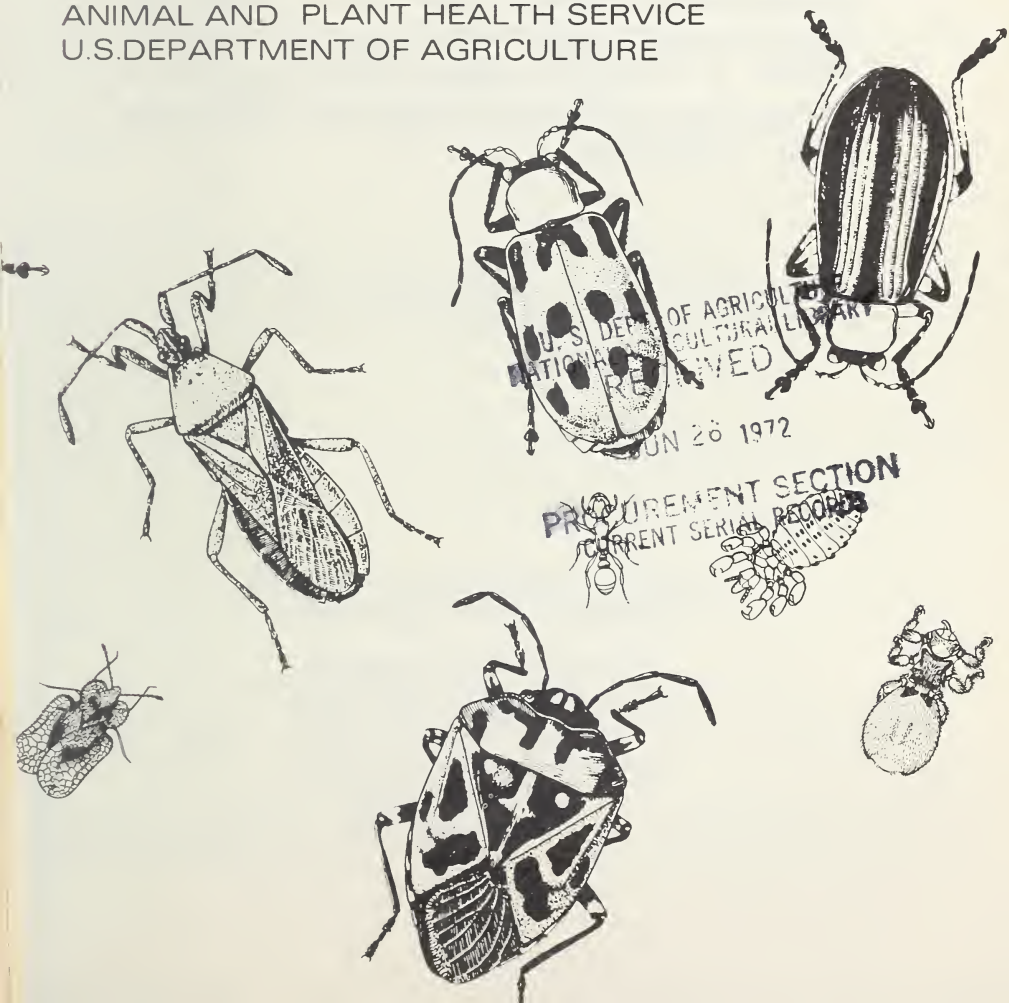


Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

Cooperative Economic Insect Report

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



ANIMAL AND PLANT HEALTH 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:

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

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM damaged corn in Ohio. (p. 349). GREENBUG increased on sorghum in Nebraska and Missouri. (p. 350).

CORN EARWORM heavier on corn in central Alabama than for several years. CORN BLOTCH LEAFMINER caused economic damage to corn for first time in two years in south-central South Carolina. (p. 351).

TOBACCO THRIPS and COTTON APHID caused heavier damage to cotton throughout Alabama than for several years. (p. 354).

SUGARBEET ROOT MAGGOT killed sugar beet seedlings in Wyoming. (p. 355). STRAWBERRY WEEVIL problem on strawberries in Washington. (p. 358).

DOUGLAS FIR BEETLE increased on north rim of Grand Canyon National Park (p. 358), and WHITE FIR NEEDLEMINER heavy on 10,000 acres of white fir in east-central Arizona (p. 359).

GRASSHOPPERS heavy on rangeland in south-central Oklahoma. Cooperative control program planned. (p. 362).

Predictions

EUROPEAN CORN BORER not expected to be problem in Illinois in 1972. (p. 350). MEXICAN BEAN BEETLE damage expected to be heavy throughout Eastern Shore of Maryland this season. (p. 355).

Detection

A SPIDER MITE reported for first time from Pennsylvania. (p. 358).

For new county and island records see page 356.

Special Reports

BOLL WEEVIL. Additional Selected References 1968-1969. (pp. 366-368).

Periodical Cicadas - Outlook for 1972. (pp. 369-370).

Infestation of Oats by the Cereal Leaf Beetle in 1970 and 1971. (pp. 371-378).

Reports in this issue are for week ending June 9 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance.....349

Insects Affecting

Corn, Sorghum, Sugarcane....	350	Beans and Peas.....	355
Small Grains.....	351	Cole Crops.....	356
Turf, Pastures, Rangeland...	352	Cucurbits.....	356
Forage Legumes.....	352	General Vegetables.....	356
Soybeans.....	353	Deciduous Fruits and Nuts...	357
Peanuts.....	354	Citrus.....	357
Cotton.....	354	Small Fruits.....	358
Tobacco.....	354	Ornamentals.....	358
Miscellaneous Field Crops...	355	Forest and Shade Trees....	358
Potatoes, Tomatoes, Peppers.	355	Man and Animals.....	359

Detection.....	356
Beneficial Insections.....	361
Federal and State Plant Protection Programs.....	361
Hawaii Insect Report.....	363
Light Trap Collections.....	364
Boll Weevil. Additional Selected References 1968-1969.....	366
Periodical Cicadas - Outlook for 1972.....	369
Infestation of Oats by the Cereal Leaf Beetle in 1970 and 1971.....	371

WEATHER OF THE WEEK ENDING JUNE 12

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

PRECIPITATION: Afternoon thundershowers dotted parts of the Nation. They were scattered from South Dakota and Nebraska to Wisconsin and in the western mountains Monday, in the West, Nebraska, northeast and southern Florida Tuesday. Fort Lauderdale, Florida, received 4.62 inches in 5 hours Tuesday afternoon. Late Tuesday, thunderstorms dotted the Pacific States, the intermountain region, the central Great Plains, and the Atlantic and gulf coasts. Wednesdays showers spotted the dry southwest mountains and deserts. Prescott, Arizona, received 1.48 inches and 0.06 inch fell at Phoenix. Light rain at Phoenix was remarkable because it ended a 160-day period of no rain or only very light sprinkles. Vigorous thunderstorms in some localities in west-central Iowa, 3 to 5 inches in some places, flooded roads and stalled traffic. Showers were widespread during the latter part of the week and over the weekend. A cold front pushed into the North Central States. Thunderstorms were numerous in moist air in advance of the Front. Some of the thunderstorms were heavy. Some were accompanied by damaging winds and hail. A few tornadoes occurred. The worst produced torrential rains in the Rapid City, South Dakota, area. Weekly totals were very unevenly distributed over the Nation. Parts of eastern Kansas received no rain, central Missouri received over 5 inches. Northeastern South Dakota received only light sprinkles but over 7 inches fell in spots in the Black Hills. Numerous other contrasts could be pointed out. Beneficial showers occurred in the previously dry Southwest. Weather of the week continued on page 365.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - NORTH DAKOTA - Damaged beets in several areas of Pembina County. Some field margins with up to 80 percent of plants destroyed. Several fields reseeded; controls applied. Completely destroyed 10 acres of sunflower in 60-acre field and 5 percent of plants in 160 acres in Crystal area, Pembina County. (Kaatz).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Found in flax in southwest and west-central districts; ranged 0-200 per 100 sweeps. Populations in small grain variable; ranged 20-400 per 100 sweeps in southwestern, west-central, and central districts. (Minn. Pest Rpt.).

ARMYWORM (Pseudaletia unipuncta) - PENNSYLVANIA - Light to moderate in no-till corn in south-central area. (Gessell, June 1).

MARYLAND - Mature larvae continue to infest small grains in Dorchester and Wicomico Counties. Most economic damage in isolated fields spotted throughout these counties. First infestations in no-till corn light in Frederick and Carroll Counties; second and third instars ranged 2-5 per 100 plants. Damage in corn remain below economic levels. (U. Md., Ent. Dept.). VIRGINIA - Damage medium to heavy on no-till corn in Montgomery County. Damage very heavy in Rockingham County, some larvae nearing pupation. (Roberts, June 2). Larvae heavily damaged no-till corn in Fluvanna County. Damage to small grain and corn still reported in Accomack and Northampton Counties. As food supply becomes low or grain matures, larvae will move to bordering corn. Check closely. (Watts, Hofmaster).

KENTUCKY - Caused heavy damage to no-till corn in Barren County. At one location, 10 percent of plants completely destroyed at emergence; 40 percent foliar loss on remaining plants. Less than 10 percent foliar loss observed in Woodford County. Larvae heavily damaged no-till corn in Larue County. Damage light to corn in Hardin County. (Barnett). OHIO - Some corn in Washington and Pike Counties replanted due to extensive feeding. Some damage reported to corn in Lawrence and Darke Counties (Blair); seedling corn in Morgan County (Fox); and no-till corn in Wayne County (Musick, Suttle). Outbreaks observed in Guernsey, Muskingum, Ashland, and Monroe Counties. (Triplett). INDIANA - Adults emerging in southern two-thirds of State. Single report of larval activity in Madison County. (Huber, Matthew). MISSOURI - Damaged corn in northeast area after field of rye totally defoliated. (Thomas). NEBRASKA - None observed in 2 fields of lodged wheat in Lancaster County. (Berogan). MINNESOTA - Light in grassy alfalfa and grassy margins in Kandiyohi, Meeker, and McLeod Counties. Not economic in any field. Mostly third instar. Few fourth instars found in grassy weeds at South Minneapolis home. Few moths caught in light traps in Worthington, Lamberton, and Crookston. (Minn. Pest Rpt.).

BEEF LEAFHOPPER (Circulifer tenellus) - IDAHO - Populations low throughout southern area. No control program planned for 1972. (Evans).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Some moderate to heavy infestations in whorls of 10 to 12-inch sorghum in Elk and Montgomery Counties; not heavy enough to cause reddening of terminal leaves. Light in whorls of 3-inch Sudan grass in Sedgwick

County and 16-inch Johnson grass in Elk and Montgomery Counties. (Bell). TEXAS - Light in several fields of grain sorghum in Hunt and Collin Counties. Controls not warranted. (Green). UTAH - Moderate on corn in Springfield and Provo area, Utah County. (Horn, Knowlton).

GREENBUG (Schizaphis graminum) - NEBRASKA - Increasing rapidly in grain sorghum throughout southern half of State. Light and occasional severe damage to seedling sorghum reported in southeast, east, central, south, and southwest districts. No evidence of parasitism; predators very low. Unless rain intervenes, problems expected to increase. (Roselle et al.). KANSAS - Flights to seedling sorghum decreasing in southeast area, but many flying from ripening wheat farther north. Little or no increase currently noted in fields checked 2 weeks ago in southeast district; apparently largely due to drought conditions. Greenbug heavier in low areas in sorghum fields in Shawnee and Neosho Counties than in higher areas; apparently associated with more plant drought stress on higher ground than in lower areas. Much treating of sorghum reported in northeast district. No heavy infestations in Sudan-sorghum crosses reported in southeast district. Little sorghum has emerged over much of south-central district due to low soil moisture. (Bell).

MISSOURI - Greenbug increased on sorghum in west-central and southwest areas. Colonies found on 30-40 percent of plants in some fields. (Munson). ARKANSAS - Light on sorghum in Jackson County; only 5 or 6 colonies found in 15 minutes. (Boyer). TEXAS - Light on sorghum in several fields in Hunt and Collin Counties. (Green).

SPOTTED ALFALFA APHID (Therioaphis maculata) - INDIANA - Ranged 2-3 per sweep in field of alfalfa in light soil in southwest district; counts lower in 2 other fields. Regrowth in these fields ranged 7-12 inches. (Meyer). KANSAS - Averaged 250 per 10 sweeps in 8-inch droughty, second-growth alfalfa in Harper County. (Bell).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MINNESOTA - Pupation well underway in southern half of State. Pupation by district: Southwestern 58 percent; west-central 40-50 percent; central 44 percent; southeastern 50 percent. In fields with old cornstalks still standing, pupation about 100 percent in southwestern and central districts. Moth emergence seen in southwestern and central districts, ranged trace to 2 percent. Corn generally too short for successful egg laying by early emerging moths. (Minn. Pest Rpt.). MICHIGAN - Adult emergence peaked June 6. Heaviest collections at Lenawee station where 229 taken (94 females). Mating and egg laying will be rapid next 1-3 weeks. (Sauer). OHIO - Oviposition begun, egg masses found throughout State. (Musick). ILLINOIS - Egg laying in field corn taking place throughout southern two-thirds of State; hatching throughout southern one-half. First instar larvae averaged 3 per plant in Monroe and Greene Counties; egg masses found in Moultrie and Sangamon Counties. Corn borer not expected to be problem in Illinois in 1972. (Cooley). IOWA - First moth collected May 28 at Ankeny. (Iowa Ins. Sur.).

MISSOURI - Leaf feeding observed on 2-10 (average 3) percent of plants in early planted fields in southwest area. (Munson). NEBRASKA - European corn borer moths increasing sharply at light traps at Plymouth and Lincoln. (Berogan). MARYLAND - First

Ostrinia nubilalis larvae of season infesting early corn in Dorchester and Wicomico Counties. Corn remains unattractive for egg laying but egg laying expected to increase rapidly within 5 days. (U. Md., Ent. Dept.). DELAWARE - Egg masses common on field corn in New Castle and Sussex Counties. (Burbutis, Kelsey). TENNESSEE - First-generation larvae damaged 20-40 percent of whorls on young corn in Gibson and Hardeman Counties. (Pless).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSISSIPPI - Larvae damaged up to 50 percent of corn in some small Leake County fields; some plants destroyed. (Robinson).

CORN EARWORM (Heliothis zea) - ALABAMA - Infestations in whorls of corn in all fields in Autauga and Chilton Counties; much heavier than in 1971 or for several years. (Kirkpatrick, Futral). KANSAS - Light traps show moths as far north as Manhattan, Riley County. (Bell). WASHINGTON - Larvae on tassels of market corn at Wapato, King County. (Togashi).

BLACK CUTWORM (Agrotis ipsilon) - KANSAS - Damaged seedling corn in Doniphan County field and seedling sorghum in Jackson County field. (Bell). NEBRASKA - Corn stands reduced 10-15 percent in scattered Dodge County fields. Some treatments applied. (Novotny). MISSOURI - Scattered damage to corn reported from northern area. (Thomas). IOWA - Larvae infesting low-lying cornfield in Polk County; 50 percent of plants either cut off or showed leaf feeding on corn 4 inches tall. (Iowa Ins. Sur., June 2).

STALK BORER (Papaipema nebris) - PENNSYLVANIA - Larvae destroyed 70 percent of no-till corn plants in Franklin County field; damage up to 30 percent in other fields. Several acres of 20-acre field in Lancaster County destroyed. (Gesell, June 1).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Damaging young grain sorghum and corn in many fields in Autauga and Chilton Counties. (McQueen).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Larvae severely damaging 15+ percent of young grain sorghum plants in 150-acre planting in west Morgan County. (Campbell). MISSOURI - Damaged corn in southeast area. Up to 50 percent of plants killed in some fields. (Thomas).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - Damaged corn in Franklin, Edgecombe, Nash, and Wilson Counties in Coastal Plain area. Heavy stand loss (10+ percent of plants) in about 1 percent of fields inspected. (Hunt).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Infestations detected in Collin and Hunt Counties. Collected 3 midges on 150 heads of grain sorghum in Collin County and 13 midges on 100 heads in Hunt County. No control needed at this time. (Green).

CORN BLOTCH LEAFMINER (Agromyza parvicornis) - SOUTH CAROLINA - Economic on corn in Berkeley and Dorchester Counties; first report of damage in 2 years. (Thomas).

SMALL GRAINS

WHEAT STEM MAGGOT (Meromyza americana) - NEBRASKA - White heads observed on about 1 percent of plants in 35-acre planting of triticale in Nemaha County. (Levigne).

HESSIAN FLY (Mayetiola destructor) - TENNESSEE - Infested total of 700 acres of wheat in McMinn County. Infested 1-99 percent of stalks in infested fields. (Gordon et al.).

TURF, PASTURES, RANGELAND

SAGEBRUSH DEFOLIATOR (Aroga websteri) - UTAH - Moderate on sagebrush west and south of Snowville, Box Elder County; light in Hobble Creek Canyon, Utah County. (Knowlton).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Small larvae found in 2 alfalfa seed fields east of Othello, Grant County, June 2; larvae ranged 0.08-0.12 per sweep. This is a new record for Grant County and the Columbia Basin. About 10 larvae per sweep in several alfalfa seed fields in Touchet area, Walla Walla County, May 25. (Johansen). IDAHO - Larvae feeding on new and established alfalfa throughout Gooding County. Treatment planned to stubble after hay crop removed. (Koester). Larvae ranged up to 100 per sweep in one-third of Lincoln County alfalfa June 5. (Hopkins). WYOMING - Larvae averaged 74 per 10 sweeps in 2 alfalfa fields in Goshen County (Parshall); ranged 100-430 per 10 sweeps in several fields in Washakie County (Burkhardt). Small larvae caused heavy damage to alfalfa in Douglas area. (Spackman). As of June 1, counts per 10 sweeps averaged 9 adults, 2 larvae in Sheridan County; ranged 1-22 adults, 1-2 larvae in Crook County; less than 1 adult and 1 larva in Weston County. (Pike). UTAH - Damage increased on untreated alfalfa in Davis, Cache, Millard, Utah, and Box Elder Counties. Where no controls made, 6 to 8-inch alfalfa cut in attempt to halt damage. (Knowlton, McAllister). Infestations heavy at Bothwell, Box Elder County, and at Benson, Cache County; damaging throughout Davis County and in Duchesne County. (Roberts, Stokes). Larvae 200-1,500 per 10 sweeps in field near Salt Lake City, Salt Lake County; field appears gray. (Knowlton).

NEVADA - H. postica larval development about 2 weeks ahead of normal in Elko County; 100+ larvae per sweep in many alfalfa fields. (Hackett, Lauderdale). NEW MEXICO - Light to medium on alfalfa at Time, Valencia County. (N.M. Coop. Rpt.). COLORADO - Larvae ranged 10-210 per 10 sweeps in alfalfa in Weld County; approximately 5 percent of population adults. (Marquardt).

KANSAS - Some small H. postica larvae still found in alfalfa in Elk and Montgomery Counties. Regrowth generally fair to good in fields heavily infested earlier although plants drought stressed. (Bell). NEBRASKA - New county records as follows: Counts per 100 sweeps May 25 - Sarpy, 2 larvae; Saunders, 4 larvae and 4 adults; Dodge, 5 larvae; May 31 - Thurston, 6 larvae. Counts per 200 sweeps May 17 - Hamilton, 1 larva and 1 adult; May 30 - Polk, 1 larva; Nance, 1 larva and 1 adult; Merrick, 15 larvae; Howard, 5 larvae; May 31 - Cuming, 1 larva. Counts per 150 sweeps June 1 - Washington, 2 larvae and 1 adult; Burt, 16 larvae; Dakota, 2 larvae; Dixon, 7 larvae. Determined by G. Manglitz. (Keith, Berogan). NORTH DAKOTA - Larval infestations ranged up to 5,000 (averaged 1,140) per 100 sweeps in irrigated alfalfa in Williams and McKenzie Counties; much heavier than 1971. Adults ranged up to 100 (averaged 60) per 100 sweeps. Damage evident. Alfalfa in late bud to early bloom stage. (Brandvik). MICHIGAN - Caused heavy damage in southern Jackson County and near Blissfield and Ogden Center in Lenawee County. Fields turning bronze; not much alfalfa cut in area. (Sauer).

ARKANSAS - H. postica larvae averaged 225 per 100 sweeps in 4 samples at Fayetteville. (Dumas). IOWA - Found in Mitchell, Winneshiek, Fayette, Bremer, and Floyd Counties for new county records. Field in Polk County had 10 larvae per sweep June 1; no adults found. (Iowa Ins. Sur.). OHIO - Damage to alfalfa very light in northwest area. (Tucker). Alfalfa has been cut in southwest area. (Fox). KENTUCKY - Populations declined in southern area where larvae averaged 500 per 100 sweeps; 2,000 per 100 sweeps found in Barren County. (Barnett). MARYLAND - Economic infestations phasing out. Larval and adult activity decreasing rapidly statewide. (U. Md., Ent. Dept.). PENNSYLVANIA - Larvae per 20 sweeps, 40 on mixed alfalfa and timothy with damage apparent, 100 on mixed alfalfa and clover at Greenville, Mercer County. (Ode June 5).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - IDAHO - Averaged 10 per sweep in two 160-acre Alsike clover seed fields at Craigmont, Lewis County. (Ovart et al.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Light on alfalfa in Valencia County; light to heavy in Eddy and Lea Counties. (N.M. Coop. Rpt.). UTAH - Moderate to severe in alfalfa at Benson, Cache County (Roberts); at Duchesne, Duchesne County (Mathis); ranged 25-65 per 10 sweeps in Springfield area, Utah County (Knowlton). COLORADO - Ranged 2-100 per sweep of alfalfa in Weld County. (Marquardt). WYOMING - Averaged 61 per 10 sweeps in 2 alfalfa fields in Goshen County; about 5 percent winged. (Parshall). In Sheridan County, 0-10 per 10 sweeps; none in Crook and Weston Counties. (Pike). MINNESOTA - Counts low in alfalfa due to high numbers of aphid predators, primarily lady beetles. Pea aphid increased sharply, ranged 350-4,000 per 100 sweeps, in southwest central, west-central, and northwest districts. First cutting of alfalfa in progress, should decrease pea aphid population. (Minn. Pest Rpt.).

WISCONSIN - Acyrtosiphon pisum increased, probably reached peak in first-growth alfalfa. Ranged 1-3 per sweep in most fields; up to 60 per sweep in a Grant County field. Population mostly alates. (Wis. Ins. Sur.). KENTUCKY - Averaged 400 per 100 sweeps of alfalfa in Hardin County; 500 per 100 sweeps in Barren and Hart Counties. (Barnett). PENNSYLVANIA - Infested mixed alfalfa and timothy in Greenville, Mercer County; averaged 50 per 20 sweeps on mixed alfalfa and clover at same location. (Ode, Kim).

LYGUS BUGS (Lygus spp.) - WYOMING - Adults and nymphs averaged 53 per 10 sweeps in 2 alfalfa fields in Goshen County June 3. (Parshall). In Sheridan, Crook and Weston Counties, averaged less than 1 per 10 sweeps June 1. (Pike). OHIO - Adults of L. lineolatus (tarnished plant bug) averaged 12 per 50 sweeps in mixed clover and timothy field in Vinton County; a 4 to 6-fold increase in activity compared to one month ago. (Fox).

ALFALFA CATERPILLAR (Colias eurytheme) - PENNSYLVANIA - Larvae averaged 50 per 20 sweeps of mixed alfalfa and timothy in Greenville area, Mercer County. (Ode).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - INDIANA - Adults ranged 0-16 per 50 linear feet in southeast district, and 7 per 50 linear feet in fields in Monroe County. (Matthew, Meyer).

CUTWORMS - MISSISSIPPI - Unspecified species destroyed 1,200 acres of 2,000-acre stand of soybeans grown in soil with high organic content. (Robinson).

PEANUTS

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This thrips and other species heavy and causing leaf deformity on several thousand acres of peanuts in Houston and Covington Counties. Controls applied throughout most of Houston County. (Mathews, Linder).

COTTON

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - Heavy emergence from hibernation continuing; infestations up to 25 percent punctured squares on some older cotton in southern area. (Womack).

MISSISSIPPI - Counts per trap per county (1.7 traps per acre) increased to 3.5. Weevils ranged from 1.7 per trap in Forrest County and to 5.3 in Lamar County. (Robinson).

BOLLWORMS (Heliothis spp.) - GEORGIA - Heavy in several southern area fields. (Womack).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Required some treatments in Yuma area, Yuma County. (Ariz. Coop. Sur.).

THRIPS (Frankliniella spp.) - OKLAHOMA - Averaged 6.5 per plant in untreated cotton in Chickasha area, Grady County. Continue heavy in Washita and Caddo Counties. (Okla. Coop. Sur.). ALABAMA - F. fusca (tobacco thrips) and other thrips heavy on improperly treated 2 to 8-leaf cotton throughout State. Damage heavier than for several years. (Salter et al.).

COTTON APHID (Aphis gossypii) - ALABAMA - Heavy and damaging 2 to 8-leaf stage untreated cotton statewide. Damage heavier than in most years. (McQueen). NEW MEXICO - Light on cotton in Roswell area, Chaves County. (N.M. Coop. Rpt.).

SPIDER MITES - ARIZONA - Tetranychus spp. increasing in few fields treated earlier for Spodoptera exigua (beet armyworm) at Yuma, Yuma County. (Ariz. Coop. Sur.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults increasing rapidly on newly set tobacco in Prince Georges, Calvert, St. Marys, and Charles Counties. Averaged 3 per plant in most fields examined. (U. Md., Ent. Dept.). KENTUCKY - Damaged newly set tobacco in Woodford County; 10 percent foliar loss observed at one location. Light damage observed in Hardin, Grayson, and Edmonson Counties. (Barnett).

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - In Hoke, Columbus, and Bladen Counties, 33 percent of fields surveyed at or above threshold level of 5 larvae per 50 plants. (Baxley).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - First adult emergence in Walsh and Pembina Counties occurred May 23; peak fly emergence now. This is about a week earlier than 1971.

Up to 6 flies per beet plant. First eggs observed May 31; egg counts ranged 3-200 per plant. Eggs present on 10-100 percent of plants. Egg hatch June 6. (Kaatz). In McKenzie and Williams Counties, up to 30 adults per 100 plants on beets in 4 to 6-leaf stage. Adults present in crested wheatgrass pasture at rate of 5 per 100 sweeps in Williams County. (Brandvik). WYOMING - Tetanops myopaeformis adults still emerging and ovipositing in sugar beets in Washakie County. In some fields, 40-80 percent of plants with eggs at bases of plants. Some fields with up to 10 percent of seedlings dead; 10-12 larvae per plant. (Burkhardt).

MISCELLANEOUS FIELD CROPS

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Larvae damaged approximately 450 acres of mint in Prineville area, Crook County. Counts ranged up to 8 per square foot along periphery of denuded portions of fields June 7 and 8. (Penrose, Humphrey).

SUNFLOWER BEETLE (Zygogramma exclamationis) - NORTH DAKOTA - Adults, up to 1 per 2 sunflower plants, laying eggs in Crystal area, Pembina County. (Kaatz). Up to 1 adult per linear foot of row present in St. Thomas area. (Frye).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Egg laying continues in unsprayed potatoes in Wicomico, Dorchester and Worcester Counties. First and second instar larvae in several potato plantings in Worcester County. Most tomatoes and potatoes sprayed; controls effective. (U. Md., Ent. Dept.). KENTUCKY - Heavily damaged potatoes in Hardin County. Larvae averaged 40 per plant. (Barnett). IDAHO - Egg deposition general throughout 4,500 acres of potatoes at Black Mesa, Elmore County, June 2. (Edwards).

POTATO FLEA BEETLE (Epitrix cucumeris) - OHIO - Counts ranged 1-4 per 4 to 8-inch pepper plant in Washington County; leaf surface damage ranged from less than 5 to 15 percent. (Fox). PENNSYLVANIA - Two adults per 10 plants on potato at Greenville, Mercer County. (Ode).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Heavy on tomatoes, peppers, and other bedding plants at Albuquerque, Bernalillo County. (N.M. Coop. Rpt.).

BEANS AND PEAS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults heavily damaged 20 acres of newly emerged snap beans near Preston, Caroline County. Controls applied. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults ranged 5-10 per 10 feet of row in 150 acres of snap beans in several areas of Dorchester County. Controls applied. Egg laying underway throughout Eastern Shore in soybeans and snap beans. Heavy damage expected throughout Eastern Shore this season. (U. Md., Ent. Dept.).

ALFALFA CATERPILLAR (Colias eurytheme) - MARYLAND - Larvae found in peas in Wicomico and Worcester Counties. Infestations remain light but causing contamination problems when pupae pass through processing screens and into canned product. (U. Md., Ent. Dept.).

COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - OREGON - Larvae averaged 1 per plant in broccoli, cabbage, and cauliflower near Cornelius, Washington County. Cauliflower almost eliminated. No preplant treatments made. (Collins).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - INDIANA - Adults ranged 0-5 per melon plant in southwest district. (Matthew, Meyer). OKLAHOMA - Larvae heavy in roots of squash in Pawnee County. (Okla. Coop. Sur.).

GENERAL VEGETABLES

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - IDAHO - Caused first real damage of season south of Twin Falls, Twin Falls County, June 2. (Peay). Adult activity noted at Twin Falls June 4. (Carpenter). First adult activity noted at Moscow, Latah County, June 6. (Barr).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Adults increased. Averaged 3 per plant in 600 acres examined. Controls not needed yet. (U. Md., Ent. Dept.).

POTATO FLEA BEETLE (Epitrix cucumeris) - PENNSYLVANIA - Two adults per 10 sweeps on onion at Greenville, Mercer County. (Ode).

DETECTION

New State Record - A SPIDER MITE (Platytetranychus thujae) - PENNSYLVANIA - Cumberland County. (p. 358).

New County and Island Records - ALFALFA WEEVIL (Hypera postica) - NEBRASKA - Sarpy, Saunders, Dodge, Thurston, Hamilton, Polk, Nance, Merrick, Howard, Cuming, Washington, Burt, Dakota, Dixon. WASHINGTON - Grant. IOWA - Mitchell, Winneshiek, Fayette, Bremer, Floyd (p. 352). FACE FLY (Musca autumnalis) - TENNESSEE - McMinn (p. 360). AN ICHNEUMON WASP (Xanthopimpla punctata) - HAWAII - Kauai (p. 363). RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Putnam (p. 362). WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Santa Clara (p. 362).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - Eggs and larvae on apples in Yakima, Yakima County. First larval entries seen May 29. Eggs numerous on fruit in unsprayed block. (Johnson).

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) - WASHINGTON - First adults of season on yellow stickyboard traps, baited with household ammonia, on cherry trees at Sunnyside and Grandview, Yakima County. (Hudson et al.). Additional adults taken in fruit fly traps at Wenatchee, Chelan County. (Rushmore).

CHERRY FRUIT FLY (Rhagoletis cingulata) - MICHIGAN - First flies seen near Stevensville, Berrien County, and Hartford, Van Buren County, June 8. Growers expected to apply controls by June 14. (Sauer).

APPLE APHID (Aphis pomi) - WASHINGTON - Nymphs and adults on 20 acres of Delicious apples at Cowich, Yakima County. Damage about 50-75 percent. Prebloom and petal fall applications failed to control aphids. (Johnson et al.). Adults and nymphs on 20 acres of apples at Yakima. Damage to fruits and leaves about 90 percent; crop ruined. Controls applied but resistance present. (Durrett, Hudson).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First summer-generation nymphs on pears in upper Yakima Valley, Yakima County. Hatch heaviest in early districts. Overwintering adults on pear near sagebrush and volunteer cover at Ahtanum, Yakima County. Females outnumber males 3 to 1. No summer generation present or eggs seen. (Gregorich).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MAINE - Overwintering eggs hatched June 2, about same time as 1971. New crawlers readily evident on infested apple trees. (Gall).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Heavy on apple trees at Faywood, Grant County, and at Bent, Otero County. (N.M. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Eggs averaged 6 percent in Rogers County. Heavy in Pontotoc County, moderate in Carter and Bryan Counties, light in Marshall County. (Okla. Coop. Sur.). NEW MEXICO - One damaged pecan nutlet found on inspection of approximately 30 trees at Carlsbad, Eddy County. (N.M. Coop. Rpt.).

CITRUS

Insect Situation in Florida - End of May - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 72 (norm 50) percent of groves; economic in 48 (norm 33) percent. Population decreased but will increase again on leaves and fruit. It will continue above normal and in high range. Highest districts south, central, and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 55 (norm 55) percent of groves; economic in 33 (norm 34) percent. Population increased, now near normal. Further expected increase through June will take population into high range. Highest districts central and west. CITRUS RED MITE (Panonychus citri) infested 27

(norm 57) percent of groves; economic in 10 (norm 30) percent. This mite is below normal and in low range. Population will generally remain low, few heavy infestations expected in scattered areas. Highest district west. GLOVER SCALE (Lepidosaphes gloverii) infested 81 (norm 85) percent of groves; economic in 3 (norm 24) percent. PURPLE SCALE (L. beckii) infested 76 (norm 30) percent of groves; economic in 3 (norm 10) percent. Populations below normal and moderate for both species. Very few infestations important. Little change expected. Highest districts: Glover scale west, south; purple scale east. BLACK SCALE (Saissetia oleae) infested 52 (norm 40) percent of groves; economic in 32 (norm 21) percent. Population increased and now above normal and in high range. Further increase predicted through June. Highest districts east and central. CHAFF SCALE (Parlatoria pergandii) infested 49 (norm 62) percent of groves; economic in 1 (norm 10) percent. YELLOW SCALE (Aonidiella citrina) infested 43 (norm 62) percent of groves; none economic (norm 8 percent). These scales below normal and at low level in all districts. Little change expected. An ARMORED SCALE (Unaspis citri) infested 32 percent of groves; economic in 22 percent. Population will spread and intensify. WHITEFLIES infested 77 (norm 66) percent of groves; economic in 31 (norm 25) percent. Population above normal and in high range. Temporary decrease expected. Highest districts east, central, and west. MEALYBUGS infested 41 (norm 39) percent of groves; economic in 6 (norm 8) percent. Population near normal and presently low, strong increase expected. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred Alfred)).

SMALL FRUITS

BLUEBERRY MAGGOT (Rhagoletis mendax) - NORTH CAROLINA - First adults of season trapped June 6 near Burgaw, Pender County. Control underway in all areas. (Weaver).

GRAPE BERRY MOTH (Paralobesia viteana) - PENNSYLVANIA - Larvae 20 per plant on grape in New Bloomfield, Perry County; 50 percent damage observed. (Michener, May 29).

STRAWBERRY WEEVIL (Anthonomus signatus) - MICHIGAN - Severe on strawberries in Manistee County; caused 70 percent loss of crop from stem clipping and bud punctures. Problem began when plants about to bloom. (Sauer).

ORNAMENTALS

A SPIDER MITE (Platytetranychus thujae) - PENNSYLVANIA - Adults collected on arborvitae, 4 miles west of Camp Hill, Cumberland County, May 17, 1971, by K. Neiderer. Determined by E.W. Baker. This is a new State record. This mite also collected on various dates and at several locations in State in 1971 on juniper. Determined by R. Lehman. (Wilder).

FOREST AND SHADE TREES

DOUGLAS FIR BEETLE (Dendroctonus pseudotsugae) - ARIZONA - Increased on north rim of Grand Canyon National Park; 400 mature and over mature Douglas fir trees attacked over 600-acre area. (USFS).

WHITE FIR NEEDLEMINER (Epinotia meritana) - ARIZONA - Heavy on 10,000 acres of white fir trees 20 miles south of Springerville, Apache County. (USFS).

LARGE ASPEN TORTRIX (Choristoneura conflictana) - MINNESOTA - Aerial survey conducted in St. Louis, Lake, and Cook Counties to determine gross defoliation area. Defoliation generally light immediately northeast of Duluth; may be due to unseasonable cool spring weather retarding development. Areas farther north and northeast to Canadian border showed large areas of moderate defoliation with some heavy defoliation in Finland and Tofte areas and adjacent to the Sawbill Trail. Spotty, light to moderate defoliation noted in Carlton County. (Minn. Pest Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Larvae in last larval stage defoliated single row Siberian elm shelter-belt trees in Burleigh and McLean Counties. Up to 100 percent of trees in some plantings totally defoliated. (Brandvik).

BOXELDER LEAFROLLER (Gracillaria negundella) - UTAH - Foliage damage severe on several thousand boxelder trees in Davis, Salt Lake, Utah, Box Elder, and Cache Counties. Many hundreds of these trees show no leaf color. (Knowlton, Burningham).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Some pupation reported in Manhattan, Riley County, and in Topeka, Shawnee County. Siberian elms in Topeka up to 50 percent damaged. (Bell).

OKLAHOMA - Damage increased in most areas of State; defoliation ranged up to 60 percent in Payne County. Heavy in Bryan, moderate in Okmulgee, Murray and Pontotoc Counties. (Okla. Coop. Sur.).

NEW MEXICO - Light to heavy on elms at Albuquerque, Bernalillo County, and at Tularosa, Otero County. (N.M. Coop. Rpt.).

COLORADO - Egg hatch about complete in Arkansas Valley; larval damage appearing on elm trees. (Hantsbarger).

PERIODICAL CICADAS (Magicicada spp.) - VIRGINIA - M. septendecim heavy in small area of Charles City County. (Tate, June 1).

ILLINOIS - Magicicada sp. heavy throughout wooded areas of southern half of state. Up to 25 per 3 feet of branch on small trees and bushes. (Cooley). TENNESSEE - M. tredecim emerged in Stewart, Meigs, and Monroe Counties. Light damage by oviposition in Stewart County. (Butler, Gordon). MISSISSIPPI - M. septendecim eggs averaged 14-30 per puncture. Punctures averaged 14 per stem foot on stems one-fourth inch in diameter in Oktibbeha and several other counties. Most damage restricted to various species of oaks. (Robinson).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - NORTH DAKOTA - Ranged 120-300 (averaged 170) per animal on range cattle in McKenzie County. (Brandvik). NEBRASKA - Ranged 300-400 (averaged 200) per head on 4 range herds in Lincoln County. (Campbell). OKLAHOMA - Averaged 600 per head on cows and 1,700 per head on bulls in Payne County. Moderate to heavy in Pontotoc, Marshall, Hughes, and Okmulgee Counties. (Okla. Coop. Sur.). TEXAS - Light to moderate in Wilbarger and Jones Counties, moderate to heavy in Tom Green County. (Green). MISSISSIPPI - Adults ranged 30-100 per animal on 100 beef cattle in Clay County. Ranged 0-500 (averaged 250) per animal

in Clay, Monroe, Oktobbeha, Noxubee, Chickasaw and Lee Counties. (Swords, Robinson). FLORIDA - Adults averaged 89 per treated cow at Hawthorne, Alachua County. Averages of 150 flies per treated dairy cow and 62 per treated beef animal taken at Lowell, Marion County about 7 days after treatment. (Head). VIRGINIA - Averaged 23 per animal in herd of untreated beef cattle in Montgomery County June 2. (Roberts). PENNSYLVANIA - Averaged 75 per 20 Holstein heifers at Greenville, Mercer County. (Ode).

MOSQUITOES - MAINE - Aedes spp. emergence increasing. Recent heavy rain resulted in large hatch of A. vexans in many areas. Adults emerging. (Gall). MINNESOTA - Light trap catches in Metropolitan Mosquito Control District increased moderately week ending June 2, especially in Hennepin County. Coquillettidia perturbans taken in light traps and evening bite collections week ending June 8. This is much earlier than normal. Larval collections reflect increase of Aedes vexans; larvae in 65 percent of collections. Brood of A. vexans that hatched following rains of May 28 and 29 now emerged. This species also accounted for about 50 percent of light trap collections. (Minn. Pest Rpt.). ARKANSAS - Psorophora confinnis averaged 30 per night in New Jersey light trap in Arkansas and Lonoke Counties. (Boyer). WYOMING - Unspecified adults light along Laramie River in Albany County June 3. (Parshall). UTAH - Troublesome in several areas of Duchesne, Uintah, Box Elder, Cache, and Tooele Counties. (Knowlton et al.).

FACE FLY (Musca autumnalis) - PENNSYLVANIA - Five per Jersey cow and 30 per 20 Holstein heifers at Greenville, Mercer County. (Ode). VIRGINIA - Adults averaged 5 per animal in herd of untreated beef cattle in Montgomery County. (Roberts). OHIO - Heavy and annoying beef cattle in Noble County. (Boyle). Also observed around cattle in Morgan, Ross, Hocking, Vinton, and other counties. (Fox). TENNESSEE - Averaged 2 flies per head on 150-head herd of dairy cattle in McMinn County. This is a new county record. (Gordon). MISSISSIPPI - First infestations of year averaged 10 per face (up to 30 per face) on cattle in Monroe, Chickasaw, and Lee Counties. (Robinson). NEBRASKA - None observed on 4 range herds checked in Lincoln County. (Campbell).

SCREWORM (Cochliomyia hominivorax) - Total of 3,014 cases reported in U.S. June 4-10, 1972 as follows: TEXAS: Aransas 2, Archer 1, Atascosa 96, Austin 1, Bandera 39, Bastrop 8, Bee 98, Bell 2, Bexar 50, Blanco 13, Borden 6, Brazoria 2, Brazos 2, Brewster 7, Brooks 67, Brown 2, Burlison 4, Burnet 2, Caldwell 32, Calhoun 1, Callahan 2, Cameron 4, Coke 3, Coleman 7, Colorado 6, Comal 18, Comanche 2, Concho 5, Coryell 1, Crockett 23, Crosby 1, Dallas 1, De Witt 107, Dimmit 79, Donley 1, Duval 72, Edwards 62, Erath 2, Ellis 1, Fayette 9, Fisher 1, Frio 72, Gaines 1, Garza 4, Gillespie 42, Glasscock 2, Goliad 76, Gonzales 57, Grimes 2, Guadalupe 24, Hale 1, Haskell 2, Hays 10, Hidalgo 53, Howard 6, Irion 3, Jack 1, Jackson 4, Jeff Davis 1, Jim Hogg 57, Jim Wells 82, Jones 2, Karnes 46, Kendall 32, Kenedy 68, Kerr 26, Kimble 25, Kinney 65, Kleberg 37, Knox 1, Lampasas 1, La Salle 64, Lavaca 40, Lee 5, Live Oak 85, Llano 13, Lynn 1, Mason 13, Maverick 25, McCulloch 7, McMullen 53, Medina 102, Menard 4, Milam 1, Mills 3, Mitchell 9, Nolan 1, Nueces 25, Pecos 11, Presidio 5, Reagan 1, Real 55, Reeves 1, Refugio 34, Robertson 4, Runnels 1, San Patricio 25, San Saba 2, Schleicher 4, Scurry 4, Shackelford 2, Starr 73, Sterling 3, Stonewall 2, Sutton 31, Terrell 31, Throckmorton 7, Tom Green 1, Travis 5, Upshur 1, Uvalde 106, Val Verde 60, Victoria 42, Waller 1, Washington 1, Webb 132, Wharton 1,

Wilbarger 1, Willacy 13, Williamson 4, Wilson 111, Wise 1, Young 3, Zapata 44, Zavala 64. ARIZONA: Cochise 3, Gila 2, Graham 2, Greenlee 1, Maricopa 3, Pima 2, Pinal 2, Santa Cruz 4. NEW MEXICO: Dona Ana 1, Eddy 1, Grant 4, Hidalgo 1. Total of 888 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 3, Sonora 285, Chihuahua 30, Coahuila 213, Nuevo Leon 56, Tamaulipas 301. Total of 51 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screwworm flies released: Texas 140,713,000; New Mexico 2,230,000; Arizona 7,550,000; California 300,000; Mexico 26,750,000; Louisiana 850,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Adults running cattle in Cache and Box Elder Counties past 10 days. (Knowlton et al.).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - Adults heavy in several isolated areas of Prince Georges County. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Numerous in alfalfa in Valencia County. Lacewings, damsel bugs, and parasitic wasps also numerous. (N.M. Coop. Rpt.). INDIANA - Coleomegilla maculata adults on corn ranged 0-8 per 25 plants in southern districts. (Meyer).

AN ICHNEUMON (Bathyplectes curculionis) - NEVADA - Large numbers of adults present in numerous alfalfa fields in the Lovelock area, Pershing County. (Stitt).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Egg hatch in oats delayed by cool weather and cold nights. Peak larval density not yet reached in southern half of Lower Peninsula; hatching just underway in northern half. High densities expected in northern and eastern parts of Lower Peninsula. Surveys in Shiawassee, Jackson, and Lenawee Counties show population drop from 1971 in central part of the State. (Haynes, Ruppel, Sauer). OHIO - Larvae heavy, 6-27 per plant, caused frosting of oats in 15-acre stand in Ross County. Damage less severe in southern area; counts lower. Adults 5 per 50 sweeps in Morgan County, 5 per 50 sweeps in Noble County. (Fox). WEST VIRGINIA - Eggs averaged one per square foot in oats in Cabell County. Larvae per square foot in oats averaged 2 in Wood County, 20 in Pleasants County, June 1. (Hacker).

GRASSHOPPERS - WASHINGTON - Camnula pellucida, Melanoplus sanguinipes, and Oedaleonotus enigma economic on about 10,000 acres of private cropland south of White Swan, Yakima County, June 1. Ranchers initiated controls. Some Federal rangeland may be involved in Touchet area, Walla Walla County; C. pellucida about 5 percent adults. O. enigma also about 5 percent adults south and east of Pasco, Franklin County. (Jackson, Nonini). IDAHO - First and second instar M. sanguinipes heavy throughout south-central and southwestern area May 31. (Evans). NEVADA - Grasshopper nymphs and adults ranged 10-15 per square yard on 150 acres of alfalfa at Carp, Lincoln County. (Zoller). M. sanguinipes

and Melanoplus bivittatus ranged 5-200 per square yard, mostly 30-70 per square yard, on 11,000 acres of alfalfa, grain and rangeland in Humboldt County. Severely damaged alfalfa and grain. Second to fifth instars predominate, emergence continuing. Camnula pellucida scattered. Additional 4,000 rangeland acres infested with economic populations of Oedaleonotus enigma. Controls planned; adverse weather may delay start. (Nevada Coop. Rpt.). WYOMING - Hatching of range grasshoppers continues in southeastern area. (Pfadt).

NEBRASKA - Melanoplus spp. nymphs ranged 75-100 per square yard in isolated spots in breeding areas of Keith County. Nymphs ranged 5-10 per square yard in most pastures checked in Keith and McPherson Counties. (Campbell). OKLAHOMA - Grasshoppers continue heavy in rangeland in southern Murray and northern Carter Counties. Cooperative control program planned for area. Grasshoppers heavy in forage sorghum in Pontotoc County; controls planned. (Okla. Coop. Sur.). NORTH DAKOTA - First through third instar M. bivittatus and M. sanguinipes ranged up to 20 per square yard in sweetclover and alfalfa in Williams County. (Brandvik). MINNESOTA - Grasshopper nymphs found in most areas, but counts heavy only in western Kittson and Marshall Counties. M. bivittatus nymphs present in roadside ditches in these counties. No movement to cropland noted. Early treatment before movement into adjacent crops advisable where populations heavy. Eggs of predominant grasshopper in State, Melanoplus femurrubrum, not hatched except in isolated sandy areas. This important species will cause most grasshopper problems in State this year. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - MAINE - Distribution expanded, now includes areas south of Highway 2 and west of Penobscot Bay. (Gall).

JAPANESE BEETLE (Popillia japonica) - OHIO - Larvae averaged 5 per square foot in Lucas County lawn (Toledo); damage 50 percent. (Fox).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - First rosetted cotton blooms found about June 1 in Yuma County. (Ariz. Coop. Sur.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Taken in pasture at Bostwick, Putnam County, May 16, by J.T. Smith. Determined by V.H. Owens. This is a new county record. (PP).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Eggs, larvae, pupae and adults present on grapes in San Jose, Santa Clara County. Collected June 2, 1972, by D. Whitman. Determined by M. Gardner. This is a new county record. This pest is under eradication treatment in Fresno and Siskiyou Counties. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Damage heavy to 15 acres of corn in 60-acre field at Atmore, Escambia County. (Lemons, Daniel).

HAWAII INSECT REPORT

Corn and Sorghum - CORN LEAF APHID (Rhopalosiphum maidis) nymphs and adults moderate in 350 acres of corn seedlings and sorghum at Kilauea, Kauai. Approximately 20 percent of aphids parasitized by Lysiphlebius testaceipes (a braconid) and Aphelinus maidis (a eulophid wasp). (Sugawa).

General Vegetables - Larval mines of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and LEAFMINER FLIES (Liriomyza spp.) heavy in 0.25 acre of snap beans at Waimanalo, Oahu; approximately 75 percent of leaves affected. Light in adjacent 0.25-acre planting of same crop. Adult leafminers moderate in both fields; all stages of greenhouse whitefly light. Greenhouse whitefly heavy in one acre of varying stages of snap beans in same area; all stages of leafminer light. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) light on fronds of 63 coconut trees at Hawaii Kai, Oahu. Larvae of Telsimia nitida (a lady beetle) light and preying on scales. A. destructor negligible in most commercial plantings of papaya and banana at Waimanalo, Oahu. (Otsuka, Kahale). Adult sightings of a SWALLOW-TAIL BUTTERFLY (Papilio xuthus) increased on Oahu past month; eggs and larvae moderate on citrus. Damage to young foliage ranged light to heavy. Of 142 P. xuthus eggs collected from host plants at various areas, 18 found parasitized by Trichogramma sp. (13 percent). Of 67 larvae also collected during this period none parasited. Exorista sorbillans (a tachina fly) purposely introduced from Thailand in July 1971 to aid in the control of P. xuthus; 322 flies released throughout Oahu with no recoveries to date. (Kajiwara et al.).

Forest and Shade Trees - A CONIFER APHID (Cinara carolina) light in 1.5 acres of Pinus taeda saplings at Olinda, Maui. Approximately 25 percent of 100+ trees infested; 5 percent of affected trees heavily infested, causing yellowing of needles. Coelophora inaequalis (a lady beetle) moderate amid infestation; as many as 12 per sapling. (Ah Sam).

Man and Animals - MOSQUITOES - Total of 480 Aedes vexans nocturnus and 1,997 Culex pipiens quinquefasciatus collected in 58 light traps operated on Oahu during May. Aedes averaged 8.3 per trap and Culex 34.4 per trap. Catches ranged 0-67 for Aedes at Kahaluu and 0-465 for Culex at Nanakuli. (Mosq. Control Br., State Dept. Health).

Beneficial Insects - Larvae and pupae of Plutella xylostella (diamondback moth) collected at Waiialua and Pearl City, Oahu, from moderately infested broccoli and daikon during May found to be 60 and 66 percent parasitized, respectively, by an ICHNEUMON (Diadegma insularis). Single adult of an ICHNEUMON (Xanthopimpla punctata) taken at large at Hanapepe, Kauai, last week of May. X. punctata first reported in State on Oahu in September 1970. This is first report of spread to a neighbor island. X. punctata principally parasitic on pyralid and tortricid borers, including Chilo suppressalis, Maruca testulalis, and Anomis flava. (Sugawa).

LIGHT TRAP COLLECTIONS

State	Locality	Date	Precipitation (inches)	Temp. (F.)	Humidity (%)	Type of trap		Crops
						BL	Blacklight	
FLORIDA	Gainesville	6/2-6				13	2	2
	KANSAS (County)							
	Brown	6/1, 5	8	176				
	Republic	6/6	24	48		3		
KENTUCKY	Riley	6/6, 8	7	51				
	Bowling Green	6/7						
MINNESOTA	Crookston	5/31-6/6						
	Shakopee	5/31-6/6						
	Worthington	5/31-6/6						
	Jeff Davis	6/3-9						
MISSISSIPPI	Oktibbeha	6/3-9						
	Stoneville	6/2-8	60-97			11	3	148
	Portageville	6/2-8						2
NEW HAMPSHIRE	Lee	6/4						
	Aurora	5/26-6/1						
NEBRASKA	Concord	5/26-6/1						
	Lincoln	5/26-6/1						
	Wooster	6/2-8						
OREGON	Jefferson	5/30-6/8						
	Pleasant Hill	5/30-6/7						
	Troutdale	5/30-6/8						

LIGHT TRAP COLLECTIONS

PENNSYLVANIA (Districts)	Tempers. (degrees F.)	Winds (direction)	Winds (speed) (m.p.h.)	Winds (gusts) (m.p.h.)	Winds (direction)	Winds (speed) (m.p.h.)	Winds (gusts) (m.p.h.)	Crops	
								Winds (direction)	Winds (speed) (m.p.h.)
Central 5/31-6/7	BL	1						1	3
Southeast 5/31-6/7	BL	2						8	4
TENNESSEE (County)	BL	80						232	29
Dyer 6/5-9	BL	30						79	3
Franklin 6/5-9	BL	28						53	20
Madison 6/5-9	BL	28						241	8
VIRGINIA	BL	4							
Montgomery 6/1-7	BL								
Warsaw 5/31-6/5	BL								
WISCONSIN	BL	1							
Lancaster 5/30-6/5	BL								
Mazomanie 5/31-6/5	BL								

Weather of the week continued from page 348.

TEMPERATURE: High pressure produced mostly clear skies last week. Afternoon temperatures were quite moderate early in the week. The 60's and 70's were common from the eastern Great Lakes to the northern and middle Atlantic coast. Ninety-degree heat prevailed from Kansas and Missouri to Louisiana and Georgia. Monroe, Louisiana, registered 100 degrees Wednesday afternoon. Humidity increased and some early morning fog was noted in the Deep South Wednesday. Long sunny afternoons produced temperatures approaching or exceeding 90 degrees in the northern Great Plains by midweek. Devils Lake, North Dakota, registered 92 degrees Wednesday afternoon. The southwestern deserts cooled slightly. Blythe, California, recorded 102 degrees Wednesday; this was 3 degrees cooler

than Monday. Summer weather prevailed during the latter part of the week with mostly moderate temperatures. The weekend, however, brought hot weather to the Great Plains and cool temperatures to the Northeast. The northern Great Plains warmed from 60 and the low 70's Saturday afternoon to 80 Sunday. Bismarck, North Dakota, registered 71 degrees Saturday and 88 degrees Sunday. Harrisburg, Pennsylvania, recorded 84 degrees Friday but was 20 degrees cooler Saturday. The desert Southwest continued hot. The mercury at Blythe, California, climbed to 105 degrees Sunday. Most of the area west of the Mississippi River, except Arizona, New Mexico, and Texas, averaged warmer than normal. Much of Montana averaged 9 to 13 degrees warmer than normal. The East was mostly cooler than normal.

BOLL WEEVIL
(Anthonomus grandis Boh.)

Additional Selected References
1968-1969

These references supplement those published in CEIR 19(40):771-774, 1969. Copies of these bibliographies are available from Economic Insect Survey and Detection Staff.

- Adams, C. H., Cross, W. H., and Mitchell, H. C. 1969. Biology of Bracon mellitor, a parasite of the boll weevil. J. Econ. Ent. 62(4):889-896.
- Bottrell, D. G. and Almand, L. K. 1969. The effects of reproductive-diapause boll weevil control programs on populations of the bollworm and the tobacco budworm in cotton, 1968. Tex. Agr. Expt. Sta. Prog. Rpt. 2702. 6 pp.
- Burt, E. C., Lloyd, E. P., and Smith, D. B. 1969. Control of the boll weevil by mechanically destroying fallen infested cotton squares. J. Econ. Ent. 62(4):862-865.
- Cross, W. H. and Mitchell, H. C. 1968. Parasites of the boll weevil in Mexico. Folia Ent. Mex. No. 18/19:24.
- Daum, R. J., Gast, R. T., and Davich, T. B. 1969. Marking adult boll weevils with dyes fed in a cottonseed oil bait. J. Econ. Ent. 62(4):943-944.
- Davich, T. B. 1969. Sterile-male technique for control or eradication of the boll weevil, Anthonomus grandis Boh. In Sterile-Male Technique for Eradication or Control of Harmful Insects. Int. Atomic Energy Agency, Vienna. pp. 65-72.
- Davich, T. B., Daum, R. J., and McLaughlin, R. E. 1968. Development of a bait for boll weevil control and ecological studies. Folia Ent. Mex. No. 18/19:25.
- de la Garza, M. A. and de la Fuente, J. M. 1968. Assessment of the toxicity of malathion for the cotton boll weevil, Anthonomus grandis. Folia Ent. Mex. No. 18/19:26. In Sp.
- Fye, R. E. 1969. Boll weevil investigations. Ariz. Univ. Ext. Ser. Pub. 15:46-47.
- Fye, R. E. 1969. Longevity and fecundity of the boll weevil complex in Arizona. J. Econ. Ent. 62(6):1408-1412.
- Fye, R. E., Patana, R., and McAda, W. C. 1969. Developmental periods for boll weevils reared at several constant and fluctuating temperatures. J. Econ. Ent. 62(6):1402-1405.
- Graves, J. B., Earle, N. W., Bradley, J. R., and Clower, D. W. 1969. Field studies of an attractant in the male boll weevil. La. Agr. 12(3):14-15.

- Hardee, D. D. and Cross, W. H. 1968. Trapping female boll weevils in a large cage at Iguala, Mexico, using male sex attractant. *Folia Ent. Mex.* No. 18/19:27.
- Harris, F. A., Lloyd, E. P., Lane, H. C., and Burt, E. C. 1969. Influence of light on diapause in the boll weevil. II. Dependence of diapause response on narrow bands of visible radiation and a broad band of infrared radiation used to extend the photoperiod. *J. Econ. Ent.* 62(4):854-857.
- Himel, C. M. and Moore, A. D. 1969. Spray droplet size in the control of spruce budworm, boll weevil, bollworm, and cabbage looper. *J. Econ. Ent.* 62(4):916-918.
- Hopkins, A. R., Taft, H. M., and James, W. 1969. Life history of the boll weevil in field cages. *J. Econ. Ent.* 62(4):964-965.
- Joiner, R. L. and Lambremont, E. N. 1969. Hydrocarbon metabolism in insects: oxidation of hexadecane-1-¹⁴C in the boll weevil and the house fly. *Ent. Soc. Amer. Ann.* 62(4):891-894.
- Kirk, I. W. and Bottrell, D. G. 1969. A mechanical sampler for estimating boll weevil populations. *J. Econ. Ent.* 62(5):1250-1251.
- Klassen, W., Norland, J. F. and Briggs, R. W. 1969. Sterilization of boll weevils with combinations of chemosterilants and X-rays, gamma rays, thermal neutrons, or fast neutrons. *J. Econ. Ent.* 62(5):1204-1216.
- Luna, R. and de la Fuente, J. M. 1968. Assessment of Temik for the control of Anthonomus grandis under field conditions. *Folia Ent. Mex.* No. 18/19:24-25. In Sp.
- Maxwell, F. G. and Jenkins, J. N. 1968. Field plot evaluations of selected cotton lines for boll weevil resistance, 1965-66. *Folia Ent. Mex.* No. 18/19:28.
- Maxwell, F. G., Jenkins, J. N., Parrott, W. L., and Buford, W. T. 1969. Factors contributing to resistance and susceptibility of cotton and other hosts to the boll weevil, Anthonomus grandis. *Ent. Expt. et Appl.* 12(5):801-810. *Ger. Sum.*
- McGovern, W. L., Hardee, D. D. and Davich, T. B. 1969. Chemo-sterilants applied as sprays against populations of boll weevils on cotton in field cages. *J. Econ. Ent.* 62(5):1144-1147.
- McLaughlin, R. E., Cleveland, T. C., Daum, R. J., and Bell, M. R. 1969. Development of the bait principle for boll weevil control. IV. Field tests with a bait containing a feeding stimulant and the sporozoans Glugea gasti and Mattesia grandis. *J. Invert. Path.* 13(3):429-441.
- Minyard, J. P. and Coauthors. 1969. Constituents of the cotton bud compounds attractive to the boll weevil. *J. Agr. and Food Chem.* 17(5):1093-1097.
- Mitlin, N. and Wiygul, G. 1969. Incorporation and metabolism of ¹⁴C-labeled tryptophan-3 in the boll weevil, Anthonomus grandis Boheman. *Comp. Biochem. Physiol.* 30(2):375-381.

- Mitlin, N., Wiygul, G., and Mauldin, J. K. 1968. The free amino acids in the haemolymph of the maturing adult boll weevil, Anthonomus grandis Boheman. *Compar. Biochem. Physiol.* 25(1): 139-148.
- Nemec, S. J. and Adkisson, P. L. 1968. Laboratory tests of effectiveness of certain insecticidal sprays for controlling the bollworm, tobacco budworm and boll weevil. *Tex. Agr. Expt. Sta. Misc. Pub.* 876. 7 pp.
- Parrott, W. L., Maxwell, F. G., Jenkins, J. N., and Mauldin, J. K. 1969. Amino acids in hosts and nonhosts of the boll weevil, Anthonomus grandis. *Ent. Soc. Amer. Ann.* 62(2):255-261.
- Russell, W. G. and Mullins, J. A. 1969. A new technique for determining direct impingement of insecticide on boll weevils. *J. Econ. Ent.* 62(5):1122-1123.
- Schuster, M. F. and Boling, J. C. 1969. Insect sterilant experiments with apholate and five bifunctional aziridine chemicals in outdoor cages against the boll weevil. *J. Econ. Ent.* 62(6):1372-1375.
- Terranova, A. C. 1969. The residual fate of N,N,N',N'-Tetramethyl-p-piperidinophosphonic diamide after injection, tarsal contact, and topical application to the boll weevil. *J. Econ. Ent.* 62(4):821-823.
- Tumlinson, J. H. and Coauthors. 1969. Sex pheromones produced by male boll weevil: isolation, identification, and synthesis. *Science* 166(3908):1010-1012.
- Upchurch, W. 1969. Cooperation against boll weevils. *Ext. Serv. Rev.* 40(12):4-5.
- U.S. Department of Agriculture. 1969. Thousand-year-old boll weevil identified. *Ent. News* 80(3):74, 78.
- Walker, J. K., Jr. 1969. Infestations of overwintered and summer-generation boll weevils near college station, 1960-68. *Tex. Agr. Expt. Sta. Prog. Rpt.* 2701. 9 pp.

Periodical Cicadas - Outlook for 1972

Brood XIX of periodical cicadas (13-year race) is scheduled to appear this year over the Midwest and Southeast. It will be most abundant in western Kentucky, the southern two-thirds of Illinois, most of Missouri, and in northern Arkansas. Cicadas appeared suddenly in late May. For approximately 6 weeks it will fill the countryside with its remarkable song, mate, lay its eggs in twigs, and pass away as suddenly as it appeared.

Brood XII, the 17-year race of periodical cicadas, is also scheduled to appear this year at scattered locations in Maryland, West Virginia, Ohio, Indiana, and Illinois. This gives anyone in these areas the opportunity to contribute to the knowledge of this brood.

As these insects are difficult to determine since the group was revised, Dr. R.C. Froeschner, Federal taxonomist, is anxious to receive specimens for determination. These may be sent to Dr. Froeschner, Department of Entomology, U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560. We are interested in obtaining all records possible, particularly the date of appearance, and your help will be appreciated. If you hear or see this insect, please submit the record of the exact location and date to Dr. Froeschner. Please include specimens if possible.

For maps on occurrences of Broods XII and XIX, see following page.

Table of Coincidence of Broods of Periodical Cicada

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
XVIII		1945				1932				1919				1906			
XIX			1946				1933				1920				1907		
XX				1947				1934				1921				1908	
XXI	1961				1948				1935				1922				1909
XXII		1962				1949				1936				1923			
XXIII			1963				1950				1937				1924		
XXIV				1964				1951				1938				1925	
XXV	1978				1965				1952				1939				1926
XXVI		1979				1966				1953				1940			
XXVII			1980				1967				1954				1941		
XXVIII				1981				1968				1955				1942	
XXIX	1995				1982				1969				1956				1943
XXX		1996				1983				1970				1957			
XVIII			1997				1984				1971				1958		
XIX				1998				1985				1972				1959	
XX	2012				1999				1986				1973				1960
XXI		2013				2000				1987				1974			
XXII			2014				2001				1988				1975		
XXIII				2015				2002				1989				1976	
XXIV	2029				2016				2003				1990				1977
XXV		2030				2017				2004				1991			
XXVI			2031				2018				2005				1992		
XXVII				2032				2019				2006				1993	
XXVIII	2046				2033				2020				2007				1994
XXIX		2047				2034				2021				2008			
XXX			2048				2035				2022				2009		

Periodical Cicadas

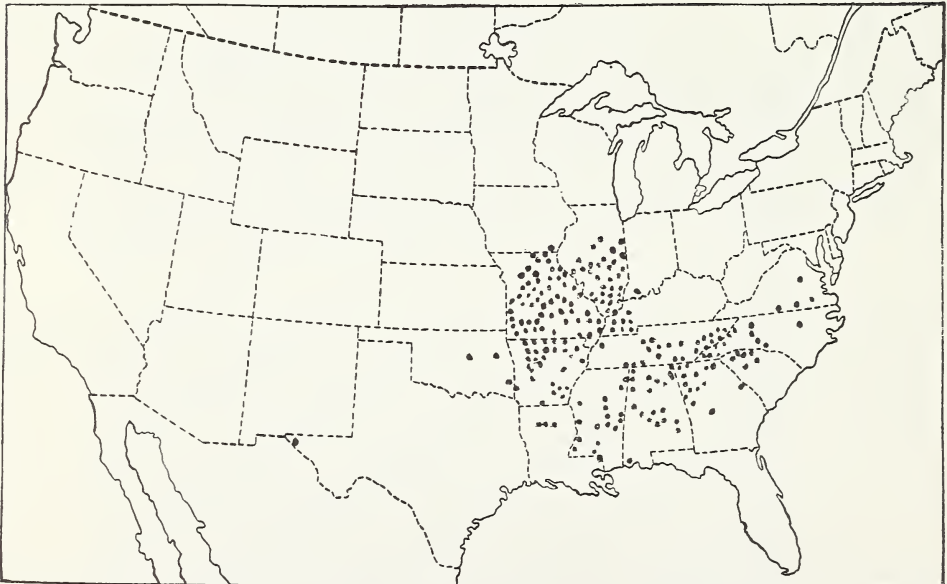
Brood XII

17-year race



Brood XIX

13-year race



Prepared by Economic Insect
Survey and Detection Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(24):369-370, 1972

INFESTATION OF OATS BY THE CEREAL LEAF BEETLE IN 1970 AND 1971^{1/}

M. Curtis Wilson^{2/}, Robert E. Treece^{3/}

and Richard E. Shade

The fifth year of the annual cereal leaf beetle (Oulema melanopus (L.)) infestation and damage survey based on foliar feeding has now been completed. In this survey population levels surviving to pupation are estimated by assessing leaf surface consumed. By assuming that an approximate 20 percent of the leaf surface on a stem is consumed by a larva in its developmental stages (Wilson et al., 1969), the population level that caused that loss is calculated.

Following completion of the 1968 survey, Wilson, Treece, and Shade (1969) reported that the cereal leaf beetle was building populations at a massive rate, 300 to 500 miles east of Lake Michigan. They predicted large outbreaks within 2 to 5 years. The results of the 1970 and 1971 surveys corroborate this prediction.

This survey was commenced in mid-June in the southern areas and continued into mid-July in the northern regions. Since it is based on an estimate of total larval feeding it is not begun until 95 to 98 percent of the larvae have completed development. The population estimates shown in the figures and table indicate surviving populations that completed the fourth instar. They give no indication of initial populations or mortality that occurred during the season, either by natural means or chemical control. Seasonal data taken by Shade (unpublished) from northern Indiana show that mortality in the egg and larval stages was unusually high in 1971. He attributes this mortality to moisture stress in the host plant resulting from the drought that occurred during May and June.

^{1/} The following agencies cooperated to complete this survey: USDA Plant Protection Division Offices in Illinois, Indiana, Michigan, and Ohio, Indiana State Entomologist's Office, Purdue University, Ohio Department of Agriculture, Ohio Agricultural Research and Development Center, Pennsylvania Department of Agriculture, West Virginia Department of Agriculture, Wisconsin Department of Agriculture, Cornell University, and Canada Department of Agriculture.

^{2/} Department of Entomology, Purdue University, Lafayette, Indiana.

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

Population levels attained by the cereal leaf beetle in seven states and Ontario in 1971 are shown in Figure 1. Note how they have built up east of Lake Michigan in the direction of prevailing winds. This map also shows that large populations are not contiguous, which suggest that they have developed to the east from islands of populations resulting from the dropout of beetles carried by the prevailing wind currents. This corroborates the early observation of Shade and Wilson (1964) when they constructed a windrose and superimposed it on the known limits of the cereal leaf beetle infestation. This work, along with airplane trapping studies by Wilson and Ruppel (1964) which showed that the beetle was getting into the upper wind currents substantiated wind as a significant factor in the dispersion of this insect.

The rate in which cereal leaf beetle populations have built up in six states during the years they were surveyed since 1967 is shown in Figure 2. It is interesting to note how populations have developed in the different geographical or physical areas these states represent. Michigan and Ohio show steep inclinations year after year. However, in Ohio the greatest buildup is occurring in the central and southeastern part of the state where the countryside is generally rolling with small fields and an abundance of hedgerows and woodland cover. This type of terrain extends into West Virginia where the beetle increase appears to be exceedingly rapid. Likewise, buildup is occurring rapidly in western Pennsylvania in similar terrain.

However, in the open prairie area of northwestern Ohio, which was the first part of that state infested, populations appear to follow a pattern comparable to Indiana. It is an area similar to northern Indiana with large open fields. In both Indiana and this part of Ohio the cereal leaf beetle appears to have attained a rather stable level. In general, populations seem to be fluctuating little from year to year, producing only occasional minor peaks. Moving westward from central Indiana, populations appear to become less and less significant as areas become more open. In Illinois, after more than seven years of known infestation, one finds no more than trace levels of cereal leaf beetle feeding. These observations suggest that an expansive open environment may be an important factor in the ecology of the cereal leaf beetle. Even in Michigan, populations tend to be lowest in the large open grain areas of the "thumb".

Data from the survey have been summarized and collated in Table 1 for the U.S. and Table 2 for Canada. Counties have been averaged by districts according to the grouping used by the Agricultural Statistics Reporting Service with the exception of two districts in Indiana. Because of the variance in the distribution of populations of the cereal leaf beetle in the northwestern and north-central districts in Indiana, these districts have been subdivided as follows: Northwestern 1 contains all counties in the district with the exception of La Porte. La Porte County represents northwestern 2. The north-central district has been subdivided as follows: north-central 1 which contains the four northern counties, and north-central 2 which contains the five southern counties.

In the case of Illinois all counties sampled have been placed in a single group referred to as eastern counties and in New York into a single group referred to as western counties.

Literature Cited

- Shade, R. E. and M. C. Wilson. 1964. Population Buildup of the cereal leaf beetle and the apparent influence of wind on dispersion. Purdue Univ. Agric. Exp't. Sta. Research Progress Rpt. 98, 7 p.
- Wilson, M. C., R. E. Treece, R. E. Shade, R. K. Stivers, and K. E. Day. 1969. Impact of the cereal leaf beetle on yields of oats. J. Econ. Entomol. 62:699-702.
- Wilson, M. C., R. E. Treece, and R. E. Shade. 1969. 1968 Cereal leaf beetle infestation and crop loss survey. U.S. Dept. Agri. Coop. Econ. Ins. Rpt. 19(23):409-417.
- Wilson, M. C. and R. F. Ruppel. 1964. Airplane trapping of the cereal leaf beetle and the meadow spittlebug. Purdue Univ. Agric. Exp't. Sta. Research Progress Rpt. 110, 7 p.

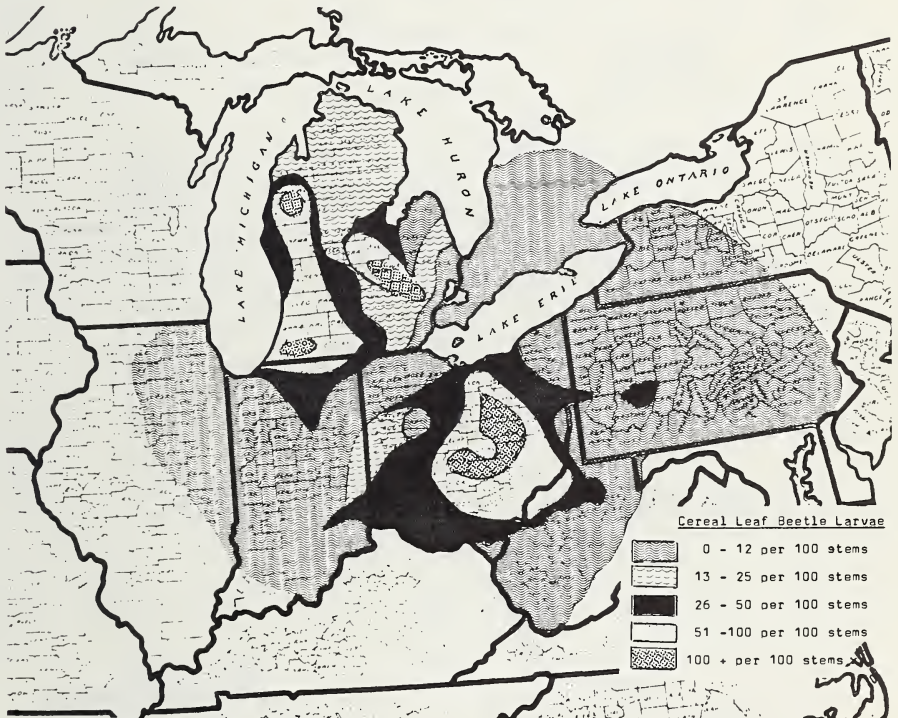
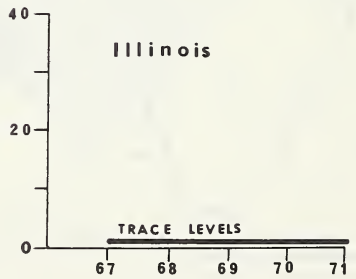
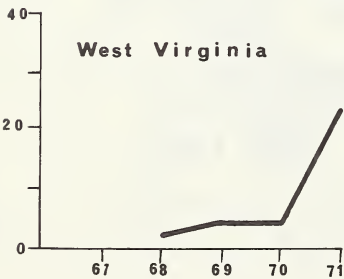
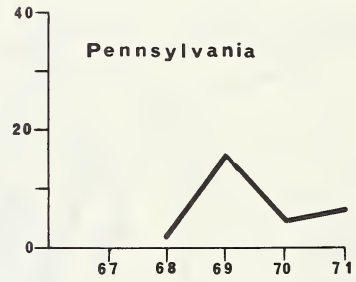
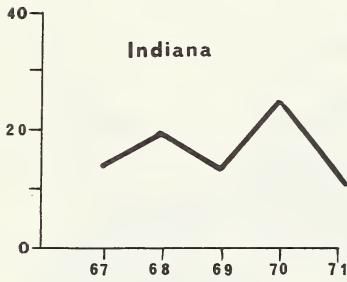
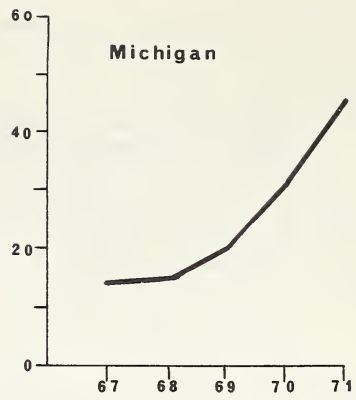
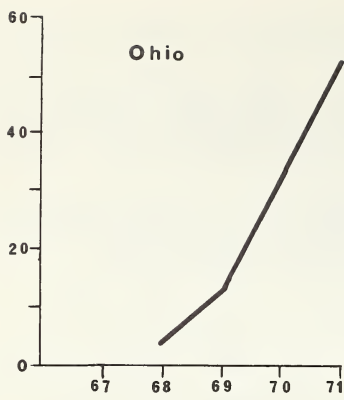


Figure 1. Cereal leaf beetle infestations on oats in 1971.



Year

Figure 2. Trend of cereal leaf beetle populations in six States.

COMPARISON OF 1970 and 1971 CEREAL LEAF BEETLE INFESTATIONS

Table 1

District	Percent Stems Infested				Larvae Per 100 Stems			
	1970		1971		1970		1971	
	Average	Range	Average	Range	Average	Range	Average	Range
ILLINOIS								
Eastern Counties	3.9	0-17	1.7	0-10	0.18	0-0.7	0.59	0-4.7
INDIANA								
North Western 1	24.0	8-52	13.1	3-34	4.0	0.3-16	1.7	0.1-4.3
North Western 2 (La Porte)	80.3		55.0		121.3		11.9	
North Central 1	74.0	48-91	86.3	82-89	52.2	7-84	35.2	27-47
North Central 2	55.1	49-73	54.8	19-91	14.7	5-27	9.6	2-17
North Eastern	78.0	51-99	75.6	57-100	44.9	10-93	19.0	6-72
West Central	28.7	9-60	16.3	10-22	5.2	1-18	3.7	1-15
Central	52.5	26-90	52.6	15-93	13.4	5-28	9.1	1-48
East Central	59.0	37-80	70.2	48-93	26.4	11-65	14.0	2-26
South Western	10.0	6-14	7.0	7-7	0.8	0.7-0.8	8.5	8-9
South Central	14.8	7-25	23.1	2-65	0.6	0.3-0.8	1.4	0.1-3.6
South Eastern	10.7	4-20	72.5	59-96	1.4	0.5-2.9	18.5	3-44
State Average	46.6		49.9		20.5		11.1	
MICHIGAN - Lower Peninsula								
North Western	54.1	17-86	61.0	46-97	35.3	4-87	52.6	17-187
North Eastern	38.7	22-71	63.5	19-93	7.6	3-13	17.0	1-29

Table 1 Continued

MICHIGAN

District	Percent Stems Infested				Larvae Per 100 Stems			
	1970		1971		1970		1971	
	Average	Range	Average	Range	Average	Range	Average	Range
West Central	73.2	56-90	76.3	60-93	38.1	19-57	77.6	57-99
Central	79.2	64-100	71.9	48-99	27.4	6-66	25.2	5-79
East Central	65.6	49-95	78.9	62-100	6.6	4-14	27.1	9-46
South Western	87.0	58-99	81.6	59-96	81.2	24-166	84.3	11-235
South Central	84.7	65-100	77.9	57-98	33.8	8-67	52.1	3-150
South Eastern	85.8	62-99	65.4	33-96	21.3	4-52	31.2	4-126
State Average	71.2		71.2		25.7		42.6	

OHIO

North Western	82.3	48-100	41.9	13-76	30.7	6-87	16.5	4-46
North Central	55.3	18-99	62.4	13-90	15.9	3-47	43.9	4-128
North Eastern	64.1	5-94	51.6	3-100	27.5	1-61	28.0	1-84
West Central	64.2	31-100	58.0	23-100	21.6	3-63	22.8	4-45
Central	63.0	13-88	91.1	72-100	28.2	2-91	101.1	48-292
East Central	76.2	66-87	90.8	81-100	39.3	19-76	170.4	49-292
South Western	88.7	58-100	84.7	54-98	22.6	7-39	29.1	13-49
South Central	53.2	1-80	81.5	30-100	19.4	1-50	33.1	4-78
South Eastern	72.4	20-98	92.4	83-100	28.5	5-82	78.6	18-170
State Average	68.6		69.9		25.7		51.4	

Table 1 Continued

District	Percent Stems Infested				Larvae Per 100 Stems			
	1970		1971		1970		1971	
	Average	Range	Average	Range	Average	Range	Average	Range
PENNSYLVANIA								
North Western	29.0	15-50	20.9	15-27	7.8	4-15	2.8	2-3
West Central	28.0	9-64	29.7	7-52	9.8	1-25	16.2	0.4-35
South Western	17.3	10-26	30.4	18-49	4.9	2-7	4.4	2-9
North Central	1.5	0-3	5.8	0-18	0.4	0-0.6	3.7	0-15
Central	7.5	0-28	12.9	0-42	1.6	0-8	1.8	0-6
South Central	0.5	0-1	0.9	0-1.5	0.1	0-0.1	0.1	0-0.2
Average Western Counties	25.1		28.2		6.2		8.0	
Average Central Counties	4.4		10.1		1.0		2.2	
Stage Average	13.8		16.3		4.0		5.2	
WEST VIRGINIA								
South Western	9.5	4-20	29.8	11-100	1.1	0.2-4	18.2	1-90
North Western	9.3	4-20	60.3	8-94	1.2	0.1-4	35.4	1-64
Eastern			17.5	17-18			2.9	2-4
State Average	9.4		39.1		1.2		22.5	
NEW YORK								
Western Counties	10.0	2-19	5.7	2-14	0.007	0.003-0.011	0.9	0.1-3

Average 1972 Cereal Leaf Beetle Infestations in Ontario, Canada

Table 2

District <u>1/</u>	<u>Percent Stems Infested</u> <u>Average</u>	<u>Range</u>	<u>Larvae Per 100 Stems</u> <u>Average</u>	<u>Range</u>
Southwestern Counties	16.7	1.5-56	2.5	0.1-12
Southeastern Counties	7.1	0-22	0.9	0-2.9

1/ Data from 10 counties averaged in each district

Prepared by Economic Insect
Survey and Detection Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(24):371-378, 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

