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*Cooperative*

**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PROTECTION DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PROTECTION DIVISION**

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

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

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Plant Protection Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

ARMYWORM moths in light traps in several States. (pp. 365, 376).

BEE T ARMYWORM larvae damaged several crops in Florida. (pp. 365, 366, 369).

LESSER CORNSTALK BORER caused heavy damage to Bahia grass in Florida. (p. 366).

ALFALFA WEEVIL larvae increasing in Colorado (p. 366) and heavy in Illinois. (p. 367). PEA APHID heavy on alfalfa in Colorado, Oklahoma, and Nebraska. (p. 367).

STRAWBERRY WEEVIL damaged strawberries in Michigan. (p. 371).

HORN FLY building up in Vermont, heavy in Alabama and Oklahoma. A BLACK FLY heavy on horses in North Dakota. (p. 373).

GRASS BUGS damaged crested wheatgrass in Utah and Idaho. (p. 374).

#### Detection

New State records include an ERIOPHYID MITE from Washington (p. 371) and a PERIODICAL CICADA from Maryland. (p. 370).

For new county records see page 369.

#### Special Reports

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1969. (p. 377).

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Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1969.....377

WEATHER OF THE WEEK ENDING JUNE 1

HIGHLIGHTS: Severe weather hit wide areas in the central and southeast portions of the Country. Funnel clouds, hail, damaging winds, and flash flooding struck localities from the Rocky Mountains to the Mississippi River and from the Great Lakes to the Gulf of Mexico.

TEMPERATURE: The North Central States and the east coast experienced below normal temperatures, as did an area from New Mexico into Texas. The central part of the Country, along with Nevada and interior California, was warmer than normal. Early in the week a cold front moved eastward from the Great Plains, replacing warm, humid weather with a fresh flow of cool dry air. Ahead of the front maximum temperatures reached the upper 80's and low 90's from Texas northeastward to Ohio and Pennsylvania. Behind the front snow flurries occurred in northern Minnesota and Upper Michigan. Fargo, North Dakota, set a new low temperature record for the date on Tuesday the 26th when the mercury fell to 29°. Maxima remained in the 40's and 50's from North Dakota to northern Wisconsin. By Wednesday the front reached the east coast, bringing fine spring weather to the eastern third of the Nation, except along the immediate gulf coast and in Florida, where warm, muggy air held sway. A large HIGH drifting slowly southeastward through eastern Canada maintained a flow of dry, pleasant air over the Northeast into the weekend. On Friday and Saturday afternoon temperatures remained in the 70's from the Carolinas to New England, while minima ranged from the 50's and 60's in the Southeast to the 30's and 40's in New England, where scattered frost was reported. Nantucket, Massachusetts, set a record low for so late in the season with 34° on Saturday, May 30. The interior portions of Oregon and Washington reached the 80's and 90's on Monday, but a Pacific cold front moved inland late in the day and maxima remained in the 60's and 70's until the weekend, when noticeable warming occurred bringing readings in the 80's. The interior valleys of California reached over 100° on several days.

PRECIPITATION: The remnants of the season's first tropical storm, Alma, moved northeastward through Florida and Georgia on Monday, producing copious rains along its path. Fort Lauderdale reported 9.60 inches in a 24-hour period. A tornado was reported near Columbia, South Carolina. On Tuesday the weakening storm moved into southern Virginia, leaving 1 to 3-inch rains in its wake. Early in the week Weather of the week continued on page 376.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - KANSAS - Early instars per square foot ranged 10-20 in bromegrass and 5-6 in wheat at Manhattan, Riley County. (Simpson, Gates). MISSOURI - Light to moderate in fescue, orchard, and brome grasses throughout State. (Munson). NEBRASKA - Moths still abundant at lights in Lincoln, Lancaster County. Half-grown larvae averaged 2 per 150 sweeps of grassy alfalfa in Richardson County. (Keith, Manglitz, May 26). ILLINOIS - Some fields of wheat infested as far as central area; high temperatures speeding up larval development as well as disease. Parasites present. Larvae small and abundant in wheat along east side of State. Populations lighter and larvae more mature in west and south. Time for maximum control passed, some fields may still warrant controls. (Sur. Bull.). MICHIGAN - Moth counts in Lenawee County blacklight trap heavier; highest, 94 on May 21. Possibility of local larval outbreaks when moth counts pass 100. Sampling counts similar at Livingston County light trap. (Newman). INDIANA - First-generation larvae damaged corn in Putnam and Dubois Counties. (Lehker). VIRGINIA - Late instars severely damaged corn in Franklin County. Determined by W.A. Allen. (Fretts). Larvae in Pulaski and Montgomery Counties widespread in sod-planted corn but not so severe as 1969. (Allen). Late instars severely damaged sod-planted corn in Orange and Spotsylvania Counties. One field of 30 acres practically destroyed. (Jones). MARYLAND - Expect increased damage over 1969 record low due to increased "no-tillage" practices of planting. (U. Md., Ent. Dept.). DELAWARE - Adults abundant in blacklight traps. (Boys, May 27).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - Moths increasing at Lincoln, Lancaster County, light trap; still light. (Keith).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Counts of 1,000 per 100 sweeps of alfalfa and quackgrass at Grand Rapids, Itasca County, May 19 and 20. Ranged 2-5 per 100 sweeps in Lake of the Woods and Roseau Counties. Now moved northward to Canadian border. Counts variable due to cool temperatures and high winds in central district. Ranged trace to 400 per 100 sweeps of seedling oats. (Minn. Pest Rpt.). WISCONSIN - Most common in grain and alfalfa throughout southern half of State. Counts seldom over 7 (mostly 2 or 3) per 100 sweeps. (Wis. Ins. Sur.).

CORN EARWORM (Heliothis zea) - MISSISSIPPI - Last instars averaged 2 per plant on field corn and light on soybeans at State College, Oktibbeha County. (Sartor). GEORGIA - Moderate in whorls of field corn in Burke County. (Miller). SOUTH CAROLINA - Damage increased on corn in most coastal counties. (Thomas).

GREENBUG (Schizaphis graminum) - KANSAS - Averaged 10 per young milo plant in Cowley County field. Surveys negative in Chautauqua, Butler, McPherson, Harvey, Sedgwick, and Sumner Counties. (Redding). Light on milo in Crawford County. Some winged forms. (Simpson). NEBRASKA - Negative in 6 wheatfields in Jefferson County May 27. (Keith et al.). Catches unusually light in suction trap at Lincoln, Lancaster County. (Pruess).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Adults appearing in many alfalfa fields in southern counties; ranged up to 5 per 50 sweeps in some Dane County fields, declined rapidly farther north. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Trace in some alfalfa in Atchison, Doniphan, Brown, and Nemaha Counties. (Iselin).

## CORN, SORGHUM, SUGARCANE

ARMYWORMS - FLORIDA - Spodoptera exigua (beet armyworm) larvae unusually abundant and damaged sweet corn; damaged buds on young corn, silks and kernels on tips of ears of older corn at Belle Glade; also damaged sorghum. Control difficult. (Janes). Mixed populations of beet armyworm and S. frugiperda (fall armyworm)

larvae damaged 80-85 percent of untreated sweet corn at Belle Glade. (Fla. Coop. Sur.). Fall armyworm caused some damage to sweet corn, mostly buds, at Belle Glade, Palm Beach County. (Janes). TENNESSEE - Unspecified larvae heavily damaged young corn in Giles County. (Watson, Robinson).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW YORK - Moths emerged from caged pupae May 25 in Ulster County. Moths trapped in blacklight at Geneva, Ontario County. (N.Y. Wkly. Rpt.). NEW JERSEY - Moths very heavy in weeds and grass bordering fields in Burlington County. Egg laying observed on seedling corn plants. First egg hatch in about 7-10 days. (Ins.-Dis. Newsltr.). DELAWARE - Adults averaged 10 per night in blacklight trap in Sussex County and 6 per night in Kent County. (Burbutis). ILLINOIS - Pupation and emergence earlier than usual; moths may concentrate in fields to lay eggs. Pupation of overwintered borers complete in south area; moths flying and laying eggs. Pupation nearly completed in central area, moth emergence begun and egg laying imminent. In northern area, pupation progressing rapidly, no moth emergence yet. (Sur. Bull.). IOWA - Pupation at Ankeny 64 percent and adult emergence 8 percent on May 28. (Iowa Ins. Sur.). MISSOURI - Eggs ranged 20-80 masses per 100 plants on 30 to 38-inch corn in central and east-central areas. Only 8-10 percent of corn this tall. No hatching. (Munson). NEBRASKA - Adults numerous on alfalfa in Richardson County. (Keith).

CORN ROOT WEBWORM (Crambus caliginosellus) - MINNESOTA - Damage in 2 cornfields in Sibley County previously in alfalfa-grass sod; 30 percent stand reduction in one field treated and replanted; 15 percent of plants showed injury in another field. (Minn. Pest Rpt.).

SUGARCANE BEETLE (Euetheola rugiceps) - ALABAMA - Destroyed several small corn plantings and 25 percent of plants in 40-acre field; controls applied at Megargel in Monroe County. (Lemons).

#### SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - WYOMING - Treatments needed on 80 acres of wheat in Pine Bluffs area, Laramie County. (Anderson). Only report this spring. (Parshall).

HESSIAN FLY (Mayetiola destructor) - ALABAMA - Larvae ranged 1-4 per stalk in one field of wheat in east Colbert County. Spotty throughout field. Caused some plants to die and fall. (Holloway).

#### TURF, PASTURES, RANGELAND

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Caused heavy damage (typical deadheart) to young Argentine Bahia grass at ranch near Belle Glade, Palm Beach County. About 1,700 acres heavily infested; several hundred acres will need to be reseeded; moths present. Population appears to be decreasing after several days of rain, following 55 days of drought. (Genung).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Adults and first to third instars moderate in one field and trace in 2 fields at Ellensburg, Kittitas County, May 26. Small larvae and winter adults on alfalfa and legumes at Pullman, Whitman County. (Retan, Johansen). IDAHO - Adults ranged 0-3 per 5 sweeps of alfalfa in Camas prairie area, Idaho County, May 21. Foliar damage trace. (Mink, Portman). UTAH - Larvae damaging in many Grand and Iron County alfalfa fields. (Thornley, May 28). WYOMING - Larvae appearing in Washakie and Big Horn Counties. Adults ranged 0-35 per 10 sweeps. Alfalfa 8-18 inches tall. None found in Fremont and Hot Springs Counties. Weevil development 1-2 weeks behind normal. (Parshall). COLORADO - Larvae still increasing in Weld, Larimer, and Boulder Counties; ranged 100-600 per 100 sweeps. Damage light, heaviest in Longmont area, Boulder County. (Johnson). OKLAHOMA - Collected 2 adults from alfalfa in Cotton County. This is a new county record. (Okla. Coop. Sur.). ARKANSAS - Activity appears



about over for spring season in northeast area. Occasional larvae and adults observed in control test plots in Mississippi County. (Dumas). MISSOURI - Alfalfa weevil ranged 0-12 larvae and 1-15 adults per sweep in central area. Larval and adult damage on new growth of second crop. (Thomas, Peters). Pupation averaged 75 percent in Boone County. (Huggans). ILLINOIS - Population peaked in southern half of State, populations of economic importance still on first and second cuttings of alfalfa. Larvae per 100 sweeps by county as follows: Monroe 3,600; St. Clair 3,200; and Scott 1,200. (Sur. Bull.). WISCONSIN - Pupation near in some advanced areas of State. Highest larval counts in western Dane County, averaged 15 per 50 sweeps. Averaged about 1 per 100 sweeps in Sauk, Adams, Waushara, Marquette, and Columbia Counties; may be misleading due to cool temperatures and strong winds. (Wis. Ins. Sur.). MICHIGAN - Eggs hatching throughout State. (Ruppel, May 25). VERMONT - Adults appear more numerous than at this time in 1969; eggs common on new growth in Burlington County. (Nielsen, May 25). NEW YORK - Adult and larval counts about same, 1 per 2 sweeps to 1 per 10 sweeps of alfalfa in Broome County. First instars heavy in some Livingston County fields. (N.Y. Wkly. Rpt., May 25). MASSACHUSETTS - Adults 5 and larvae 101 per 100 sweeps of alfalfa in one Hampshire County field. (Miller).

MARYLAND - Alfalfa weevil heaviest in first-growth alfalfa, ranged 18-23 per sweep, near Beltsville, Prince Georges County. Larvae less than 5 to 10 per sweep in second-growth alfalfa statewide. (U. Md., Ent. Dept.). WEST VIRGINIA - Larvae 284 and adults 43 per 100 sweeps of alfalfa in Jackson County May 21. (W. Va. Ins. Sur.). OHIO - Eggs declined with hatch at Castalia, presently 54 eggs per square foot. Bathyplectes sp. (an ichneumon wasp) parasitizing alfalfa weevil larvae in Fayette and Wayne Counties. About 25 percent of larvae in Fayette County and 10 percent of larvae in Wayne County parasitized. (Flessel). INDIANA - Larval populations reduced in southern districts due to pupation. Damage in uncut fields ranged from nearly complete defoliation to damage to upper 6-8 inches of plant. In severely damaged fields, especially where larvae suffered starvation, newly emerged adults numerous. (Meyer).

ALFALFA SNOUT BEETLE (Brachyrhinus ligustici) - NEW YORK - Collected from damaged alfalfa in Wayne County, May 2, by A. Arnold. Determined by G. Gyrisco and C.M. Edmonds. This is a new county record. Now found in Oswego, Jefferson, and Cayuga Counties, and small area of Ontario, Canada. (N.Y. Wkly. Rpt.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - FLORIDA - Adults common April 30 in roadside planting of crimson clover at Tallahassee, Leon County. (Mead, Habeck). This is a new county record. (Fla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - COLORADO - Ranged 1,000-2,000 per 100 sweeps of alfalfa in Weld, Boulder, and Larimer Counties. (Johnson). OKLAHOMA - Heavy in alfalfa in Mayes County. Remains moderate in several southwest counties. (Okla. Coop. Sur.). KANSAS - Ranged 10-100 per 100 sweeps of alfalfa in Osage, Douglas, Shawnee, Jackson, Atchison, Doniphan, Brown, and Nemaha Counties. (Simpson). NEBRASKA - Increased on forage legumes in Dawson County, heaviest in east. Near Overton, ranged up to 2,500 per 100 sweeps. (Manglitz, May 21-22). Ranged 150-375 per 150 sweeps in 6 Richardson County fields. Predators numerous and increasing. (Keith, Manglitz, May 26). SOUTH DAKOTA - Ranged 2-4 per sweep in 5 alfalfa fields in Moody and Brookings County. Lady beetles present, one per 10 sweeps. (Jones, Kantack). MISSISSIPPI - Moderate on second-cutting alfalfa in Pontotoc County. (Sartor).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Adults and fourth instars ranged 10-15 per sweep in alfalfa in Carroll, Frederick, Baltimore, and Prince Georges Counties. Spittle masses ranged 3-13 per square foot in red clover in same counties. (U. Md., Ent. Dept.). WEST VIRGINIA - Nymphs 97 and adults 74 per 100 sweeps of clover in Jackson County May 21. (W. Va. Ins. Sur.). INDIANA - Adults numerous in most uncut alfalfa in southern district; counts of 80 per sweep common. (Meyer).

TARNISHED PLANT BUG (Lygus lineolaris) - KANSAS - Average per 100 sweeps in alfalfa by county: McPherson 600; Harvey 100; Sedgwick 300; Sherman 200; Butler 200; Cowley 200; and Chautauqua 150. (Simpson).

VARIEGATED CUTWORM (Peridroma saucia) - OKLAHOMA - Remains moderate to occasionally heavy in alfalfa in some areas, especially in south-central, central, north-central, and northeast. Pupating in Noble County. (Okla. Coop. Sur.).

#### SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - INDIANA - Adults damaged soybeans in Marion and Johnson Counties. (Lehker). About 2 per linear foot in southwest district. (Meyer).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, collected weevils in 2 of 27 treated fields, averaged 6 (maximum 12) per acre. Weevils in 2 of 20 untreated fields, averaged 23 (maximum 1,000) per acre. None caught on flight screen; total to date 1. (Cowan et al.). OKLAHOMA - Collected 2 adults in wing traps in Blair area of Jackson County, one in Mountain View area of Kiowa County. (Okla. Coop. Sur.). ARKANSAS - Collected 9 weevils in 45 pheromone-baited wing traps in Lafayette and Miller Counties. Compares with 37 weevils taken past period. (Boyer et al.). LOUISIANA - In Madison Parish, collected 90 weevils from 175 wing traps; total to date 1,546. Recovered 2,321 last year at this date. (Cleveland et al.). MISSISSIPPI - None recovered in 11 wing traps near hibernation sites in delta counties. Last year 12 traps caught total of 198 weevils by this date. (Pfrimmer et al.). ALABAMA - Weevils remain light in pre-square cotton in south and central areas, none in northern area. (Teague et al.). GEORGIA - Collected 8 weevils in 21 wing traps in Randolph County. (Womack).

BOLLWORMS (Heliothis spp.) - TEXAS - In McLennan and Falls Counties, eggs and/or larvae collected on wild hosts. Of larvae previously taken from wild hosts 34 identified H. zea 153 and H. virescens 26. (Cowan et al.). LOUISIANA - In Madison Parish light trap 7 H. zea and 2 H. virescens moths collected. (Cleveland et al.). ALABAMA - Moth flights of H. zea still heavy in south and central areas; egg laying on cotton, corn, peanuts, tomatoes, roses, dahlia, and other hosts. No economic damage yet on cotton. (McQueen). GEORGIA - Averaged 2 eggs per 100 terminals in 10 fields in Randolph County. (Womack).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - In McLennan and Falls Counties, averaged 4.7 per 100 terminals in 27 treated fields. Averaged 10.7 in 20 untreated fields. (Cowan et al.).

THRIPS (Frankliniella spp.) - MISSISSIPPI - Heavy in 6 of 8 fields and light in 2 in delta counties. Effect of seed treatments with systemics apparently decreased. (Pfrimmer et al.). TENNESSEE - Moderate to heavy on cotton in Hardin County. Damage apparent. (Johnson).

#### TOBACCO

A WIREWORM (Aeolus mellillus) - TENNESSEE - Heavy and caused extensive damage to young tobacco in one field in Hickman County. (Bruer).

#### SUGARBEETS

SPINACH LEAF MINER (Pegomya hyoscyami) - Larvae appearing in Weld, Larimer, and Boulder Counties. (Johnson).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Adult emergence reached peak in Jerome County. Peaked about May 29 in Minidoka County. (Peay, Swenson). WYOMING - Adults in Hot Springs, Washakie, Big Horn, and Park Counties. (Parhsall). COLORADO - Adults still in Weld County. Controls recommended. (Robertson, Gaskill).

## POTATOES, TOMATOES, PEPPERS

POTATO FLEA BEETLE (Epitrix cucumeris) - TENNESSEE - Caused light to moderate damage to potatoes and tomatoes in middle areas. (Gordon).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - TENNESSEE - Immatures and adults caused light to moderate damage to potatoes in middle and west areas. Controls effective when applied. (Gordon).

## BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Variable but generally light in peas (less than 1 per sweep). Winged forms present. Parasites scarce. (Wis. Ins. Sur.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Adults caused heavy damage to snap beans in Oktibbeha County. (Sartor).

## COLE CROPS

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Larvae caused heavy damage to cabbage in Belle Glade area, Palm Beach County; hard to control. (Genung).

## CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - MISSISSIPPI - Adults ranged 0-7 per 10 cucurbit plants at State College, Oktibbeha County. Replanting necessary in other areas due to heavy populations. (Sartor).

## GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - VIRGINIA - Adults of C. asparagi (asparagus beetle) and C. duodecimpunctata (spotted asparagus beetle) damaged asparagus in Montgomery County. (Kosztarab). COLORADO - C. asparagi adults damaged asparagus in Loveland area, Larimer County. (Thatcher). WASHINGTON - Adults of spotted asparagus beetle up to 12 per fern, mating at Pullman, Whitman County; outnumber adults of asparagus beetle 19:1. (Johansen).

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Larvae caused heavy damage to celery in Belle Glade area, Palm Beach County. (Genung).

ONION MAGGOT (Hylemya antiqua) - OREGON - Infested onions in experimental plots and one commercial planting at Lake Labish, Marion County. (Crowell).

## DETECTION

New State Records - An ERIOPHYID MITE (Cecidophyopsis psilaspis) WASHINGTON - Pierce County (p. 371). A PERIODICAL CICADA (Magicicada septendecula) MARYLAND - Prince Georges County (p. 370).

New County Records - ALFALFA SNOOT BEETLE (Brachyrhinus ligustici) NEW YORK - Wayne (p. 367). ALFALFA WEEVIL (Hypera postica) OKLAHOMA - Cotton (p. 366). CEREAL LEAF BEETLE (Oulema melanopus) KENTUCKY - Clinton, Edmonson, Grayson (p. 374). FOREST TENT CATERPILLAR (Malacosoma disstria) WEST VIRGINIA - Greenbrier, Summers, Upshur (p. 372). LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) FLORIDA - Leon (p. 367). A PERIODICAL CICADA (Magicicada septendecula) MARYLAND - Anne Arundel (p. 370). WHITE-FRINGED BEETLES (Graphognathus spp.) FLORIDA - Hamilton (p. 375).



## DECIDUOUS FRUITS AND NUTS

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - First adults in bait traps at 2 sites in Yakima County week ending April 28. Increased following week; reduced thereafter through May 19. First-brood larval entry in peach shoot May 20 at Zillah, Yakima County. (Hudson, Johnson). COLORADO - Adults 0-90 per trap May 21 in Palisade and Vineland District, Mesa County. Appears to be split peak of brood. (Sisson, Anderson). NEW YORK - Moths in baited jars May 21 in Monroe and Orleans Counties. (N.Y. Wkly. Rpt.).

CODLING MOTH (Laspeyresia pomonella) - OREGON - Larvae burrowing and feeding in green cherries at Salem, Marion County. (Tarter). WASHINGTON - Flights peaked nights of May 16 and 17 in Yakima Valley. First larva found May 22. (Johnson). NEW JERSEY - First-generation adults approaching peak in central and south counties. (Ins.-Dis. Newsltr.).

RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Increased occurrence; 1-10 colonies per branch of apple and prune trees at Sacramento, Sacramento County. Primarily in scattered backyard plantings. (Cal. Coop. Rpt.).

PEACH TWIG BORER (Anarsia lineatella) - ARIZONA - Heavy in many peach trees at Elfrida, Cochise County. Trees 2 to 4 years old and cover 90 acres. (Ariz. Coop. Sur.).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW JERSEY - Abundant with noticeable injury in unsprayed peach blocks. (Ins.-Dis. Newsltr.). MICHIGAN - Egg laying scars on forming fruit in several abandoned plum orchards. Migration of adults from winter quarters should peak in south counties May 29. (Thompson).

PERIODICAL CICADAS (Magicicada spp.) - TENNESSEE - M. septendecim emergence peaked in east counties. (Hammett, Snodgrass). VIRGINIA - M. septendecim emerged May 27 at Roanoke. (Allen). MARYLAND - M. septendecim emergence peaked in Prince Georges, Baltimore, and Anne Arundel Counties. (U. Md., Ent. Dept.). NEW JERSEY - Magicicada spp. first emerged May 26 in Union Township, Hunterdon County. Active at Princeton, Mercer County. (Ins.-Dis. Newsltr.).

A PERIODICAL CICADA (Magicicada septendecula) - MARYLAND - Collected at College Park, Prince Georges County, by B. Bradford May 18, 1970. Determined by B. Bellinger. Collected near Fort George G. Meade, Anne Arundel County, by G. Williams May 28. Determined by J. Hellman. These are new State and new county records. (U. Md., Ent. Dept.).

ROSY APPLE APHID (Dysaphis plantaginea) - CONNECTICUT - Curled fruit leaves at East Lyme, New London County; New Haven, New Haven County; and Storrs, Tolland County. (Savos, May 26).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - MICHIGAN - Nymphs becoming more numerous in problem orchards throughout southwest area. (Thompson, May 25).

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) - WASHINGTON - First adult in ammonium carbonate trap May 24 at Selah, Yakima County. (Hudson, Johnson).

EUROPEAN RED MITE (Panonychus ulmi) - WISCONSIN - Hatch 50 percent on Door County apple trees May 20, 5 days earlier than in 1969. (Wis. Ins. Sur.). NEW JERSEY - Adults and eggs in several southern apple orchards. (Ins.-Dis. Newsltr.). CONNECTICUT - Few at Bantam, Litchfield County; East Lyme, New London County; and New Haven, New Haven County. (Savos, May 26).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First eggs May 22 in Marshall County. White and occasional red eggs in most pecan areas. Infestations up to 40 percent in Tulsa County; 10-22 percent in Carter, Pontotoc, Love, and Murray Counties; and 2-8 percent in Marshall, Garvin, Bryan, Jefferson, Okfuskee, Seminole, Lincoln, and Payne Counties. (Okla. Coop. Sur.).



FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Eggs on pecan in several south-central, central, and north-central counties. One egg mass in Murray County hatched. (Okla. Coop. Sur.). ALABAMA - Larvae light but increasing on pecan and sweetgum trees throughout Baldwin and Mobile Counties. (Seibels).

PECAN PHYLLOXERA (Phylloxera devastatrix) - OKLAHOMA - Light to very heavy on pecans in south-central counties. Heavy on scattered trees in most areas. Galls beginning to open and adults emerged. Galls heavy and adults emerged in Tulsa County. (Okla. Coop. Sur.). ALABAMA - More galls on pecans in west than in other areas. Occurs over most of Choctaw County. Heavy on many trees at Linden and Demopolis, Marengo County. (Sexton et al.).

A PLANT BUG (Plagiognathus caryae) - OKLAHOMA - Ranged 1-2 on 35 percent of pecan terminals in Payne County. Averaged 0.7 per terminal in Garvin County. Lighter on pecans in Murray, Pontotoc, Seminole, Pottawatomie, and Lincoln Counties. (Okla. Coop. Sur.).

#### CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Total of 5,598 host plant inspections as of May 13 on 2,042 properties in Salt River Valley, Maricopa County. All 69 infested plants treated. (Ariz. Coop. Sur.).

#### SMALL FRUITS

STRAWBERRY WEEVIL (Anthonomus signatus) - MICHIGAN - Severe in 2 and 3-year-old strawberry plantings near Watervliet, Berrien County. About 50-60 percent loss of fruit buds. (Thompson, May 25).

GRAPE FLEA BEETLE (Altica chalybea) - OHIO - Larvae abundant on Portage County grapes. Feeding by overwintered adults on decline. (Miller).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Eggs of this species and Grapholitha packardi (cherry fruitworm) in all blueberry areas. Larval entries into berries will begin June 1. (Ins.-Dis. Newsltr.).

#### ORNAMENTALS

AN ERIOPHYID MITE (Cecidophyopsis psilaspis) - WASHINGTON - Infested most buds of Taxus sp. in nursery at Puyallup, Pierce County. Collected by D. Barstow and J.L. Saunders February 10, 1970. Determined by H.H. Keifer. This is a new State record. (Barstow).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Damage localized in several counties. Low temperatures killed up to 90 percent of overwintering broods in January in central and southern Piedmont but not along Coastal Plain. Some problems on Eastern Shore along State line. (For. Pest Sur. Rpt., Apr.).

OLETHREUTID MOTHS - WASHINGTON - Taniva albolineana (spruce needle miner) starting to pupate at Pullman, Whitman County. Damaged spruce, with pupae present, found May 27 at Moses Lake, Grant County. (Johansen, Hunter). ALABAMA - First-generation Rhyacionia frustrana (Nantucket pine tip moth) larvae damaged large planting of loblolly pine in Turn Round area of Conecuh County. Browning top effect as tips died back. Moths flying. (Lemons).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - First larva of season spinning down from red pine in Adams County May 7. Still in first instar in west counties May 20. Primarily in third instar by May 26 in Jackson County. Some still in second instar; appears correlated with hard staminate flowers of jack-pine. (Wis. Ins. Sur.).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - OHIO - Larvae feeding on shortleaf pine in Scioto County. First observance in State forests this year. (Hauf).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NORTH DAKOTA - Ranged 1-12 per needle on half of needles on bottom half of several spruce at Minot, Ward County. Eggs and crawlers present. (Kaatz).

WHITE-PINE APHID (Cinara strobi) - TENNESSEE - Very heavy on nursery and forest-grown white pine in east area. (Hammett).

PINE SPITTLEBUG (Aphrophora parallela) - WISCONSIN - Hatch underway May 7 in Waushara County. Mostly in fourth instar by May 25-26 in Jackson, Iowa, Dane, and Adams Counties; spittle masses becoming increasingly noticeable on white, jack, and Scotch pines. (Wis. Ins. Sur.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - WISCONSIN - Eggs on Douglas-fir May 12 in Rock County. All hatched by May 25 on this host in Dane County with crawlers beginning to form flocculence. (Wis. Ins. Sur.). RHODE ISLAND - Hatched in Washington County May 22. (Kerr).

ELM LEAF BEETLE (Pyrrhalta luteola) - ARIZONA - Infesting Chinese elms at Cherry, Yavapai County. (Ariz. Coop. Sur.). UTAH - Damaged about 20 percent of elm leaf surface at Moab, Grand County. (Judd, May 25). KANSAS - Larvae lightly damaged Siberian elm in Sedgwick County. (Redding). Feeding by first-generation larvae heavy in Barton County. (Simpson).

COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) - TENNESSEE - Immatures and adults continue to cause extensive damage to willows in central and west areas. (Gordon). ALABAMA - Adults heavy on willows throughout Mobile County. New generation larvae expected soon. (Seibels).

GEOMETRID MOTHS - MINNESOTA - Alsophila pometaria (fall cankerworm) and Paleacrita vernata (spring cankerworm) caused defoliation where populations heavy in Minneapolis and St. Paul area. More widespread than in 1969. Defoliation not severe except in several spots in St. Paul. (Minn. Pest Rpt.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - WEST VIRGINIA - Larva collected in Greenbrier County May 14, 4 larvae in Upshur County May 19, and larva in Summers County May 19 for new county records. (W. Va. Ins. Sur.). NORTH DAKOTA - Hatched May 22 at Fort Totten, Benson County. Cool, wet weather since hatch expected to reduce populations and severity of defoliation. (Frye).

WESTERN TENT CATERPILLAR (Malacosoma californicum) - UTAH - Averaged 5 tents per weeping willow at several residences in Moab, Grand County. (Judd, May 25). OREGON - M. c. pluviale larvae in Washington County week of May 22. Most colonies in last instar. Large percentage seeking pupation sites. (Goeden).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ALABAMA - Larvae very heavy, emerged from marsh areas near Prichard, Chickasaw, and Plateau in Mobile County. Devoured willows, weeds, and garden crops. (Seibels).

AN APHID (Asiphum pseudobyrsum) - CALIFORNIA - Infested poplars at Galt, Sacramento County. Represents extension of range from previously known infestations in North Sacramento, Rancho Cordova, and Perkins in northern and eastern parts of Sacramento County. (Cal. Coop. Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - OKLAHOMA - Crawlers very numerous on elms and other trees in Payne County. (Okla. Coop. Sur.).

## MAN AND ANIMALS

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 2 cases reported in U.S. May 24-30 as follows: CALIFORNIA - Imperial; TEXAS - Medina. Total of 57 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 45, Chihuahua 9, Nuevo Leon 1, Tamaulipas 2. Total of 20 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 17,668,000; Arizona 200,000; California 1,120,000; Mexico 126,970,000. (Anim. Health Div.).

HORN FLY (*Haematobia irritans*) - VERMONT - Beginning to build up. (Nielsen, May 25). FLORIDA - Averaged 34 per milk cow and 15 per dry cow at dairy farm near Gainesville, Alachua County. (Butler). Averaged 600 per animal on beef cattle at Belle Glade, Palm Beach County. (Janes). ALABAMA - Heavy on most untreated cattle in Wilcox and Bibb Counties. Irritating most cattle in Elmore County. (Farquhar et al.). MISSISSIPPI - Averaged 100 per head on 107 steers in Oktibbeha County. (Sartor). MISSOURI - Up to 55 (averaged 9.7) per head in herd with treated back rubber in Boone County. Ranged 45-650 (averaged 199.5) per head in untreated herd. (Thomas). OKLAHOMA - Ranged 300-400 per head on Payne County cattle. Moderate to heavy in Cleveland County. Light to moderate in Garvin and Nowata Counties. (Okla. Coop. Sur.). NEBRASKA - Up to 200 per side on herd pastured near Falls City, Richardson County. (Keith, Manglitz, May 26). UTAH - Light on dairy cattle at Santa Cruz, Washington County. (Knowlton, Davis, May 25). First observed at Richmond, Cache County, on cattle. (Thornley, May 28).

FACE FLY (*Musca autumnalis*) - NEW JERSEY - Annoying beef cattle in Middlesex County. (Ins.-Dis. Newsltr.). MARYLAND - Ranged 10-60 per head of cattle in Frederick, Montgomery, Carroll, and Howard Counties. Averaged 20 per head in most herds. (U. Md., Ent. Dept.). MISSOURI - Up to 25 (averaged 4.4) per head in herd with treated back rubber in Boone County. Ranged 1-30 (averaged 4.4) per head in untreated herd. (Thomas).

STABLE FLY (*Stomoxys calcitrans*) - FLORIDA - Averaged 6 per milk cow, 2 per dry cow, at dairy near Gainesville, Alachua County. (Butler). MISSISSIPPI - Averaged 15 per head on dairy cattle at State College, Oktibbeha County. (Sartor). NEBRASKA - Averaged 2-3 per leg in 2 herds of feedlot animals near Lincoln, Lancaster County. (Campbell, May 28).

MOSQUITOES - ARKANSAS - *Culex salinarius* and *C. territans* moderate to heavy locally, annoyed residents in Lawrence County. (Nelson et al.). MINNESOTA - Light traps at Minneapolis and St. Paul for week ending May 22 caught 709 females, of these 497 *Aedes vexans*. Light trap at Lino Lakes during three nights collected 3,000 mosquitoes. Rain May 21-23 over district; resultant larvae now in second and third instars. Heavy rains May 27 produced another hatch. Annoyance within district expected to be minimal. Nuisance level will increase sharply as weather warms and present brood begins to emerge. (Minn. Pest Rpt.). WYOMING - Adults appearing in Hot Springs, Washakie, and Big Horn Counties. (Parshall). UTAH - *Aedes* spp. second to fourth instars abundant in borrow pits and roadside ditches at Dushesne, Dushesne County. (Roberts, May 25).

A BLACK FLY (*Simulium venustum*) - NORTH DAKOTA - Adults emerged along Sheyenne River in Cass County May 22, about 2 weeks later than last year. Averaged 500 per horse. Cool cloudy weather slowed activity. (Brandvik).

HARD-BACKED TICKS (*Dermacentor* spp.) - MASSACHUSETTS - *D. variabilis* (American dog tick) adults numerous on dairy cattle in Franklin and Hampshire Counties May 15 and 18. (Jensen). WYOMING - *D. andersoni* (Rocky Mountain wood tick) active in most areas. (Parshall).



## BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Hippodamia convergens (convergent lady beetle) averaged 400 per 100 sweeps in 3 sugarbeet seed fields on west side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). WYOMING - Unspecified lady beetle adults averaged 3 per 10 sweeps of alfalfa in Fremont, Washakie, Hot Springs, and Big Horn Counties. (Parshall). WASHINGTON - Coccinella transversoguttata (transverse lady beetle) larvae feeding May 21 in colonies of woolly apple aphid at Wenatchee, Chelan County. Many egg masses and adults May 14 on apple leaders and limbs. (Hoyt).

GREEN LACEWINGS (Chrysopa spp.) - ARIZONA - Averaged 1 egg per young cotton plant. Most numerous beneficial insect on apricots, plums, citrus, grapes, roses, and many ornamentals. (Ariz. Coop. Sur.). WASHINGTON - C. coloradensis and C. oculata (golden-eye lacewing) adults numerous adjacent to orchard in Wenatchee, Chelan County, May 20. Believed to be relatively uncommon prior to this time. (Hoyt).

A FLOWER BUG (Orius sp.) - ARIZONA - Averaged 200 per 100 sweeps in sugarbeet seed fields at Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MAINE - Surveys completed. Infestations light and scattered along coastal areas from Cape Elizabeth to Phippsburg. Heavy on 4 islands in Casco Bay. NEW HAMPSHIRE - Surveys negative. (PPD. East. Reg., Apr.).

CEREAL LEAF BEETLE (Oulema melanopus) - KENTUCKY - Light on oats as follows: Larvae collected April 27 by J.H. Milner in Clinton County; and May 27 by Breidenbach and Wheeler in Edmonson County; adults collected May 28 by W. Breidenbach in Grayson County. Determined by R.E. White. These are new county records. (PPD). WEST VIRGINIA - Counts per 100 sweeps by county: Wood - larvae 27 on wheat; larvae 14, adults 18 on oats May 20; Putnam - larvae 5, adults 2 on oats May 21; Mason - larvae 4, adult 1 on oats May 21; Randolph - larvae 7 on oats and 5 on rye May 27. Damaged 50 percent of leaf tissue on 80 percent of wheat in Wood County. (W. Va. Ins. Sur.). OHIO - Larval damage in wheat more severe than expected. Damaged wheat in Knox, Licking, Fairfield, Perry, Ross, Muskingum, Coshocton, Franklin, and Tuscarawas Counties. Very few eggs and few adults remain in wheat. (Blair, Treece). INDIANA - Eggs and larvae 1 per linear foot in oatfield (extended leaf height up to 18 inches) in Dearborn County. Fewer farther south in same county. None in few other oatfields in south-east or south-central districts. (Meyer). MICHIGAN - Hatched. (Ruppel, May 25).

FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) - LOUISIANA - First flight indicated by blacklight trap at Algiers navy yard in New Orleans, Orleans Parish; 30 specimens in trap. (PPD South. Reg., Apr.).

GRASS BUGS - UTAH - About 450 Labops hesperius per square foot of crested wheatgrass in Brimhall Canyon, Uinta National Forest, Utah County. (Judd, May 25). IDAHO - Labops spp. damaged about 35 percent of 80-acre field, mainly crested wheatgrass, May 17 at Ola, Gem County. (Homan). Migrated from range into droughty barley field at Caldwell, Canyon County. Much injury May 18. (Linford). OREGON - L. hesperius nymphs up to 10 per sweep and appearing in National Forest grass reseeded area in Baker County. Heaviest in improved pastures at lower elevations. (Berry). WASHINGTON - Irbisia pacifica and another species associated with stippling and retarded growth of timothy at Cle Elum, Kittitas County. Light to moderate in several fields within Cle Elum and Ellensburg area. (Pennell, Retan).

GRASSHOPPERS - ARIZONA - Aulocara elliotti and Melanoplus sanguinipes 25-50 per square yard on 5,000 acres at Bear Canyon, Gila County. Treated. (Ariz. Coop. Sur.). NEBRASKA - Mostly Melanoplus spp. first instars May 18-19 near Lincoln, Lancaster County, and May 19 near Humboldt, Richardson County. (Campbell et al.). MINNESOTA - Egg development in Carver County: Melanoplus bivittatus in eyespot,



M. femurrubrum coagulated. All fields in heavier soil areas with good vegetation cover. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Larvae at New Haven, New Haven County, and at Storrs, Tolland County. (Savos, May 26).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - This species and Euethela rugiceps (sugarcane beetle) damaged 15 acres of corn in Washington County; destroyed 10 percent of plants. (Lemons).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Find of 2 more infestations in Hidalgo County, 1 female and 1 larva. (PPD South. Reg., Apr.).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moth releases May 22-27. CALIFORNIA - Coachella Valley 4,407,000, total to date 36,786,250; Kern County 1,000,000, total to date 7,407,700. ARIZONA - Redington, Pima County, 67,500; total to date 270,000. (PPD).

WHITE-FRINGED BEETLES (Graphognathus spp.) - FLORIDA - Larvae heavy under tobacco on farm at Jennings, Hamilton County, for a new county record. Collected by J.T. Smith April 14. Determined by V.H. Owens; confirmed by D.M. Anderson. (PPD). GEORGIA - Larvae heavy on potato tubers in Coffee County. (Keen). ALABAMA - Larvae damaged several peanut fields in Crenshaw County. No adults yet. (Smith).

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#### HAWAII INSECT REPORT

General Vegetables - BEAN FLY (Melanagromyza phaseoli) larvae light on 25 percent of yardlongbean (Vigna sesquipedalis) petioles; adults light. Not treated. (Miyahira). MELON APHID (Aphis gossypii) light on zucchini flowers and stems in 0.25 acre at Mikiloa, Oahu. CABBAGE WEBWORM (Hellula rogatalis) larvae moderate in mustard cabbage (Brassica juncea) and daikon (Raphus sativus longipinnatus) at Waianae, Oahu; heavy, 1 larva per plant, in 0.25 acre of daikon in same area. (Kawamura).

Fruits - A STINK BUG (Plautia stali) light, 8 adults, on fruits of "waiawi" (Psidium littorale) at Lanikai, Oahu; egg clusters, 12 eggs per cluster, moderate on bottom surface of leaves. (Davis). Larval mines of LEAF MINER FLIES (Liriomyza spp.) moderate on older leaves in 3 acres of watermelon at Nanakuli, Oahu; adults trace to light, (Kawamura).

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#### WEATHER BUREAU'S 30-DAY OUTLOOK

JUNE 1970

The Weather Bureau's 30 day outlook for June is for temperatures to average above seasonal normals west of the Continental Divide as well as in the northern Plains and along the middle and north Atlantic coast. Below normal temperatures are expected over the gulf coast region and the southern Plains. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal over the southern Plains as well as the gulf and south Atlantic coast regions. Subnormal totals are indicated for the northern Plains, the upper Mississippi Valley, the Intermountain Region, and the south Pacific coast. In unspecified areas near normal rainfall is expected.

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

**LIGHT TRAP COLLECTIONS**

Locality	Date	Temp- ature °F.	Precip- itation	Type of trap	BL = Blight I = Insect M = Methyl O = Other	Aerotic vapor	Carposa pomonella (codling moth)	Chortzagris auxillaris (gray cutworm)	Stigmea aceris (salt-marsh caterpillar)	Parona diffusa (short head armyworm)	Heliothis virescens (granulate cutworm)	H. zea (bollworm)	Loxostege compositella (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Oetria nubilalis (European corn borer)	Peridroma saucia (variegated quail)	Prodenia ornithogalli (yellow-striped armyworm)	Spodoptera unipuncta (armyworm)	Spodoptera eximia (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Triphaena ni (cabbage looper)	Crop
FLORIDA Gainesville	5/22-28			BL						43	2					1		14	2	21					
KANSAS Great Bend	5/26			BL			144	11					5						8	6					
MINNESOTA Fergus Falls	5/20-26																								
Rochester	5/20-26																								
Shakopee	5/20-26																								
Worthington	5/20-26																								
MISSOURI (Counties) Greene	5/21-27																								
Jefferson	5/21-27																								
NEW JERSEY Cedarville	5/22-27			BL																					
Seabrook	5/22-27			BL																					
Vineand	5/22-27			BL																					
NORTH DAKOTA Fargo	5/23			BL																					
OHIO Reynoldsburg	5/21-27			BL																					
Wooster	5/21-27			BL																					
TEXAS Waco	5/21-28	67-87		BL						60		14													

Weather continued from page 364.

a cold front produced widespread showers and thunderstorms ahead of its path from the Midwest to the east coast. McCausland, Iowa, north of Davenport, measured 6 inches of rain within a few hours early Monday. Hail and high winds raked sections of Ohio Monday evening, and Niagara Falls reported hail with 50 m.p.h. wind gusts. By late Wednesday, with the front off the coast, the shower activity ended in the East. South of the cool air mass, thunderstorms broke out from eastern New Mexico to Arkansas and Louisiana. Shreveport, Louisiana, had 1-inch hail with wind gusts over 50 m.p.h. on Tuesday. Tuesday night Laredo, Texas, reported orange-size hail and tornadoes were scattered across northern Texas from Lubbock to Ft. Worth. A developing frontal system in the northern Plains during midweek produced severe weather from the eastern Dakotas to Wisconsin. Local flash flooding occurred from southeastern South Dakota to Minnesota early Thursday. Over 6 inches of rain fell north of Rochester, Minnesota, and in the area around Sioux Falls, South Dakota, a funnel cloud was sighted south of Sioux Falls. Three persons drowned in flash flooding along the Zumbro River in southern east Minnesota. Heavy showers and thunderstorms continued the latter part of the week through the central and southern portions of the Country. Hail struck areas from Texas to Alabama and in scattered localities in South Dakota and Minnesota. Tornadoes and funnel clouds were sighted in parts of at least 8 States from Texas and Alabama to South Dakota and Iowa. Early Friday morning the ground 40 miles northeast of Amarico, Texas, was covered by 1 to 1.5 feet of hail. Oklahoma City received 4 inches of rain in 3 hours Friday morning, along with 0.5-inch hail, causing some flood damage. Local stream flooding was reported in north-central and southern Texas. Wind gusts up to 70 m.p.h. hit parts of eastern Missouri. The Corpus Christi area of Texas was hard hit on Saturday, with nearly 3 inches of rain in 1 hour, small hail, and wind gusts of 74 m.p.h. Tornadoes were sighted southwest and east of the city. The severe weather extended west to the foothills of the Rockies, where Denver reported 1-inch hail early Sunday. Also on Sunday, flash flooding occurred in the Peoria, Illinois, area and in southwest Alabama. The severe weather continued unabated early Monday as a cold front moved slowly eastward through mid-America. A fresh surge of cool air moved eastward across the Central States on Sunday. Temperatures in Nebraska and Kansas were in the upper 80's and low 90's on Saturday, but remained in the 60's and low 70's on Sunday afternoon. The only freezing temperatures during the week occurred in northern New England and in the normally cold mountain valleys of the West. (Summary supplied by Environmental Data Service, ESSA.)

Estimates of Damage by the European Corn Borer  
To Grain Corn in the United States in 1969

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 1969 is estimated to be approximately 163,501,000 bushels in 15 corn-producing States. In these States the loss was 4.03 percent of the production. This loss is approximately 3.57 percent of the total national crop estimated at 4,577,864,000 bushels. 1/ The value of the loss, based on the season average prices received by farmers 2/, is \$182,509,000. 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 1969 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 1968. 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 18 years in States where the fall abundance survey was conducted are as follows:

1969	163,501,000	Bushels	\$182,509,000
1968	154,554,000	"	162,287,000
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, 1969 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 19, 1969.

2/ Crop Values, Season Average Prices Received by Farmers and Value of Production 1968 and 1969 - by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 23, 1969.

3/ Cooperative Economic Insect Report 20(5):51-57, 1970.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1969

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	1,504	1.26	1,895	3	4
Delaware	1	13,260	1.23	16,310	1,590	1,956
Illinois	7	956,774	1.14	1,090,722	37,993	43,312
Indiana	12	446,016	1.10	490,618	5,369	5,905
Iowa	12	922,768	1.10	1,015,045	53,571	58,928
Kansas	3	91,464	1.15	105,184	4,607	5,298
Maryland	3	38,799	1.22	47,335	2,180	2,659
Michigan	1	93,684	1.11	103,989	1,705	1,892
Minnesota	7	355,640	0.99	352,084	7,282	7,210
Missouri	7	182,210	1.20	218,652	14,161	16,993
Nebraska	5	433,659	1.10	477,025	19,435	21,378
North Dakota	1	6,765	0.97	6,562	341	331
Ohio	5	232,900	1.17	272,493	5,362	6,274
South Dakota	6	139,479	1.02	142,269	7,648	7,800
Wisconsin	9	139,772	1.14	159,340	2,254	2,569
Totals		4,054,694		4,499,423	163,501	182,509

1/ Cooperative Economic Insect Report 20(5):51-57, 1970





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Hyattsville, Maryland 20782

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