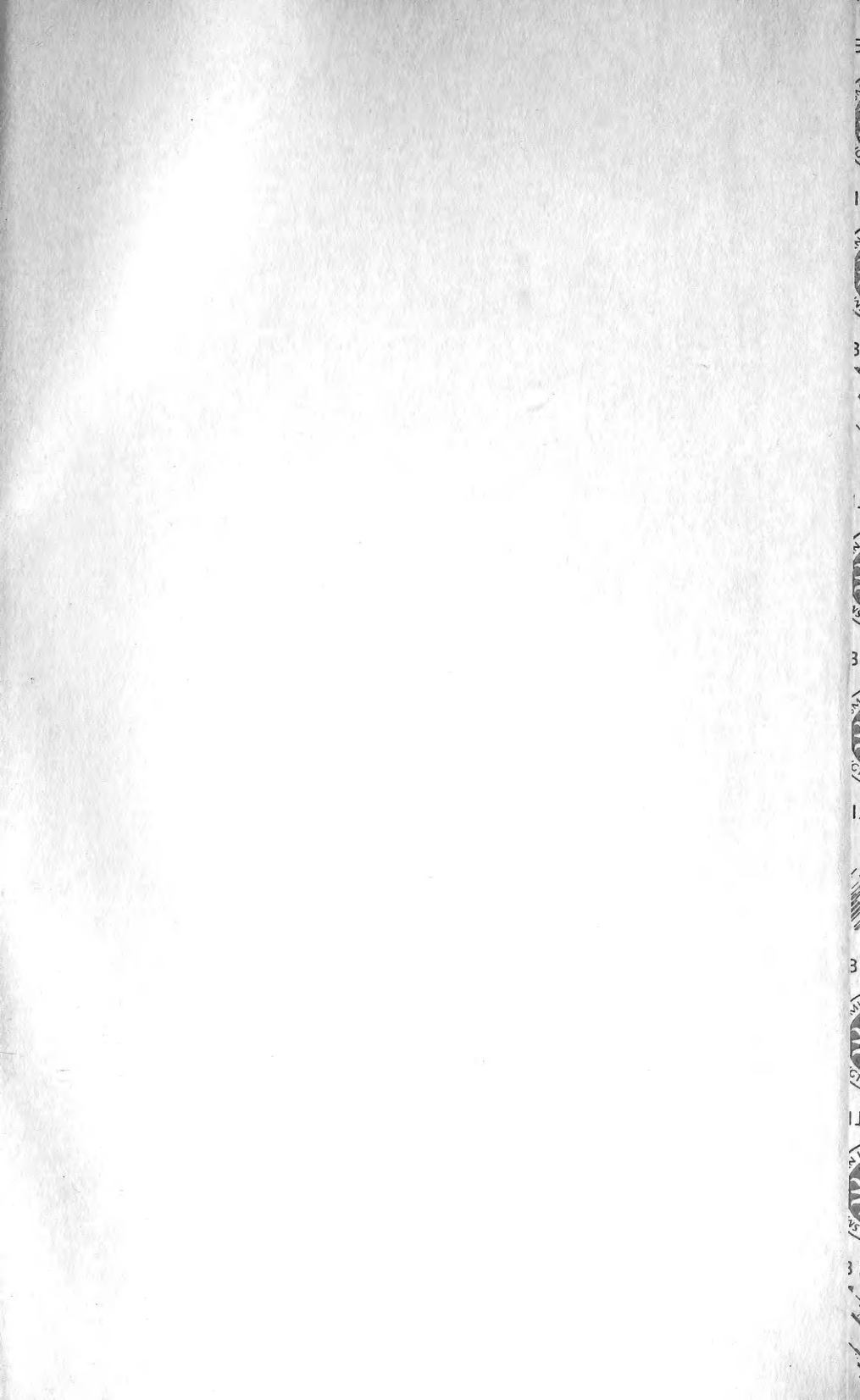
Yellowheaded spruce sawfly
(Pikonema alaskensis)
Yellow scale
(Aonidiella citrina)
Yellowstriped armyworm
(Spodoptera ornithogalli)
Yellow sugarcane aphid
(Sipha flava)

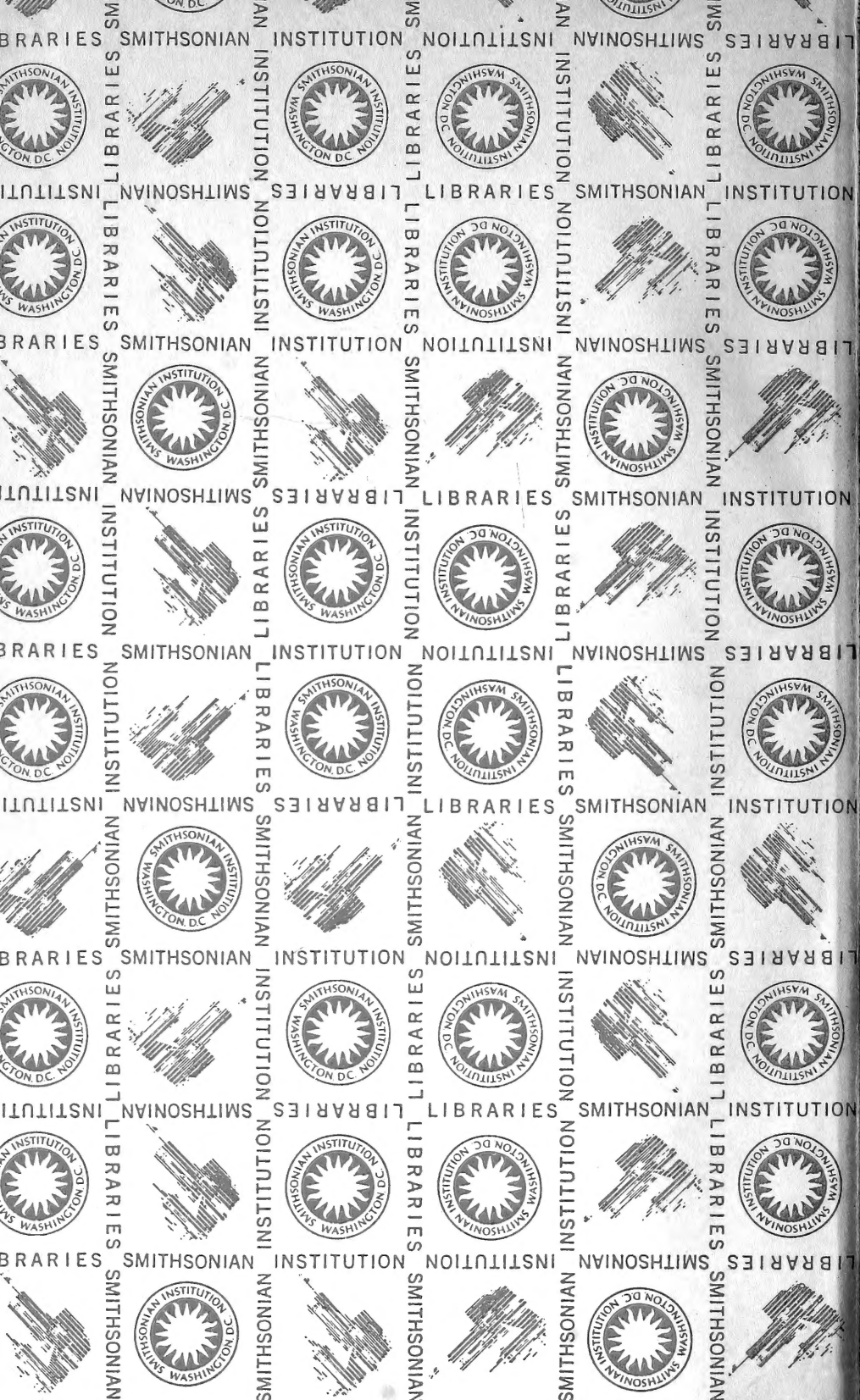
Z

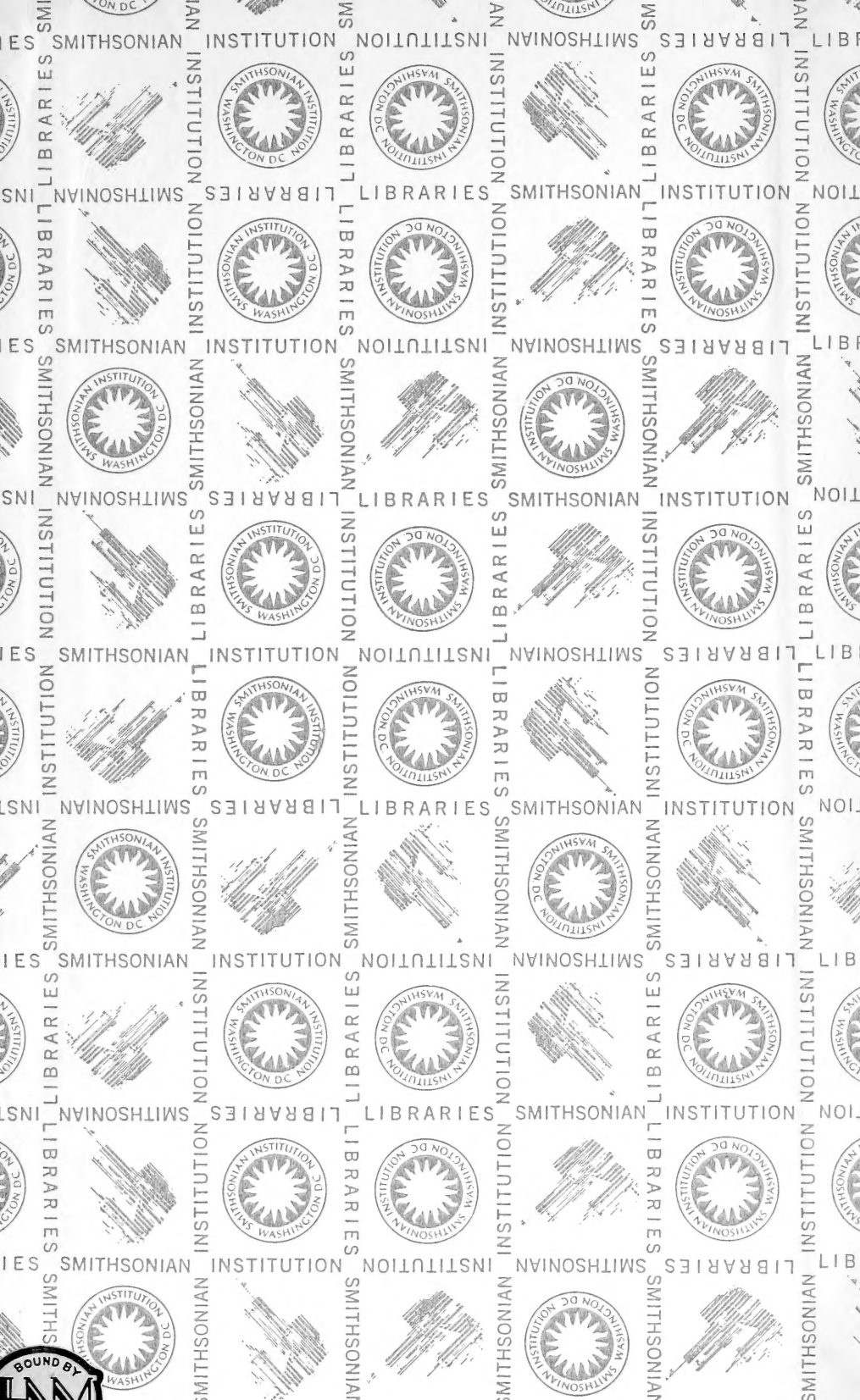
Zebra caterpillar
(Ceramica picta)
Zelleria hainbachi (pine needle
sheathminer) 739
Zelus renardii (a reduviid)
246, 323
Zetzellia mali (a phytoseiid mite)
606
Zeuxidiplosis giardi (a cecidomyiid
midge) 585
Zimmerman pine moth
(Dioryctria zimmermani)
Zygogramma exclamationis (sunflower
beetle) 355, 426











SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01271 7690