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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PROTECTION DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PROTECTION DIVISION

ECONOMIC INSECT SURVEY AND DETECTION

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

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The Editors, CEIR
Economic Insect Survey and Detection
Plant Protection Division, ARS, USDA
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG damaged sorghum in Missouri, Kansas, Iowa, and South Dakota. (pp. 541-542). HORNWORM moths heavier than normal in Wisconsin and Michigan. (p. 542). POTATO LEAFHOPPER building up in central New York. Damaged alfalfa in Pennsylvania and Wisconsin, soybeans in Ohio. (p. 542).

EUROPEAN CORN BORER infestations heavy in Maryland, damaged corn in Ohio. (p. 542). WESTERN BEAN CUTWORM moths heavy in light traps in Nebraska. (p. 543). CORN ROOTWORMS lodging corn in Wisconsin, root damage reported in South Dakota; damaged corn for first time in many years in Utah. (p. 544).

SATIN MOTH unusually heavy in Oregon. Larvae of a NOTODONTID MOTH expected to cause severe defoliation on Manistee National Forest in Michigan. (p. 551).

GRASSHOPPERS continue heavy in several States. (p. 553).

Large scale control program underway against vectors of Venezuelan equine encephalomyelitis in Texas. (pp. 552-553). As of July 27, a total of 3,001,461 acres in Texas treated one time; of this total 382,619 acres treated for second time. In Louisiana 720,272 acres treated one time.

Detection

New State records include a MOSQUITO from Maryland (p. 522), a PLATYGASTERID WASP and a EURYTOMID WASP from Pennsylvania (p. 553).

For new county, island, parish, and independant city records see page 548.

Special Reports

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1970. (pp. 557-558).

Reports in this issue are for week ending July 23 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JULY 26

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

HIGHLIGHTS: High temperatures prevailed in the Far West and along the Gulf of Mexico. The Northeast was mostly cool and comfortable. Thundershowers were widespread over the Central and East.

PRECIPITATION: A large cool high covered much of mid-America early in the week. A front stretched from the northern Atlantic States to the southern Great Plains. It was the battle line which marked the leading edge of the cool dry air, which pushed in from the north to replace the retreating warm humid air that lay over the South. A line of showers and thunderstorms occurred along the front. Some of the thunderstorms were accompanied by torrential downpours, strong gusty winds, or hail. A few tornadoes dotted the open country in Ohio, Louisiana, and Georgia. Bridgeport, Connecticut, received 5.95 inches of rain the 24-hour period ending Tuesday morning. Light scattered precipitation occurred in the Rocky Mountains Wednesday, in the Great Plains Thursday, from northeastern Texas to the Great Lakes Friday, and from Louisiana to New England Saturday. Most of the weekend showers occurred in the vicinity of a slow moving cold front that stretched from the Northeast to the southern Great Plains. At times, lines of thunderstorms marked the position of the front. Some of the thunderstorms produced hail and strong winds. Other thunderstorms dotted the warm humid Southland. Weekly precipitation totals were generally less than 0.50 inch over the western half of the Nation and ranged widely from 1 inch to locally 5 to 6 inches or more over the eastern half of the Nation.

TEMPERATURES: Hot sunny weather prevailed over the Western States early in the week. On Tuesday, the mercury reached 107° at Yakima, Washington, and 108° at Red Bluff, California, 100° or higher over the southwestern deserts, and the 90's across the South to the Atlantic Ocean. By Wednesday afternoon, the temperatures in parts of the deserts had gone above 110°. The heat in the Southwest was especially oppressive because of the unusually high relative humidity in the area. In sharp contrast to the hot weather in the Far West and across the South, weather over the rest of the Nation was quite comfortable. A large high covered the central Great Plains. It brought cooler weather to a large area extending from the Rocky Mountains to the Appalachians. Afternoon temperatures remained in the Weather of the week continued on page 548.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN EARWORM (Heliothis zea) - MARYLAND - Moths averaged less than 3 per night on Eastern Shore. Egg counts in corn less than 1 infested ear per 30 surveyed. Heaviest first-instar infestation averaged 4 percent in 35 acres near Preston, Caroline County. None found west of Chesapeake Bay. (U. Md., Ent. Dept.). WEST VIRGINIA - Damage light to field corn in Putnam, Mason, and Wood Counties. (W. Va. Ins. Sur.). NORTH CAROLINA - Larvae in corn (majority of fields with ears) declining in Columbus County area. Indicates pupation occurring and subsequent generation should appear on soybeans and cotton in about 3 weeks. Larvae in Clayton, Johnston County, area and at Lewiston, Bertie County, area continue to increase; sixth instars observed at Clayton indicating pupation will begin week of July 26. (Bradley, Hunt). GEORGIA - Light to heavy in south-central area tobacco. (French, July 17). TEXAS - Reported heavy in whorls of some grain sorghum in Collingsworth County. (Clymer et al.). OKLAHOMA - Averaged 3 per 100 heads of sorghum in Harmon County and 2 per 100 heads in Tillman County. Moderate on corn in Cleveland County. (Okla. Coop. Sur.). KANSAS - Averaged 0-2 second to fourth instars per ear in 5 fields of late-silking field corn in Harvey County. (Bell). UTAH - Caused moderate injury to sweet corn in Washington County (Huber); very light in northern areas (Knowlton).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Generally light but persistent in Luna and Dona Ana Counties, controls applied. (N.M. Coop. Rpt.). OKLAHOMA - Averaged 575 per plant on sorghum in Hitchland area and 725 per plant in Hooker area of Texas County. Light to moderate in Cimarron County. Ranged 100-3,000 per plant in tassels of corn in Texas County. (Okla. Coop. Sur.). KANSAS - Light to moderate in sorghum surveyed in southwest, west-central, north-central, northeast, and east-central districts. (Bell). WISCONSIN - Heavy in some fields in central and southwestern counties. Moderate on ears and in silks in Grant and Iowa Counties. (Wis. Ins. Sur.). MARYLAND - Winged adults in most fields in Howard, Baltimore, Carroll, and Harford Counties. First-instar nymphs infested 5-10 percent of corn in Howard, Baltimore, and Carroll Counties. Nymphs usually found deep in whorl in late whorl-stage corn. (U. Md., Ent. Dept.).

GREENBUG (Schizaphis graminum) - COLORADO - Light on sorghum in Larimer County and other northeastern areas. (Hantsbarger). TEXAS - Increased, but still below 1970 level. Some spraying with good control obtained. Most greenbugs parasitized by a small braconid in Deaf Smith County field. Light to moderate greenbug infestations in Dallas, Hartley, Parmer, Deaf Smith, Moore, Oldham, Castro, and Hansford Counties. (Clymer et al.). OKLAHOMA - Averaged 110 per plant on sorghum in Hitchland area and 50 per plant in Hooker area of Texas County. Light to moderate in Cimarron County. Ranged up to 50 per leaf on sorghum in Caddo County, colonies light. (Okla. Coop. Sur.). ARKANSAS - First infestations of season observed in sorghum breeding plots in northwest area. Infestations relatively light but more general than in other areas of State. Occasional plants with up to 5-6 colonies per plant. (Boyer). MISSOURI - Infested all fields checked in west-central and southwest areas. Small colonies ranged 1-3 per plant in southwest. Colonies ranged 1-8 per plant in west-central area with severe discoloration on bottom 4-5 leaves. (Peters). KANSAS - Economic in sorghum in Johnson, Miami, Shawnee, and Washington Counties. In Shawnee and Washington Counties, severe infestations only on seedling sorghum (2 to 5-inch tall plants). In Shawnee, Douglas, Nemaha, Marshall, Washington, Republic, Jewell, Cloud, and Clay Counties parasitic wasps major factor in greenbug control. In some fields lady beetles also appeared to be of significant importance in control. (Bell).

NEBRASKA - Greenbug spotted and heavy, up to 2,000 per lower leaf in grain sorghum throughout southeast corner. Increasing rapidly July 12-16 in Nemaha, Gage, and southern Lancaster Counties, up to 3 leaves killed. Parasitism variable, with up to 30 percent of aphids parasitized in few fields and almost no activity in others. Predators, particularly lady beetles, abundant and continue to increase. Near Mead, Saunders County, lady beetles in some fields holding greenbug to 10 or less per plant. (Staples et al.). Lady beetles unusually abundant in grain sorghum in Richardson County. (Aitken). Little greenbug

activity noted in York, Platte, and Seward Counties (Staples) and in Lincoln County (Campbell). IOWA - Controls needed in several areas on grain sorghum in southern areas. (Iowa Ins. Sur.). SOUTH DAKOTA - Infestations on sorghum approaching economic levels in many fields; some spraying underway. (Jones).

HORNWORMS (Manduca spp.) - WISCONSIN - Second and third instars noted defoliating tobacco in Southern Dane County field in which cutworm damage appeared to be subsiding. Adults of M. quinquemaculata (tomato hornworm) appearing in larger numbers than normal in blacklight traps. (Wis. Ins. Sur.). MICHIGAN - Moth collections heavier than normal as far north as Montcalm County. Growers should remain alert next 3-4 weeks. (Newman). MARYLAND - Larvae infested 2-5 percent of tobacco plants in St. Marys, Charles, Prince Georges, and Calvert Counties. (U. Md., Ent. Dept.). VIRGINIA - Appearing in some tomato fields in Westmoreland County. (Ptucha).

POTATO LEAFHOPPER (Empoasca fabae) - NEW YORK - Building up in central areas, expect trouble on beans. (N.Y. Wkly. Rpt., July 19). PENNSYLVANIA - Populations variable in alfalfa. Some untreated fields show moderate to severe stunting and yellowing. (Gesell). MARYLAND - Heavy but spotty in alfalfa throughout central counties. Ranged 0-10 per sweep in most alfalfa in Baltimore, Carroll, Frederick, and Howard Counties. Heaviest counts ranged 30-100 per sweep. Ranged 0-25 per sweep in alfalfa on Eastern Shore in Queen Annes, Kent, Talbot, and Caroline Counties, with no heavy infestations. (U. Md., Ent. Dept.). VIRGINIA - Nymphs and adults 80-100 per 100 sweeps on soybeans in Westmoreland County. Ranged 25-40 per 100 sweeps in Essex and King and Queen Counties. (Allen). Nymphs and adults 75 per sweep in Augusta County field. (Hendrick, July 15). Nymphs averaged 20 per 100 sweeps in Rockbridge County. (Allen). OHIO - Adults, 6 per leaf, damaged soybeans in Wayne County. (Flessel). WISCONSIN - Nymphs common on Norway maple in Kenosha County nurseries July 20. Most larger nurseries treating for this insect regularly. Damaging populations scattered, apparently more prevalent in early cut and regrowth to blossom alfalfa. Nymphs ranged 15-30 per sweep and yellowing appearing more slowly than normal. Damage appearing in Kewaunee County. (Wis. Ins. Sur.). MISSOURI - Light on alfalfa in central and southeast areas. Ranged up to 120 per 10 sweeps. (Munson).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Psyllid yellows damage reported on tomatoes in Weld County. (Rothman).

TOBACCO BUDWORM (Heliothis virescens) - MARYLAND - Immatures continue to cause light damage to tobacco in Anne Arundel, St. Marys, Charles, and Prince Georges Counties. Infested plants ranged 2-6 per 50 plants surveyed. (U. Md., Ent. Dept.). TENNESSEE - Very light on tobacco in Robertson and Sumner Counties. Most larvae sick and dying. Damage to date very light. (Gordon).

TOBACCO HORNWORM (Manduca sexta) - UTAH - Some damage to tomato foliage at Brigham City, Box Elder County. (Knowlton). KENTUCKY - Light and scattered on tobacco throughout Warren County; larvae averaged 2 per 100 plants at one location. Very light to nonexistent on tobacco in Christian, Logan, Graves, and Todd Counties. (Barnett). NORTH CAROLINA - Larvae noneconomic in most fields statewide. Populations in Columbus County and Bladen County area averaged about 3 percent. Less than 1 percent of plants infested in Lenoir and Surry Counties. (Hunt).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Adults averaged 68 per night in blacklight trap at Bridgeville, Sussex County. (Burbutis, Lesiewicz). MARYLAND - Percent infestation ranged 20-100 statewide, heavy infestations found in every county. Moths averaged 10 per night at blacklight stations in Queen Annes and Dorchester Counties. First-brood pupation expected to peak within 10 days in Frederick, Carroll, Baltimore, and Howard Counties. (U. Md., Ent. Dept.). VIRGINIA - Generally lighter than 1970 in Piedmont and Tidewater areas. Infestations of 5-10 percent in Hanover, King and Queen, and Botetourt Counties.

Infestations ranged 1-5 percent in Richmond and Westmoreland Counties. (Allen). NORTH CAROLINA - Infested 2 percent of corn with ears in Franklin, Wilson, Bertie, Hertford, and Northampton Counties. Second-generation larvae beginning to penetrate stalks. (Hunt). KENTUCKY - Larvae light and scattered in Graves, Hickman, and Carlisle Counties. (Barnett). WEST VIRGINIA - Generally light state-wide; damage 20 percent in one Monroe County field. (W. Va. Ins. Sur.).

OHIO - *O. nubilalis* damage evident on 75+ percent of no-till corn in Harrison County July 15. (Holdsworth). MICHIGAN - Warm weather advanced normal emergence date for second brood. Total of 26 adults collected at Monroe County blacklight station. Limited egg laying in progress, will peak next 10-14 days. Larval problems expected to continue until frost. Second brood about 7 days earlier than 1970, 14 days ahead of 1969 season. (Newman). WISCONSIN - No emergence of second-flight moths in blacklight trap catches from Lancaster to Plover. In eastern counties, moth catches continue relatively heavy at few locations. Larval development variable. (Wis. Ins. Sur.). ILLINOIS - Development retarded due to cooler weather. First-generation borers per 100 stalks averaged by area: Northwest 7, northeast 2, west 16, central 4, west-southwest 6, and southwest 19. In southern and northwestern areas, pupation should be complete and moth emergence advanced. Egg laying progressing rapidly, should peak next 10 days; little hatch noted. Egg laying should be rapid in west-southwest and western areas. Little egg laying will take place in northern area for about 10 days. (Sur. Bul.). MINNESOTA - Pupation started; most borers in late instars. If present weather prevails, bulk of moth flight and egg laying should start first week of August. Some early moths seen past week. Populations in west-central district lightest north of Swift County; no change expected. Same true for northwest district where populations continue light. Heaviest counts and damage in State south of line from Minneapolis and St. Paul west to State line. Stalk breakage above and below ear due to tunneling becoming noticeable in many fields. Tassels breaking off but pollination not affected in fields surveyed. (Minn. Ins. Rpt.).

SOUTH DAKOTA - First-brood *O. nubilalis* larvae continue to damage untreated corn in eastern area. Pupae found July 15 near Freeman in eastern Hutchinson County. Early larvae still present in Brookings County June 19. (Jones, Kantack). NEBRASKA - First emergence of second-brood moths noted at Lincoln, Lancaster County, July 20 and in Hall County July 22. One Lancaster County cornfield near 100 percent infested with 1-3 third to fifth instars and occasional pupa. Pupation estimated at about 35 percent, emergence less than 1 percent (Keith, et al.). In 6 Dawson County fields, plants averaged about 30 percent infested with first-brood borers. (Keith). Corn plants ranged 30-70 percent infested in 7 Hall County fields. (Roselle). KANSAS - Recent blacklight trap catches indicate first-generation moths beginning to emerge in Republic County. Most pupated in corn in Republic County and emerged in Brown County. Freshly laid eggs found in field of pretassel, late-planted corn in Brown County and none found in Republic County. In field in Brown County where 80 percent of plants infested with 1-3 second and third instars, 14 days ago, less than 10 percent of stalks bored this week, indicating high larval mortality due to unknown causes. First-generation borer damage appears to be much lower than 1970 in Brown County. (Bell). MISSOURI - Counts in late corn in southeast area showed 0-22 egg masses per 100 plants, small larvae on 5-71 percent of plants. (Munson). ARKANSAS - Limited survey indicates no problem in northeast area where corn acreage higher than in other areas. Most of crop planted early. (Boyer).

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - COLORADO - Adults appearing in light traps in Weld County; range 0-6 per week. (Urano). NEBRASKA - Moth flights heavy in Parks area, Dundy County; about 2,500 moths caught each night in blacklight trap operated July 17-18. Egg masses averaged less than 1 per 100 plants in 3 irrigated cornfields in Hitchcock County; averaged 1 per 50 plants in 2 irrigated and 2 dryland fields in Dundy County. (Munson, Wedberg).

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Heavy in sorghum in Caddo, Washita, and Jackson Counties and in corn in Canadian and Jackson Counties. (Okla. Coop. Sur.). MARYLAND - Infestations in late-planted field corn expected within 10 days in Frederick, Montgomery, and Carroll Counties. (U. Md., Ent. Dept.).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - D. longicornis (northern corn rootworm) and D. virgifera (western corn rootworm) adults emerging; D. virgifera most common. Diabrotica spp. adults 3+ per plant in Grant County field corn. Mating begun. Lodging reported in Trempealeau, Walworth, Waushara, Rock, and Grant Counties. Lodging due to wind in some central county fields with no rootworm population. (Wis. Ins. Sur.). MINNESOTA - D. longicornis and D. undecimpunctata (southern corn rootworm) adults found in Dakota, Carver, Rock, Nobles, and Redwood Counties. Most still in larval and pupal stages. Little lodging observed. No wilting leaves seen even in severely damaged fields. (Minn. Ins. Rpt.). SOUTH DAKOTA - Root damage extensive on untreated corn, particularly in northern Moody and eastern Brookings Counties. Pupation and adult emergence not yet general in these counties through July 19. (Jones, Kantack). Adult population may be at damaging levels in some fields next few weeks. (Jones). KANSAS - Adults emerging in field corn statewide. Very few found in silking corn in west-central and north-central districts but as high as 3 per plant (95 percent D. virgifera) in silking corn in Brown and Stanton Counties. (Bell). UTAH - Damaging 50 acres of corn in Ogden and Kaneshville area of Weber County. First season of corn rootworm injury of any extent. (Roberts, Knowlton).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - WYOMING - Larvae ranged 15-20 per plant in untreated fields in Goshen County July 13. Damage in several fields ranged none to severe; damage to roots ranged moderate to severe in untreated fields. Population 10 percent adults, 75 percent larvae, 15 percent pupae. (Burkhardt). COLORADO - Adults ranged 0-5 per plant in Greeley, Lucerne, and Fort Lupton areas of Weld County. (Rothman). Much damage to untreated corn in Montezuma County. (Lancaster). OKLAHOMA - Adults averaged 5 per plant on untreated corn in Texas County. (Okla. Coop. Sur.). NEBRASKA - Light, averaged less than 1 per plant in 7 Hall County and 6 Dawson County cornfields. (Roselle et al.). NORTH DAKOTA - First adults of season observed on Cass County corn July 17; averaged less than 1 per plant. (Brandvik).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - NEW HAMPSHIRE - Larvae 7-8 per plant in field corn, noted 2 adults emerging, at Charlestown, Sullivan County. (Fisher). NEW JERSEY - Larvae light to moderate, feeding on roots in experimental corn plots near Bloomsbury, Hunterdon County. Many larvae full grown. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Averaged one larva per plant in Wyoming County field that has been in continuous corn for 5-10 years. Most in last instar July 14. No pupae found. Several small fields in Centre County in continuous corn for 4 years averaged 6 per plant with 75 percent in pupal stage July 16. (Gesell).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Infestations in field corn ranged 40-100 percent in Frederick, Montgomery, Howard, Queen Annes, Kent, Talbot, and Caroline Counties. Controls not needed at present. (U. Md., Ent. Dept.).

SORGHUM MIDGE (Contarinia sorghicola) - MISSISSIPPI - Damage light to grain sorghum in Noxubee County, some fields treated. (Sartor). ARKANSAS - No damage occurred, no treatments applied except for few isolated cases not needed. First midge of season observed July 21 in breeding plots in Washington County. Remains much below treatment level in southeast, east-central, and northeast areas. (Boyer). MISSOURI - Midges ranged 5-10 per head on sorghum in susceptible stages in south-east area. (Houser).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Apparently increasing in older grain sorghum but still light in most areas. Light to heavy in Castro, Deaf Smith, Parmer, and Bailey Counties. Several beneficial insects, including a predacious thrips, appear to be feeding on mites. (Clymer et al.).

YELLOW SUGARCANE APHID (Sipha flava) - ARKANSAS - Infestations observed for first time this season in northwest area. Numbers low but aphids easier to find than in past years, indicating gradual buildup. (Boyer).

TURF, PASTURES, RANGELAND

A BILLBUG (Sphenophorus phoeniciensis) - CALIFORNIA - Adults 100 per square yard of Bermuda grass turf in El Centro, Imperial County. (Cal. Coop. Rpt.).

GRASSHOPPERS (Melanoplus spp.) - MARYLAND - Nymphs ranged 3-15 per square yard of grass and legume mixture planted along many State and Interstate highways in Baltimore, Frederick, Washington, and Carroll Counties. May move into adjacent croplands within next few weeks. (U. Md., Ent. Dept.). ARKANSAS - Primarily M. differentialis and M. femurrubrum continue troublesome in extreme northwest area. About 1,500 acres treated in Washington County. (Boyer).

A LEAFHOPPER (Dikraneura carneola) - OREGON - Severely damaged Alta fescue, pubescent wheatgrass, and orchard grass on 350-acre range revegetation project on Aldrich Mountain, Malheur National Forest. No controls undertaken this year. Determined by P.W. Oman. (Orr).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MONTANA - Infestations on second-crop alfalfa heaviest in many years in Blaine County. Damage in other areas reduced due to parasites and predators. (Pratt, July 16). OREGON - Continuous egg hatch for 60 days until mid-July. Many early instars still present. Populations in infested areas (apparently fewer than 1970) about 3 times larger than 1970 in parts of Crook and Deschutes Counties. (Bunch). VIRGINIA - Adults 10 and larvae 5 per 100 sweeps in Augusta County field. (Hendrick, July 15). Larvae 25 per 100 sweeps in 2 fields in Rockbridge County. (Allen, July 21). VERMONT - Damage moderate to heavy on scattered late-cut alfalfa. (Nielsen).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae per 100 sweeps in Yuma County ranged 40-80 at Dome, 20-150 on Yuma Mesa; averaged 15 in Cochise County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Adult flights heavy in Yuma County; larvae per 100 sweeps ranged 10-30 on Yuma Mesa, 80-900 at Wellton and Dome. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - MASSACHUSETTS - L. lineolaris (tarnished plant bug) adults 63 per 100 sweeps of alfalfa in Hampshire County field. (Miller). NEVADA - Mostly L. hesperus ranged 8-12 nymphs and 10-20 adults per sweep in alfalfa seed fields at Dixie Valley, Pershing County. Current controls in area ineffective. L. elisus and L. hesperus averaged 1 per sweep in seed alfalfa at Lovelock, Pershing County; controls effective. (Stitt).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Ranged 10-400 per sweep in Lovelock alfalfa seed fields and 15-600 per sweep in Dixie Valley, Pershing County. (Stitt). UTAH - Ranged 200-300 per 10 sweeps in Millard County alfalfa. (Roberts). Moderate in Box Elder County fields (Lindsay); severe in much Sanpete County alfalfa (Herring). COLORADO - Heavy on second cutting of alfalfa in Bracewell area, Weld County. (Urano).

SWEETCLOVER APHID (Therioaphis riehmi) - IDAHO - Colonies found on white and yellow sweetclover at Rathdrum, Kootenai County, and at Sandpoint, Bonner County. These are new county records. (Portman).

GRASSHOPPERS - MICHIGAN - Generally more abundant in State than for years. Infesting alfalfa as well as roadside weeds and old pastures. Cutting of alfalfa and large populations will force them to move into other crops. Continuing dry weather will intensify movement. (Connin, Ruppel). MARYLAND - Melanoplus spp.

nymphs ranged 2-4 per sweep in alfalfa and red clover in Queen Annes, Talbot, Kent, and Caroline Counties. (U. Md., Ent. Dept.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - INDIANA - Damaged soybeans in Morgan, Clark, Jennings, and Scott Counties. Infestations in central and south-central districts represent extensions of damage range in State. (Matthew).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - KENTUCKY - Adults per 100 sweeps averaged 36 in soybeans in Warren County, 20 in no-till soybeans in Logan County. (Barnett).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - MARYLAND - Light but slowly increasing in several areas of Dorchester, Wicomico, Caroline, Talbot, Kent, and Queen Annes Counties. Some yellowing along border rows in several fields in Queen Annes County. (U. Md., Ent. Dept.).

PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Increasing in Bryan County peanuts. Currently moderate. (Okla. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, punctured squares averaged 5.4 percent in 9 treated fields, averaged 6.3 percent in 32 untreated fields. Infestations still light. (Cowan et al.). For Boll Weevil in High Plains see page 553. OKLAHOMA - Punctured squares ranged 25-30 percent in early cotton in Blair and Warren areas of Jackson County. Ranged 2-3 percent in other areas of Jackson County and in Tillman and Harmon Counties. Moderate in Cleveland and Bryan Counties, light in Caddo County. (Okla. Coop. Sur.). ARKANSAS - Adults emerging, infestations increasing. Of 7,202 fields checked, 4,215 infested; 300 or 4.2 percent needed treatment. (Boyer et al.). TENNESSEE - Punctured squares ranged 1-83 percent in regularly infested cotton-growing area. Most fields infested just above 10 percent control level. Dry weather caused considerable reduction in larvae. Most of first generation emerged at this time. If dry weather continues there will be definite reduction of second-generation weevils which should start emerging by August 1. (Locke). LOUISIANA - Punctured-square counts heavy in scattered fields statewide period ending July 19. Damage levels earlier than usual in some fields. Expect punctured square counts to increase next 10 days. Start control when 25 percent punctured squares observed. (Tynes et al.). In Madison Parish, 28 weevils recovered from 190 wing traps; total to date 5,040. Punctured squares averaged 8.8 percent in 8 of 15 fields. Infestations in 84 of 96 plots checked. (Cleveland et al.).

MISSISSIPPI - A. grandis infestations ranged 2.3-21 percent in 87 fields checked in Noxubee, Chickasaw, Monroe, Holmes, Sharkey, and Washington Counties; 1-13 in 9,400 acres checked in Coahoma, Quitman, Tallahatchie, Grenada, Yalobusha, and Calhoun Counties. (Sartor). In delta counties, punctured squares averaged 19.2 percent in 4 of 6 fields. Some fields treated. Collected 2 weevils in pheromone-baited wing traps in Washington County. (Pfrimmer et al.). GEORGIA - Light to heavy in southern area. (Womack, July 17). Punctured squares averaged 16 percent in treated plots, 45 percent in untreated plots in Spalding County. (Tippins). NORTH CAROLINA - Punctured bolls ranged 0-30 percent and 70-80 percent of bolls dropped in 20 acres of cotton near Pembroke, Robeson County. Crop in maximum fruiting stage. (Johnson).

BOLLWORMS (Heliothis spp.) - NEW MEXICO - Light and spotty in cotton surveyed in Dona Ana County. (N.M. Coop. Rpt.). TEXAS - In McLennan and Falls Counties, eggs averaged 7 (maximum 15.7) and larvae 8.9 (maximum 22) per 100 terminals in 9 treated fields. Eggs averaged 1.2 (maximum 10) and larvae 0.4 (maximum 4.6) per 100 terminals in 32 untreated fields. Damaged squares averaged 7 percent in 9

treated fields; averaged 0.6 percent in 32 untreated fields. (Cowan et al.). OKLAHOMA - Light (0-6 per 100 plants) in Harmon, Tillman, Jackson, Caddo, and Grady Counties. (Okla. Coop. Sur.). ARKANSAS - Moth flights decreased on sugar lines, but increased again in Pulaski and Jefferson Counties. Egg laying expected to continue at low levels. Little treatment necessary except for upper Arkansas Valley and Pulaski County where moth flights have been heavy. (Boyer et al.). LOUISIANA - Heliothis spp. eggs and small larvae in many fields throughout Red River Valley period ending July 19. Predators in some fields not controlling infestations. Start control when larval counts 5 per 100 terminals. Expect infestations in northeast soon. (Tynes et al.). In Madison Parish, damaged squares averaged 1.7 percent in 60 of 96 plots. Eggs averaged 3.2 per 100 terminals in 47 of 96 plots, no larvae. (Cleveland et al.). MISSISSIPPI - Percent infestation ranged 1-10 in 88 fields checked in Noxubee, Holmes, Monroe, Chickasaw, Sharkey, and Washington Counties; 1-5 in 9,400 acres in Coahoma, Quitman, Tallahatchie, Grenada, Yalobusha, and Calhoun Counties. (Sartor). In delta counties, eggs averaged 0.5 per 100 terminals in 4 of 6 fields, no larvae. Damaged squares averaged 0.75 percent in 3 of 6 fields. H. zea moth collections in light trap increased, no increase in egg laying yet. (Pfrimmer et al.).

TENNESSEE - Heliothis spp. increasing. Counts ranged 1-13 larvae or eggs per 100 terminals. Most infestations below control levels but further increases expected. (Locke). GEORGIA - Light to heavy in southern areas. (Womack, July 17). Damaged squares less than one percent in Spalding County. (Tippins). SOUTH CAROLINA - Egg deposition statewide generally much lower than expected for time of year. (Sparks).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Heavy and damaging young cotton in some fields in Jackson County and in many fields in Washita County. (Okla. Coop. Sur.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Adult damage light on tobacco in Graves County; less than 10 percent of foliage lost. (Barnett).

SUGAR BEETS

SUGARBEEF ROOT MAGGOT (Tetanops myopaeformis) - WYOMING - In Park County, maggots ranged 0-31 (averages ranged 8-22) per beet near Powell; ranged 0-24 (averages ranged 3-22) per beet in Willwood area; ranged 0-58 near Hart Mountain. In two other areas in Park County counts ranged 0-44 and 30-83. Highest count was 91 per beet. (Burkhardt).

MISCELLANEOUS FIELD CROPS

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - OKLAHOMA - Larvae (several stages) damaging mungbeans (average height 6 inches) in Kingfisher and Garfield Counties. One or more larvae present on 90 percent of plants in many fields. (Okla. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - MICHIGAN - Found in several potato fields in Bay County. Growers should be spraying. Also found in several fields of peppers. (Cress). DELAWARE - Increase light on sweet peppers compared to last week. First apterous adults on peppers. (Burbutis, Lesiewicz). NEW JERSEY - Heavy and damaging foliage of potato planting near Lumberton, Burlington County. (Ins.-Dis. Newsltr.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - UTAH - Still infesting some potatoes and tomatoes in northern area, but much less serious than earlier in season. (Knowlton).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - WYOMING - Adults, eggs, and larvae on beans in Torrington area, Goshen County. Controls underway. (Burkhardt).

LYGUS BUGS (Lygus spp.) - COLORADO - Heavy on beans in Eaton area of Weld County. Controls applied. (Urano).

BEAN THRIPS (Caliothrips fasciatus) - COLORADO - Common in beans in Delta, Montrose, and Mesa Counties. Controls applied. (Bulla).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - Reported on beans in Johnstown area of Weld County; some control necessary. (Urano).

GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - NEW JERSEY - Infestation found July 20 on Interstate Highway 295 at Gloucester and Salem County line. (Ins.-Dis. Newsltr.).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - NEVADA - Collected on asparagus at Reno, Washoe County, for a new county record. (Bechtel).

CABBAGE LOOPER (Trichoplosia ni) - VIRGINIA - Moths increased night of July 18 in light trap at Painter, Accomack County, on Eastern Shore; 49 collected. (Hofmaster).

DETECTION

New State Records - In PENNSYLVANIA, a PLATYGASTERID WASP (Platygaster obscuripennis) Sullivan County, a EURYTOMID WASP (Eurytoma obtusiventris) York County. (p. 553). GYPSY MOTH (Porthetria dispar) DISTRICT OF COLUMBIA. (p. 554). A MOSQUITO (Aedes abserratus) MARYLAND - Garrett County. (p. 552).

New County, Island, Parish, and Independant City Records - An ADELGID (Pineus pini) HAWAII - Maui (p. 555). ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) MISSOURI - Boone (p. 551). GYPSY MOTH (Porthetria dispar) MARYLAND - Calvert, Dorchester, Howard, Prince Georges, Anne Arundel, Charles, Talbot; VIRGINIA - Hampton (p. 554). HOLLYHOCK WEEVIL (Apion longirostre) VIRGINIA - Giles; KANSAS - Wallace (p. 550). JAPANESE BEETLE (Popillia japonica) ALABAMA - Morgan; GEORGIA - Elbert, Oglethorpe; SOUTH CAROLINA - Barnwell; KENTUCKY - Bullitt, Casey, Cumberland, Hardin (p. 554). A LYGAEID BUG (Neacoryphus bicrucis) HAWAII - Molokai (p. 555). An EARWIG (Labidura riparia) CALIFORNIA - Kern (p. 550). SOYBEAN CYST NEMATODE (Heterodera glycines) LOUISIANA - Concordia; ILLINOIS - Williamson (p. 555). SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) NEVADA - Washoe (p. 548). SWEETCLOVER APHID (Therioaphis riehmi) IDAHO - Kootenai, Bonner (p. 545).

Weather of the week continued from page 540.

70's and 80's from the eastern edge of the northern and central Great Plains to the northern and middle Atlantic coast. The maximum temperature at Amarillo, Texas, Monday afternoon was 71°, this being 26° cooler than Sunday's maximum of 97°. Early morning minimums dropped to the 50's over the northern border States. Warm humid weather continued in the Southeast with maximums mostly in the 90's, but dropping to the 80's by Wednesday. The weekend brought a continuation of warm weather to the Far West with maximums in the 90's at most locations, but reaching 100° at spots. The southwestern deserts warmed to 108° to 112° or higher each afternoon. Afternoon readings in the 90's were common over the Deep South, where high humidity added to the discomfort of the citizens. The Northeast continued relatively cool and pleasant. Weekly average temperatures were above normal from the Pacific coast to the Great Basin and in southern Florida. The rest of the Nation averaged cooler than normal.

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (*Laspeyresia pomonella*) - WEST VIRGINIA - Fruit stings and foliage injury noted in several sprayed orchards and heavy damage observed in unsprayed blocks in Berkeley County. (W. Va. Ins. Sur.). OREGON - Observed 3 newly emerged adults at light adjacent in West Salem, Polk County, July 20. First second-brood moths of year. (Westcott). CALIFORNIA - Infesting apple fruit, one larva per apple, in one-acre planting in Bakersfield, Kern County; general in apple fruit at Hanford, Kings County. (Cal. Coop. Rpt.).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - COLORADO - Adults increasing in attractant traps; ranged 10-60 per trap in some orchards in Mesa County, particularly in Vineland and Palisade areas. Controls advised for high recovery orchards. (Bulla, Anderson).

APPLE MAGGOT (*Rhagoletis pomonella*) - MAINE - Adult emergence and oviposition punctures very evident and increased in Kennebec County. All orchards need protection. (Gall). CONNECTICUT - Emergence tripled at New Haven, Glastonbury, and Storrs. Light in other areas probably due to dry conditions. Should increase rapidly now that ground crust softened. (Savos). NEW YORK - Hatch increasing in Monroe and Orleans Counties. (N.Y. Wkly. Rpt., July 19). MICHIGAN - No systematic pattern of emergence in State. (Thompson).

CHERRY FRUIT FLY (*Rhagoletis cingulata*) - MICHIGAN - Larvae first recovered from fruit samples collected in Antrim County July 19, Benzie County July 16, Grand Traverse County July 19, and Leelanau County July 13. (Hanna).

WHITE APPLE LEAFHOPPER (*Typhlocyba pomaria*) - MICHIGAN - Eggs should hatch soon. Serious outbreaks and problem situations can be anticipated in orchards where first generation poorly controlled. (Thompson).

PEARSLUG (*Caliroa cerasi*) - UTAH - Injury to cherry foliage increasing in Box Elder County; occasionally severe. (Lindsay). PENNSYLVANIA - Damage moderate to Japanese cherry and sweet cherry trees in Crawford and Mercer Counties. Pupation underway July 19; second-generation adults expected last week of July. (Adams).

SPIDER MITES - UTAH - *Tetranychus mcdanieli* (McDaniel spider mite) and *Tetranychus* spp. increasing in apple and pear orchards in many areas. Populations severe in Washington County apple orchards (Huber); building up rapidly throughout northern areas (Davis). COLORADO - *T. urticae* (twospotted spider mite) caused leaf injury in certain pear orchards in Mesa County. Populations light to moderate in pear and apple orchards in county. (Bulla). SOUTH CAROLINA - *T. urticae* apparently peaked, now declining on apples and ornamentals. (Nettles). NEW JERSEY - *Panonychus ulmi* (European red mite) continued to increase in many blocks; light to moderate leaf bronzing apparent. *Typhlodromus fallacis* (a phytoseiid mite), a predacious species, present in most of same blocks. (Ins.-Dis. Newsltr.).

WALNUT HUSK FLY (*Rhagoletis completa*) - OREGON - Four flies taken July 21 at Garden Valley, Douglas County, one in each of 4 traps in walnut orchard. First report of fly emergence in State. Last year, flies first found in Douglas County July 22. (Passon).

CITRUS

Insect Situation in Florida - Mid-July - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 85 (norm 58) percent of groves; economic in 68 (norm 34) percent. Population on leaves and fruit highest for mid-July in 20 years of record. Leaf population will decrease late in July, fruit population will increase through July and decrease in August. Statewide population will continue to be above normal and very high despite predicted decreases. All districts high. **CITRUS RED MITE** (*Panonychus citri*) infested 74 (norm 70) percent of groves; economic in 44 (norm 41) percent. Peak occurred in late June; above normal and in high range. Decrease

started early in July and will continue through August, population expected to be low. Highest districts south, west, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 90 (norm 76) percent of groves; economic in 71 (norm 53) percent. Population attained summer peak early in July. In high range and much above normal. Decrease to low level expected in August. All districts high. GLOVER SCALE (Lepidosaphes gloverii) infested 82 (norm 80) percent of groves; economic in 20 (norm 29) percent. Decreased and now below normal. Expected to drop out of high range in July and continue to decrease to low level in August. Highest districts south and west. PURPLE SCALE (L. beckii) population near normal and in moderate range with slight decrease expected. Highest district south. BLACK SCALE (Saissetia oleae) infested 69 (norm 85) percent of groves; economic in 42 (norm 65) percent. Population entered high range but below normal. Little change expected. Highest districts east, south, and central. CHAFF SCALE (Parlatoria pergandii) infested 50 (norm 66) percent of groves; economic in 1 (norm 13) percent. YELLOW SCALE (Aonidiella citrina) infested 42 (norm 66) percent of groves; economic in none (norm 11) percent. These two scales below normal abundance and expected to occur only as light infestations. Populations will remain low to moderate in all districts. An ARMORED SCALE (Unaspis citri) infested 28 percent of groves; economic in 20 percent. Increased in early July and is higher than in July of any prior year. Slight decrease expected. WHITEFLIES infested 79 percent of groves; economic in 22 percent. Population in high range and slightly above normal. Temporary increase expected. Highest districts east and west. MEALYBUGS infested 64 percent of groves; economic in 22 percent. Population attained annual peak of abundance at moderate level and much below normal. Decrease expected. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

SMALL GRAINS

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Second-generation moths in pheromone traps since July 14. Eggs also found on grape berries. Control measures in problem vineyards should start within 10-14 days of first emergence or no later than July 28. (Thompson).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - Severe on grape foliage in all Washington County vineyards. (Huber).

GRAPE LEAFHOPPER (Erythroneura comes) - IDAHO - Heavy on grapes throughout Canyon County. Control necessary in many cases. (Homan).

ORNAMENTALS

HOLLYHOCK WEEVIL (Apion longirostre) - VIRGINIA - Adults on hollyhock in Giles County. Determined by W.A. Allen. This is a new county record. (Straley, July 3). KANSAS - Found on hollyhock in nursery in Wallace County. Determined by M. Shuman. This is a new county record. (Bell).

AN EARWIG (Labidura riparia) - CALIFORNIA - Adults infesting soil around residence in Bakersfield, Kern County. This is a new county record. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

A SATURNIID MOTH (Coloradia pandora lindseyi) - OREGON - Moth flight began July 13, now heavy in lodgepole pine stand east of Newberry Crater on Deschutes National Forest in Deschutes County. Areas heavily defoliated during late August or early September 1970. (Orr).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Aerial surveys with follow-up ground surveys completed April 30, revealed 78±55 infested trees per 1,000 acres of host type; considered heavy infestation. General infestation located primarily in Cherokee County between Murphy and Andrews. (USFS).

EASTERN SPRUCE GALL APHID (Adelges abietis) - WEST VIRGINIA - Galls on 20 percent of trees in one-acre block of Norway spruce in Greenbrier County and 70 percent of trees in 2-acre block in Pocahontas County. (W. Va. Ins. Sur.).

REDHEADED PINE SAWFLY (Neodiprion lecontei) - MICHIGAN - Currently found in instars 2-5, feeding on pines generally shorter than 15 feet in plantations and where pine exists in understory position. (Sauer).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Second generation mostly pupated at Topeka, Shawnee County; many Chinese elms show severe damage. (Bell).

COLORADO - Damage becoming heavy; defoliation 100 percent on untreated trees. (Sisson). NEW MEXICO - Larvae heavy, 2-3 per leaf, on Siberian elms scattered throughout Las Cruces, Dona Ana County. (Hare).

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - MISSOURI - Light to moderate throughout central and south-central areas. Defoliation of smaller oaks common in infested areas. (Gass). Adults collected by W.S. Craig at Columbia, Boone County, for a new county record. (Munson).

SATIN MOTH (Stilpnotia salicis) - OREGON - Large numbers of adults at storefronts in Prineville, Cook County, morning of July 17, indicate heavy flight night of July 16. (Westcott). Larvae stripped many untreated trees and shrubs in Prineville, especially willows, this spring. First large moth flight noted week of July 9; subsequent heavy flights resulted in large numbers on sidewalks. Flights decreased this period. This is unusually heavy infestation, estimated to be 25-50 times heavier than 1970. (Bunch).

CALIFORNIA OAKWORM (Phryganidia californica) - OREGON - Apparently caused much leaf damage to chinquapin oak in several areas of Douglas and Lane Counties. Single pupa found attached to leaf near Fern Ridge Reservoir, Lane County, (Kline).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Active in northeast area. Webs up to 3 feet in diameter on persimmon and other hosts. Defoliation of persimmon complete in some cases. Species becoming active in northwest, but about 3 weeks later than normal. (Boyer). NEW MEXICO - Light and spotty with 1-5 tents per poplar tree at Las Cruces, Dona Ana County. (Hare).

WALNUT CATERPILLAR (Datana integerrima) - ARKANSAS - Continues to defoliate walnut trees in northwest and west-central areas. (Boyer).

A NOTODONTID MOTH (Symmerista canicosta) - MICHIGAN - No adults in blacklight trap in Wellston indicates egg laying completed. Less than 10 percent of eggs unhatched; will hatch within 7 days. Egg parasitism low (about 2-3 percent). Predation of early instars by stink bug nymphs heavy. Defoliation expected to be severe over large portion of Manistee National Forest. (Eiber).

A GRASSHOPPER (Dendrotettix quercus) - MISSOURI - Heavy populations defoliated some oak and hickory in south-central area. Mating underway. (Gass).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 8 cases reported in U.S. July 18-25: TEXAS - Bowie 4, Kimble 1, Kinney 1, Starr 1; ARKANSAS - Little River 1. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - VERMONT - Major annoyance on warm days in Chittenden County. (Nielsen). MARYLAND - Ranged 5-15 per head on sprayed horses and cattle, 35-80 per head on unsprayed livestock in Frederick, Howard, Carroll, and Montgomery Counties. (U. Md., Ent. Dept.). NORTH DAKOTA - Economic, ranged 8-35 (averaged 18) per face on calves in sandhills area of Ransom County. (Brandvik).

SOUTH DAKOTA - Peak populations annoying cattle. (Jones). IDAHO - Adults averaged 35 per face on 1,700 head of cattle in Porthill area of Boundary County. Pinkeye spreading in cattle. (Studer).

HOUSE FLY (Musca domestica) - INDIANA - Adults heavy in stables where manure permitted to accumulate in Tippecanoe County. (Dobson). OKLAHOMA - Ranged up to 14 per Scudder grid in untreated barns in Payne County, most counts averaged 7 or less per grid. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 80 per animal on beef cattle at Williston, Levy County. (Head). Unusually light for time of year. (Butler). MISSISSIPPI - Average counts per animal by county: Holmes 260 on 300 head; Hinds 18 on 211 head; Monroe 75 on 500 head; Washington 20 on 250 head. (Sartor). MARYLAND - Ranged 60-200 per head on dairy and beef cattle in Dorchester County. Below normal in Frederick, Baltimore, Carroll, Howard, Montgomery, and Washington Counties where counts ranged 0-20 per head. Most central county herdsmen applying controls to prevent buildup. (U. Md., Ent. Dept.). VERMONT - Continues to increase. (Nielsen). SOUTH DAKOTA - Populations at peak and annoying cattle. (Jones). WYOMING - Ranged 30-40 per side on cattle west of Laramie, Albany County. (Spackman). IDAHO - Averaged 350 per side on 300 head of cattle in Porthill area of Boundary County. (Studer). UTAH - Heavy on some Washington County cattle herds. (Huber). Many small herds in northern areas apparently treated. (Knowlton). OKLAHOMA - Ranged 200-300 per head on cattle in Payne County. Heavy in Cotton County, moderate in Cleveland and Atoka Counties. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Severe annoyance to cattle reported in Rock, Calumet, Sauk, and Iowa Counties. (Wis. Ins. Sur.). MARYLAND - Ranged 5-25 per head of livestock in central area. Controls applied in all areas. (U. Md., Ent. Dept.).

MOSQUITOES - MARYLAND - Aedes abserratus collected April 30, 1971, near Fingel, Garrett County, by W.E. Bickley. Also collected May 5, 1971, at same location by S.P. Joseph and J. Mallack. Determined by W.E. Bickley. This is a new State record. Larvae found in cranberry swamp in association with A. canadensis. (U. Md., Ent. Dept.). MICHIGAN - Snow pool mosquitoes still most serious pests in State parks but collections indicate other species becoming numerous and can be expected to be increasingly important through rest of summer. (Newson). WISCONSIN - Heavy and localized near permanent wetlands in all areas of State. A. cinereus remains dominant biter at sites checked. Heavy rainfall in some areas and dry conditions in others largely responsible for considerable variation in populations among counties. (Wis. Ins. Sur.). MINNESOTA - A. vexans in 431 of 625 larval collections, Culex tarsalis in 73. A. vexans dominant in evening bite collections; accounted for 58 percent of daytime collections. Light trap catches totaled 6,984 females; 77 percent A. vexans, 13 percent Coquillettidia perturbans, and 1 percent Culex tarsalis. As predicted, trap catches increased substantially July 19 and 20. This very heavy brood came from rains which fell July 7. Nuisance levels expected to remain high 14 days. (Minn. Ins. Rpt.). SOUTH DAKOTA - Annoying cattle. (Jones). WYOMING - Counts ranged 5-6 to as high as 225 per side on cattle west of Laramie, Albany County. (Spackman). UTAH - A. nigromaculis problem in parts of Salt Lake City, South Salt Lake, and Magna areas of Salt Lake County. (Roberts). Culex tarsalis increased rapidly, but populations of Aedes spp. low for Weber County. (Frank). Mosquitoes troublesome throughout Cache County (Knowlton), annoyance moderate in Sanpete County (Herring). Mosquitoes serious problem along Virgin River, especially troublesome at Hurricane and Bloomington. (Huber).

Venezuelan Equine Encephalomyelitis Outbreak in Texas - This virus disease affects horses, mules, donkeys, and man. The mortality rate in horses is high but relatively low in man. The disease in man is flu-like. This virus was first recorded in 1938 from Venezuela, but has spread through Central America and into Mexico where the current loss of horses is estimated in the thousands. Confirmation of this virus in Texas was made during July 1971. It has been estimated that about 1,200 horses had been lost as of July 22 in Texas. Federal and State

quarantines have been invoked to restrict movement of horses and other equines into and out of Texas and other affected areas of the U.S. A combination vaccination and insect control program is underway by State, Federal, and local personnel. About 8 million acres are to be sprayed in Texas and Louisiana with malathion and naled to control suspected vectors. Several species of mosquitoes and possibly other Diptera are suspected vectors. (Anim. Health Div.).

BENEFICIAL INSECTS

A PLATYGASTERID WASP (Platygaster obscuripennis) - PENNSYLVANIA - About 20 adults emerged from 2 willow terminal twig galls caused by Rhabdophaga salicistriticoides (a cecidomyiid midge). Galls collected at La Porte, Sullivan County, February 15, 1971, by G.B. Slesman. R. salicistriticoides determined by R.J. Gagne. P. obscuripennis determined by P.M. Marsh and is a new State record. (Kim).

A EURYTOMID WASP (Eurystoma obtusiventris) - PENNSYLVANIA - Adult emerged from golden rod gall caused by Eurosta solidaginis (a tephritid fly). Gall collected at Gifford Pinchot State Park, York County, March 21, 1971, by G.B. Slesman. E. solidaginis determined by R.J. Gagne, E. obtusiventris determined by B.D. Burks and is a new State record. (Kim).

BUMBLEBEES - OHIO - Workers of Megabombus auricomus, M. pennsylvanicus, and Pyrobombus bimaculatus observed foraging on red clover in Highland County July 20. Males of P. griseocollis emerged in Highland County. Queens of M. auricomus and workers of M. auricomus, P. bimaculatus, P. impatiens, and P. vagans captured on red clover in Greene County. (Andress).

BRACONIDS - ARIZONA - Averaged 20 per 100 sweeps in alfalfa and heavy on other crops in Cochise County. (Ariz. Coop. Sur.).

LADY BEETLES - ARKANSAS - Hippodamia convergens (convergent lady beetle) outnumbered Coleomegilla maculata in sorghum and alfalfa throughout State. Adults but no eggs, larvae, or pupae found in sorghum and alfalfa in northwest area. (Boyer). ARIZONA - Unspecified lady beetles averaged 25 per 100 sweeps in Cochise County alfalfa. Heavy on other crops. (Ariz. Coop. Sur.).

A FLOWER BUG (Orius insidiosus) - ARKANSAS - Adults very active in blooming sorghum in all areas; however, number of nymphs lower than in past years. (Boyer).

DAMSEL BUGS - ARIZONA - Averaged 60 per 100 sweeps of alfalfa in Cochise County; heavy throughout county on other crops. (Ariz. Coop. Sur.).

LACEWINGS - ARIZONA - Averaged 15 per 100 sweeps of alfalfa in Cochise County; heavy on other crops. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations light and scattered in control zone. Light below Caprock in Hall, Dickens, and Kent Counties; confined to early planted irrigated fields. To date, one weevil detected in cotton above Caprock. (Rummel, July 19). For Boll Weevil in other areas see page 546.

GRASS BUGS - UTAH - Labops utahensis discoloring grasses in Huff Creek area near Upton, Summit County. (Knowlton, Moore). Irbisia spp. largely disappeared from crested wheatgrass in Curlew Valley, Box Elder County. (Knowlton).

GRASSHOPPERS - WASHINGTON - Melanoplus sanguinipes, M. packardii, and Oedaleonotus enigma dominant. About 15,000 acres of cheatgrass infested from Fishhook Park to Burbank in Franklin County. Ranged 10-15 per square yard, 90 percent adults. Area adjacent to newly irrigated farmland. Problems may develop as range dries and grasshoppers move into cropland. M. femurrubrum and M. sanguinipes caused severe

damage to drying rangeland from Asotin toward Grande Ronde River. Nymphs at higher elevations, adults along river. (PPD). NEVADA - Melanoplus sanguinipes adults ranged 20-35 per square yard on 10,000+ acres of rangeland including abandoned fields in Diamond Valley, Eureka County. Egg laying should start in about 7 days. Adjacent alfalfa and other crops heavily damaged although 1,200 acres of cropland treated. Oedaleonotus enigma, Aulocara elliotti, M. packardii, and M. sanguinipes averaged 17 per square yard on 10,000 acres of rangeland in Crescent Valley, Eureka County. During period July 1-17, treatments applied to 4,900 acres of crested wheatgrass infested with O. enigma and M. sanguinipes and 5,000 acres, mostly alfalfa but some grain, infested with M. bivittatus and M. sanguinipes in Kings River Valley, Humboldt County. (Wilson). O. enigma averaged 20 per square yard on 100 acres of rangeland at Orovada, Humboldt County. (Rowe). KANSAS - Unspecified nymphs averaged about 20 per square yard along border of alfalfa field north of Frankfort, Marshall County; defoliation about 30 percent. (Bell). WYOMING - About 15,000 acres sprayed in Big Horn area. (Spackman). NORTH DAKOTA - Grasshoppers moved from alfalfa stubble to wheat and flax in Ransom County. Damage to small grain evident with 50 percent of leaves stripped in wheat, light boll clipping in flax. Grasshoppers ranged 6-8 per square yard in wheat and flax, up to 20 per square yard in alfalfa stubble. M. bivittatus, M. sanguinipes, and M. packardii dominant. (Brandvik). MINNESOTA - Grasshoppers ranged 25-36 per square yard along U.S. Highway 75 in northern Wilkin County; 10-15 in Clay County. Adjacent grain with only few grasshoppers, no apparent damage. Mostly M. bivittatus, many adults. In Goodhue County, 4 miles south of Cannon Falls, counts ranged 18-45 per square yard along roadsides, 18-27 per square yard in adjacent alfalfa field. M. femurrubrum dominant, in third and fourth instars. M. bivittatus, M. sanguinipes, and Chorthippus curtippennis present. Damage light. (Minn. Pest Rpt.). IOWA - Ranged 10-50 per square yard in fencerows and roadsides; M. differentialis, M. femurrubrum, and M. sanguinipes dominant. Infestations similar in western and eastern thirds of State. (Iowa Ins. Sur.).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Males in Dutchess and Ulster County blacklight traps July 10-11. Defoliation about 35 percent on oaks in portions of Ulster County. (N.Y. Wkly. Rpt.). MARYLAND - Specimens trapped in Calvert, Dorchester, Howard, Prince Georges, Anne Arundel, Charles, and Talbot Counties for new county records; VIRGINIA - Specimens trapped at Hampton for Independent City record; specimens trapped in Washington for a new District of Columbia record. Determinations by E. L. Todd. (PPD). SOUTH CAROLINA - Adult traps checked at camping sites along Lake Marion, negative. (Langford).

JAPANESE BEETLE (Popillia japonica) - Adults collected as follows: ALABAMA - Morgan County; GEORGIA - Elbert and Oglethorpe Counties; SOUTH CAROLINA - Barnwell County; KENTUCKY - Bullitt, Casey, Cumberland, and Hardin Counties. Determined by R.D. Gordon. These are new county records. (PPD). VIRGINIA - Damaged up to 10 percent of silks in several cornfields in King and Queen County. (Allen). Infestations very heavy in Prince Edward County for fourth consecutive year; current infestation worst to date. Damaging wide variety of crops. (Peery). WEST VIRGINIA - Caused heavy damage to one-acre block of pin oak in Mercer County nursery. (W. Va. Ins. Sur.). MARYLAND - Adults continue to feed on silks and foliage of corn in several areas of Queen Annes, Caroline, Kent, and Talbot Counties. Percent infestation ranged 4-20 in several fields. (U. Md., Ent. Dept.). PENNSYLVANIA - Population during first half of July at highest level in over decade. Problem appears general statewide. Foliage damage evident on numerous hosts. (Adams). OHIO - Adult emergence near peak in eastern areas. (Rose). Adults, 1 per 5 plants, feeding on tassels and silks of field corn in Ross County. (Address).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Sterile moths released, 2,517,000 at Bakersfield, Kern County; season total 48,192,250 as of July 22. No native moths taken in area during 19 weeks traps have been operated this season. (PPD).

SOYBEAN CYST NEMATODE (Heterodera glycines) - LOUISIANA - Cysts taken in Concordia Parish for new parish record; ILLINOIS - Cysts taken in Williamson County for new county record. Determinations by A. M. Golden. (PPD). TENNESSEE - Continues to stunt soybeans in all western areas. (Gordon).

HAWAII INSECT REPORT

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) larvae light (less than 0.33 per square foot) in 40 acres of Kikuyu grass pasture at Hana, Maui; damage light and spotty. Adults of Casinarina infesta (an ichneumon) moderate. (Miyahira).

General Vegetables - SOUTHERN GREEN STINK BUG (Nezara viridula) adults averaged 3-4 per plant on long beans at Ewa, Oahu. Eggs of Trichopoda pennipes var. pilipes (a tachina fly) on all N. viridula adults. (Au). All stages of CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate in 2 small plantings of bell peppers at Anahola, Kauai. (Ikehara).

Ornamentals - Adults of a BARK BEETLE (Xylosandrus compactus) heavy, 20 on 2 branch tips 8 inches long, on magnolia at Manoa, Oahu. (Mitchell).

Forest and Shade Trees - Nymphs and adults of a CONIFER APHID (Cinara carolina) generally light in 8 acres (3,000 trees) of loblolly pine (Pinus taeda) at Olinda, Maui. About 50 percent of trees infested. Aphids ranged 5-25 per terminal on 30 percent of infested trees. Light terminal dieback occurred from heavy infestation 4 months ago. Adults of Coelophora inaequalis (a lady beetle) 3 per terminal amid aphids. (Miyahira). Nymphs and adults of an ADELGID (Pineus pini) on Pinus sp. at 1,219 meters at Olinda, Maui. This is a new island record. (Miyahira). Larvae and adults of a NOCTUID MOTH (Melipotis indomita) light to moderate on monkey pod trees at Halawa, Oahu, at Lahaina, Maui, and at Koloa, Kauai. At Halawa, monthly adult catches in light traps as follows: May 433, June 162, and July (first 21 days) 56. Larvae 3-25 per tree under bark of 6 trees at Halawa. Damage to new foliage moderate on 3 of 12 trees at Lahaina. Defoliation 80-90 percent on 3 trees at Koloa. (Au et al.).

Beneficial Insects - Larvae and adults of a GORSE WEEVIL (Apion ulicis) heavy on gorse in forest reserve at Olinda, Maui. About 84 percent of mature seed pods heavily infested on scattered gorse clumps bordering pine trees. (Miyahira). Adults of a SCARAB (Copris incertus prociduus) moderate to heavy at lights at Kahakuloa and Makawao, Maui. This species purposely introduced to aid in control of Haematobia irritans (horn fly). (Tamura).

Miscellaneous Pests - Adults of a LYGAEID BUG (Neacoryphus bicrucis) moderate on flowers of Erigeron sp. and Pittosporum sp. at Damiloa, Molokai. This is a new island record. (Davis). Adults of a MIRID BUG (Pycnoderes quadrimaculatus) numerous in fruit fly trap baited with trimmed lure at Kau, Hawaii. (Nakagawa).

Estimates of Damage by the European Corn Borer
To Grain Corn in the United States in 1970

Compiled by the Economic Insect Survey and Detection Staff,
PPD, ARS

The loss to grain corn attributed to the European corn borer (*Ostrinia nubilalis*) in 1970 is estimated to be approximately 195,885,000 bushels in 15 corn-producing States. In these States the loss was 5.38 percent of the production. This loss is approximately 4.76 percent of the total national crop estimated at 4,109,792,000 bushels. 1/ The value of the loss, based on the season average prices received by farmers for corn 2/, is \$250,178,000. 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 1970 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 1970. 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 19 years in States where the fall abundance survey was conducted are as follows:

1970	195,885,000	Bushels	\$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, 1970 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 18, 1970.

2/ Crop Values, Season Average Prices Received by Farmers and Value of Production 1969 and 1970 - by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 29, 1970.

3/ Cooperative Economic Insect Report 21(5):47-54, 1971.

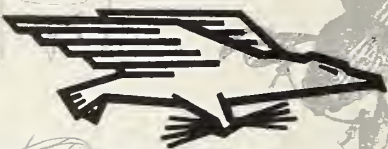
Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1970

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
Arkansas	3	1,575	1.43	2,252	4	5
Delaware	1	13,690	1.46	19,987	1,270	1,854
Illinois	7	744,884	1.37	1,061,591	15,272	20,923
Indiana	12	371,998	1.35	502,197	5,254	7,093
Iowa	12	859,140	1.28	1,099,699	66,439	85,042
Kansas	3	79,670	1.30	103,571	1,771	2,302
Maryland	3	40,172	1.47	59,053	1,598	2,349
Michigan	1	114,076	1.30	148,299	5,173	6,725
Minnesota	7	390,490	1.22	476,398	20,687	25,031
Missouri	7	173,057	1.40	242,280	6,663	9,328
Nebraska	5	367,275	1.27	466,439	52,013	66,058
North Dakota	1	6,500	1.15	7,475	101	116
Ohio	5	232,078	1.35	313,305	5,061	6,832
South Dakota	6	102,336	1.21	123,827	9,556	11,563
Wisconsin	9	143,520	1.35	193,752	4,646	6,272
Totals		3,640,461		4,820,125	195,885	250,178

1/ Cooperative Economic Insect Report 21(5):47-54, 1971

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