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VOL. 20 No. 24

June 12, 1970

U. S. DEPT. OF AGRICULTURE
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Cooperative

**ECONOMIC INSECT
REPORT**

Issued by

PLANT PROTECTION DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PROTECTION DIVISION

ECONOMIC INSECT SURVEY AND DETECTION

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

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM larvae damaged corn in Virginia, Maryland, Delaware, and Ohio. ASTER LEAFHOPPER buildup could result in aster yellows problem in North Dakota; aster yellows expected to be more severe in Wisconsin than in 1968 and 1969. (p. 381).

BLACK CUTWORM larvae damaged 50,000 acres of corn in Iowa. Other CUTWORMS damaging corn in Nebraska, Oklahoma, and Wyoming. (pp. 382-383).

ALFALFA WEEVIL larvae heavy in Colorado, New Mexico, and increasing in parts of Nebraska; damage heavy in southern Michigan. PEA APHID heavy on alfalfa in New Mexico, Oklahoma, and Colorado. (pp. 383-384).

LINDEN LOOPER caused heavy defoliation to several species of trees in Maryland. CANKERWORMS defoliated many trees in limited area of Minnesota. PERIODICAL CICADA damage heavy in Maryland and Pennsylvania. (p. 390).

FACE FLY building up in all dairy areas of New Jersey; still moderate to heavy on cattle in Maryland. HOUSE FLY building up in dairy areas of New Jersey, increasing in untreated barns in Oklahoma. MOSQUITOES annoying dairy cattle in Wisconsin and livestock in New Mexico. Annoyance could be severe by mid-June in Minnesota. Increase expected in New Jersey. (p. 391).

GRASSBUGS common on crested wheatgrass throughout Nebraska Panhandle; heavy on same host in Platte County, Wyoming. (p. 393).

Detection

● A DARKLING BEETLE described from Utah. Also recorded from 19 other States and 6 Provinces in Canada. This is a new North American record. (p. 396).

TAWNY GARDEN SLUG reported for the first time from Nevada. (p. 387).

For new county records see page 387.

Special Reports

A New Species of Tribolium from North America. (p. 396).

Reports in this issue are for week ending June 5 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JUNE 8

HIGHLIGHTS: Very warm, dry weather prevailed over the West, while the South Central States were exceptionally cool. Widespread heavy showers and thunderstorms occurred over the eastern half of the Country.

PRECIPITATION: Heavy showers and thunderstorms continued over mid-America early in the week as a frontal system moved slightly eastward. Many of the areas drenched by heavy rains, the previous week were again receiving excessive amounts of water. On Monday, tornadoes and funnel clouds were sighted from Texas north-east to Illinois and Michigan. Near Carbondale, Illinois, some injuries and property damage were reported due to a tornado. Nearly 5 inches of rain cascaded from the skies near West Plains, in south-central Missouri on Monday evening. Early Tuesday heavy rains inundated parts of southeast Wisconsin and northern Illinois, flooding small streams and closing highways; up to 5 inches was reported north of De Kalb, Illinois. The heaviest shower activity moved slowly east and south with the frontal system. Early Wednesday 2 to 4 inches of rain were measured at several locations in Alabama, with Brewton reporting 6.45 inches. Pensacola, Florida, had a 6-hour fall of 5.5 inches. Twenty-four hour totals at 8 a.m. Thursday included: Milligan, Florida, 8 inches; Elba, 6.10 inches and Kingston, Alabama, 5.83 inches. Flooding was reported extensive in portions of Texas, Oklahoma, Kansas, Missouri, Illinois, Kentucky, and Alabama. On Friday the main shower activity was concentrated from the Ohio Valley to New England and in parts of the Southeast. Tornadoes were reported near Nashville, Tennessee, and southwest of Dayton, Ohio, while hail covered the ground north of Spartansburg, North Carolina. By the weekend, most of the shower activity in the East had ended, except along the immediate coastal region, where hail and high winds accompanied a few of the more severe storms. The West was generally dry until late in the week, when light showers developed in parts of the Southwest. By Sunday, scattered showers and thundershowers were occurring from the western Plateau region to the Rockies. A few heavy rainfall amounts were reported in west Texas.

TEMPERATURE: Sharply contrasting temperature regimes dominated wide sections of the Nation. The Western States, from southern California to northern Montana averaged 9° to 15° above normal, except along the immediate coast. The South Central States, meanwhile averaged 6° to 12° below normal. Most of New England was 3° to 4° warmer than normal, while the remainder of the East was near to slightly above normal. Early in the week a frontal system lay north-south from Wisconsin to Texas. The Eastern States experienced warm, humid weather with temperatures in the upper 80's and low 90's as far north as northern New England. Burlington, Vermont, set a record high for June 2 with 89°. Behind the front, quite cool weather covered the central portion of the Nation for much of the week. Weather of the week continued on page 387.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - VIRGINIA - Larval damage severe in corn in Montgomery County. Spraying in progress in one area of Craig County. Damage more widespread than in 1969 and largely on sod-planted corn. (Allen). MARYLAND - Larvae averaged 1 per square foot of corn; estimated 150 acres needed control on Eastern Shore. Found primarily in untilled corn. In 30 acres of corn near Westminster, Carroll County, controls needed. (U. Md., Ent. Dept.). DELAWARE - Larvae numerous on barley and wheat; corn injury heavy in some areas of Kent and Sussex Counties. (Burbutis et al.). OHIO - Destroyed untilled cornfield in Licking County. Infested other untilled corn. (Blair). MICHIGAN - Blacklight trap collections reached 100+ per night twice at Lenawee County station. Blacklight collections in Livingston and Van Buren Counties well within normal limits. (Newman, June 1). ILLINOIS - Generally light and noneconomic throughout central third of State; larvae 6 per linear foot in scattered wheatfields on east side (mainly east-southeast). (Ill. Ins. Rpt.). MINNESOTA - Light trap catches continue relatively heavy at Rochester, Olmsted County, and Fergus Falls, Otter Tail County. No infestations found. (Minn. Pest Rpt.). NEBRASKA - Catches at Lincoln, Lancaster County, blacklight trap peaked second and third weeks in May, now declining. Few reports of damage from Lancaster, Otoe, and Nemaha Counties. Larvae averaged 4-5 per square foot in wheat near Greenwood in Lancaster County, controls applied. Larvae estimated at 12-20 per square foot in one ryefield near Raymond. Most larvae should remain active for about 10-14 days. (Keith, June 1). MISSOURI - Second and third instars ranged 4-18 (averaged 5) per square foot in small grain and grass mixtures in northwest areas. (Munson). KANSAS - Infested lodged wheat in Ottawa and Lincoln Counties. (Simpson).

ARMY CUTWORM (Chorizagrotis auxiliaris) - SOUTH DAKOTA - Larval counts of 1-2 per corn plant in field near Alexandria, Hanson County. Damaged third of field, replanting required. (Berndt).

ASTER LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Adults up to 10 per 100 sweeps of roadside grasses and alfalfa in south Cass County. With high acreage of late seeded flax in State, aster yellows could be problem with leafhopper buildup. (Brandvik). MINNESOTA - Still threat; greenhouse checks show 8 percent of leafhoppers carry aster yellows. Counts per 100 sweeps of small grain and alfalfa by district: Southwest 120-650, west-central 0-550, and central 40-700. (Minn. Pest Rpt.). WISCONSIN - Aster yellows predicted to be more severe in 1970 than in 1968 and 1969, but not so severe as in 1967. (Wis. Ins. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Survey in Imperial Valley, Imperial County, indicates no significant infection of curly top. Infestation prevalent in 40 acres of squash in Holtville area, leafhoppers medium. Infection ranged 1-3 percent in late-planted tomatoes in Brawley area. Damage to cantaloup by curly top should not be extensive. Sugarbeets in Rosamond area, eastern Kern County, show 15-20 percent curly top infection, one field showing 30 percent. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - NEW JERSEY - First moths of year caught in blacklight traps at Seabrook, Vineland, and Cedarville in Cumberland County. Indicates some overwintered in State. (Ins.-Dis. Newsltr.). FLORIDA - Light in Zellwood area, Orange County; 82 percent of untreated sweet corn "worm" free. Untreated sweet corn plots at Sanford, Seminole County, 100 percent infested. Areas differ; probably insecticide concentration generally much higher throughout Zellwood area. (Greene). ARIZONA - One larva per 2 silks on experimental corn at Yuma, Yuma County. Damaged pecans on few trees at Sahuarita, Pima County. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Noneconomic on all corn and sorghum examined in southeast and south-central districts. (Simpson). OKLAHOMA - Ranged 125-350 per plant on young grain sorghum in Jackson, Tillman, and Harmon Counties. Ranged 50-100 per plant in Pawnee County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 1-3 per plant on young sorghum in Curry County. (Campbell). TEXAS - Light to heavy on sorghum in Trans-Pecos area week ending May 29. Currently light to moderate in Pecos and Reeves Counties, light in El Paso County, noted in Panhandle area; some fields treated. (Rummel et al.). OKLAHOMA - Ranged 5-15 per plant in occasional fields of 18-inch grain sorghum in Jackson and Tillman Counties. (Okla. Coop. Sur.). KANSAS - Averaged 10 per plant in colonies on underside of lower leaves of 4 to 6-inch sorghum in Crawford County. Extremely light or negative in all other areas of southeast and south-central districts. (Simpson). NEBRASKA - Damaged seedling sorghum in North Platte area, Lincoln County. (Roselle). Few on sorghum in Jefferson County, no damage. (Dawes). Increased slightly in suction trap at Lincoln, Lancaster County; still light. (Pruess).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adult and eggs on Lycium at Greeley, La Salle, and Gilcrest in Weld County, no nymphs. No adults in potato fields. (Johnson). WYOMING - Adults 32 per 50 sweeps on Lycium sp. at Torrington, Goshen County; eggs few. None in 600 sweeps of 2 potato fields. (Parshall).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Treatments started in Chaves County alfalfa. (Mathews, May 29). Beginning to build up on alfalfa in Dona Ana County. Honeydew shows on lower portions of stem. (N.M. Coop. Rpt.). TEXAS - Light on alfalfa in Winkler County. (Neeb). OKLAHOMA - Still light to moderate on alfalfa in Harmon County. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW YORK - Moth emergence from stalk pieces still early and trap catches low. Moths ranged 1-12 per 100 sweeps on weeds on May 28 and 30. On May 28 out of 300 plants at Stone Ridge found one fresh egg mass. (N.Y. Wkly. Rpt., June 1). NEW JERSEY - Moths very abundant in grass bordering sweet corn fields. (Ins.-Dis. Newsltr.). OHIO - First-generation peaked. (Roach). MICHIGAN - Collected 5 males at Lenawee County blacklight trap station on May 24; 2 at Livingston County station on May 25. Females expected to emerge within few days. Some mating will occur and egg laying will start within 10 days. (Newman). WISCONSIN - First adults of season appearing in Madison County blacklight trap. (Wis. Ins. Sur.). INDIANA - Egg masses 12 per 10 plants by May 27 on corn 30 inches tall and 2-4 on sweet corn under 6 inches in Gibson County. (Huber). ILLINOIS - Pupation complete in southern two-thirds of State and emergence well underway. (Ill. Ins. Rpt.). IOWA - Percent development as of June 4: Larvae 18, pupae 52, emerged 30, no eggs. Female moths 1 and males 2 in light trap at Ankeny June 3. Overwintered caged larvae in cornstalks at Ankeny 30 percent parasitized by Macrocentrus grandii (a braconid), unusually high. (Iowa Ins. Sur.). MINNESOTA - Pupation of overwintered borers started in southern two-thirds of State. Pupation ranged 23 percent in southwest district to less than 1 percent in northwest district. (Minn. Pest Rpt.).

CUTWORMS - NEBRASKA - Feltia subgothica (dingy cutworm), Agrotis ipsilon (black cutworm), and Euxoa defersa damaged corn; F. subgothica most prevalent. A. ipsilon heavy locally. Infestations in Dawson, Otoe, Dundy, Hitchcock, Knox, Saunders, and Nemaha Counties. E. defersa destroyed few fields in Antelope and Pierce Counties. (Kumpost, Ehlers). Dingy cutworm averaged about 1 per square foot, black cutworm about 0.05 per square foot in one cornfield in Saunders County; corn destroyed. (Keith, Berogan). Less than 1 percent of dingy cutworm pupated on June 2. Activity expected to continue for another week. (Keith).

BLACK CUTWORM (Agrotis ipsilon) - DELAWARE - Very numerous in young corn in east Kent County. (Burbutis et al.). IOWA - Damaging corn 2 to 10-inches tall. Estimate 50,000+ acres damaged. Chemical treatments applied where larvae above ground. In 30 percent of fields feeding below surface in western half of State. (Iowa Ins. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Increased and damage appeared on small sweet corn at Sanford, Seminole County. Populations lower in May than observed in previous years at this time. (Greene).

PALE WESTERN CUTWORM (Agrotis orthogonia) - OKLAHOMA - Destroyed corn in isolated fields planted in wheat stubble in Texas County. Last instars present. (Okla. Coop. Sur.). WYOMING - Half-grown larvae cutting off about 10 percent of corn in 8-acre field near Wheatland, Platte County. Field treated. (Parshall).

STALK BORER (Papaipema nebris) - OHIO - Destroying untilled corn following blue grass sod in Wayne County. (Musick). IOWA - Larvae killing seedling corn in 3 fields totaling 200 acres in Polk, Jasper, and Carroll Counties. (Iowa Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Damaged grain sorghum in Archer and Throckmorton Counties. Migrated out of barley and killed grain sorghum in first 10+ rows of adjoining field in Archer County. (Boring).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARIZONA - Early instars averaged 5 per corn plant on Salt River Indian Reservation at Scottsdale, Maricopa County. (Ariz. Coop. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Adults less than 2 per row yard in Caroline, Talbot, Dorchester, and Wicomico Counties. Heaviest, 3-4 per row yard in Frederick County. (U. Md., Ent. Dept.).

TURF, PASTURES, RANGELAND

BANKS GRASS MITE (Oligonychus pratensis) - NEVADA - Damage heavy to 1,000 acres of crested wheatgrass near Lida, Esmeralda County. (Burris). This is a new county record. (Bechtel).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Caused some damage in crested wheatgrass near Lida, Esmeralda County. (Burris). This is a new county record. (Bechtel).

WESTERN TENT CATERPILLAR (Malacosoma californicum fragile) - OREGON - Heavy on bitterbrush in 65-acre winter range planting in Wamic White River area, Wasco County. Heavy at Chemult, Klamath County. (Maben).

TWO-LINED SPITTLEBUG (Prosapia bicincta) - ALABAMA - Larvae heavy in spittle on Bermuda grass sod at Auburn, Lee County. Controls planned. First adults noted about May 15. (Dickens et al.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - IDAHO - Egg deposition increased on alfalfa near Aberdeen, Bingham County. Adults averaged 48 per 50 sweeps. (Carpenter). Controls needed on 16,000 acres of Canyon County alfalfa. (Homan, May 28). Adults 31, larvae 5, and lady beetles 34 per 1,000 sweeps. Less than one percent of tips infested at north Shoshone and Dietrich, Lincoln County. (Hopkins, May 28). NEVADA - Larvae increased to 100+ per sweep in untreated Douglas County alfalfa. (Arnett). Larvae ranged 15-25 per sweep in several early treated fields at Lovelock, Pershing County. Cutting in progress. (Martinelli). UTAH - Development slow due to cool weather. Larval counts in Logan area 20 per sweep, many counts lower (Davis); 30 per sweep in Richmond area (Thornley, Knowlton). Adults ranged 0-4 per 10 sweeps in Cache County alfalfa. Injury appearing. Up to 25 larvae and 4 adults per sweep in Vernal area of Utah County, injury noticeable (Wayland); larvae 128 and adults 2 in 10 sweeps at Salt Lake City, Salt Lake County (Knowlton, June 4). WYOMING - Larvae just appearing in southeast area. Up to 22 per 10 sweeps in 20 alfalfa fields in Goshen, Platte, Laramie, and Converse Counties. Adults 0-18 per 10 sweeps. No larvae or adults in Niobrara County. (Parshall). COLORADO - Larvae ranged 150-1,000 per 100 sweeps of alfalfa

in Weld, Larimer, and Boulder Counties. Damage light to moderate; damage heavy in some. (Johnson). NEW MEXICO - Alfalfa weevil larvae heavy and widespread, ranged 88-153 per 25 sweeps of alfalfa in Bernalillo County. Fields show considerable damage. (Heninger). NEBRASKA - Increasing in 12 fields in western Dawson County near Gothenburg and Cozad; larvae ranged 1-1,085 and adults 0-44 per 100 sweeps of alfalfa. Larvae ranged 0-56 and adults 0-1 per 100 sweeps in 12 fields near Lexington and Overton. (Manglitz, June 3-4). MISSOURI - Adults and larvae taken from alfalfa in Harrison and Daviess Counties by J.L. Huggans and in Clinton, De Kalb, and Clay Counties by L.L. Peters. These are new county records. (Munson). IOWA - Larvae averaged 3 per 10 sweeps in several fields in Scott County, May 28. One adult collected May 28. (Iowa Ins. Sur.). SOUTH DAKOTA - Adults up to 142 per 100 sweeps of new alfalfa near Spearfish, Lawrence County. (Jones). MINNESOTA - Found near Winona, Winona County, for a new county record. Another 4 fields infested in Houston County. (Minn. Pest Rpt.). MICHIGAN - Larval damage very heavy in southern area, moderate to heavy in central area. (Ruppel, June 1). ILLINOIS - Cool wet weather slowed development, some economic fields in Stark and Marshall Counties. New larvae abundant, tip feeding ranged 10-100 percent. (Ill. Ins. Rpt.). INDIANA - Larvae 0-30 (averaged 9) per sweep of central area alfalfa. Feeding generally not severe. (Meyer). OHIO - Ranged 10 percent damage and no larvae per stem, up to 50 percent damage and 3 larvae per stem in Medina County. (Thoburn, May 25). Larvae 237 per sweep May 27 in Logan County. (Forrester). Bathyplectes spp. (an ichneumon wasp) parasitism about 10 percent in Tuscarawas County; alfalfa weevil eggs 3 per square foot at Castalia, Erie County. (Flessel).

NEW JERSEY - Alfalfa weevil caused noticeable injury in several fields of alfalfa in Warren County. (Ins.-Dis. Newsltr.). NEW YORK - Damage in fields ranged 10-15 (some with 40-50) percent in Dutchess County. (N.Y. Wkly. Rpt., June 1). MASSACHUSETTS - Adults 15 and larvae 434 per 100 sweeps of alfalfa in 2 fields in Berkshire County, tip damage 64.5 percent. (Miller). VERMONT - Adults and larvae still light at Shoreham and North Ferrisburg, Addison County, and at Shelburne, Brandon, and Clarendon, Rutland County. Tip damage light. Eggs on 30-45 percent of stems at Shoreham and North Ferrisburg. (Nielsen, June 1).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - WISCONSIN - Adults averaged 3 per 10 sweeps in field of alfalfa-clover mixture in northeastern Iowa County. Pest not common. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - IDAHO - Averaged 25 per 50 sweeps of alfalfa May 25 at Aberdeen, Bingham County. (Carpenter). Unusually heavy numbers of Aphidius spp. and lady beetles kept pea aphid low in Canyon County. (Homan, May 28). NEVADA - A. pisum trace to light, and spotted, in alfalfa in Churchill, Douglas, Lyon, and Pershing Counties. Predators, especially lady beetles, and parasites heavy. (Adams et al., May 29). ARIZONA - Counts per 100 sweeps by county as follows: Maricopa, 25 in Salt River Valley; Pinal 70; decreased to 200 in Yuma. (Ariz. Coop. Sur.). NEW MEXICO - Heavy on alfalfa in many areas. (N.M. Coop. Rpt.). OKLAHOMA - Heavy on alfalfa in Mayes County and in scattered fields in Payne County, and moderate in Harmon County. (Okla. Coop. Sur.). COLORADO - Ranged 1,000-2,000 per 100 sweeps of alfalfa in Weld, Larimer, and Boulder Counties. (Johnson). WYOMING - Up to 250 per 10 sweeps in 24 alfalfa fields in Goshen, Platte, Laramie, Niobrara, and Converse Counties. Heaviest in Platte County. (Parshall). NEBRASKA - Damaged vetch in Stanton County. (Bstandig). Declined in Dawson County as predators increased. Ranged 50-150 in older growth, up to 500 per 100 sweeps in recent growth following first cutting. Predators built up in uncut alfalfa, ranged up to 200 coccinellid larvae per 100 sweeps. (Manglitz, June 3, 4). WISCONSIN - Continues to increase gradually, up to 30 per sweep in many alfalfa fields. About normal. (Wis. Ins. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larval counts of 50 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). COLORADO - Larvae ranged 40-60 per 100 sweeps in field of alfalfa at Longmont, Boulder County. (Johnson). WYOMING - First larvae of season appearing on Goshen County alfalfa. (Parshall).

VARIEGATED CUTWORM (Peridroma saucia) - OKLAHOMA - Still heavy on Mayes County alfalfa and moderate in Bryan County. (Okla. Coop. Sur.). MISSOURI - Mostly last instars ranged 2-12 per square foot and averaged 4 in northwest area alfalfa. (Munson).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 25 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

BEE T WEBWORM (Loxostege sticticalis) - WYOMING - Adults heavy in alfalfa in south-east area. (Parshall).

LYGUS BUGS (Lygus spp.) - ARIZONA - Nymphal and adult counts per 100 sweeps of alfalfa by county as follows: Pinal 220, Maricopa 250, and Yuma 300-800. (Ariz. Coop. Sur.). NEW MEXICO - Adults and nymphs ranged 20-50 per 25 sweeps of alfalfa in Chaves County. (Mathews, May 29). Currently ranged 3-68 per 25 sweeps in alfalfa in Chaves, Eddy, Dona Ana, and Bernalillo Counties. (N.M. Coop. Rpt.). WYOMING - Adults and nymphs averaged 5 per 10 sweeps of alfalfa in Platte, Goshen, Laramie, Niobrara, and Converse Counties. (Parshall).

RAPID PLANT BUG (Adelphocoris rapidus) - WISCONSIN - First adults of season appearing in alfalfa in southwestern counties. Nymphs averaged 8 per sweep in parts of Waushara County. (Wis. Ins. Sur.). INDIANA - Adults averaged 5 per 10 sweeps of central area alfalfa. (Meyer).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WISCONSIN - Nymphs 15 per 10 sweeps, and most prevalent plant bug species in alfalfa in southwestern counties. Few adults. (Wis. Ins. Sur.). INDIANA - Adults averaged 6 per 10 sweeps of central area alfalfa. Immatures in equal or greater numbers. (Meyer).

MEADOW PLANT BUG (Leptopterna dolabrata) - MISSOURI - One adult collected by L. Burgess from alfalfa and grass in Platte County. This is a new county record. (Munson).

SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Damage light to heavy in Sharkey County. (Sartor). MINNESOTA - Overwintered adults moving to newly emerged soybeans in central and southwest districts. (Minn. Pest Rpt.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, weevils in 3 of 18 treated fields averaged 15 (maximum 125) per acre. Found in 7 of 13 untreated fields; averaged 20 (maximum 250) per acre. Collected 9 weevils on wing traps near hibernation sites; total to date 123. (Cowan et al.). MISSISSIPPI - None found on 11 wing traps near hibernation sites in delta counties. On this date last year, 12 traps caught total of 206 weevils. No weevils in 8 fields inspected. (Pfrimmer et al.). ALABAMA - Adults still light on presquare cotton in central area. None yet in north area. Punctured 24 percent of squares along field border in Henry County. (McQueen). TENNESSEE - Found 2 weevils feeding in terminal buds in McNairy County. (Locke).

BOLLWORMS (Heliothis spp.) - ALABAMA - Flights much lighter than during last 3 weeks and egg laying lower. No economic damage to cotton yet. Most larvae on corn, tomatoes, dahlia, and other hosts. (McQueen). TENNESSEE - Few eggs in terminals of older cotton. One larva found. (Locke). MISSISSIPPI - Eggs found in 1 field in delta counties. (Pfrimmer et al.). One percent of cotton infested by H. zea in Holmes County. (Sartor). TEXAS - Eggs and/or larvae collected on native hosts; 58 larvae collected previously identified as H. zea; total to date on all hosts 211 H. zea and 26 H. virescens. First moth emerged from hibernation cages June 3 identified H. virescens female. (Cowan et al.). Up to 50 percent of Heliothis spp. eggs parasitized in many cotton fields in Rio Grande Valley. (Deer). ARIZONA - H. zea larvae averaged 1 per 20 terminals at Yuma, Yuma County. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - In McLennan and Falls Counties, averaged 4.3 (maximum 16) per 100 terminals in 18 treated fields. Averaged 7.3 (maximum 22) per 100 terminals in 13 untreated fields. Mostly adults on cotton, nymphs killed by heavy rain. (Cowan et al.). Heavy in Rio Grande Valley week ending May 29. Currently heavy in south-central and Rio Grande Valley areas. (Cole, Deer). OKLAHOMA - Ranged 0-5 per row foot on 4-leaf cotton in Jackson and Harmon Counties. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Up to 86 percent of eggs parasitized in many cotton fields in Rio Grande Valley. (Deer).

SALT-MARSH CATERPILLAR (Estigmene acrea) - TEXAS - Moderate to heavy on young cotton in Midland and Glasscock Counties. (Neeb).

THRIPS (Frankliniella spp.) - NEW MEXICO - Serious in some cotton in Roswell and Artesia area in Chaves and Eddy Counties. Ranged 2-6 per plant on seedling cotton. (Mathews, May 29). OKLAHOMA - Averaged 40 per row foot on 4-leaf cotton in Harmon County. Ranged 15-18 per row foot in Jackson County. (Okla. Coop. Sur.). MISSISSIPPI - Light in 10 fields in Washington County; heavy in Holmes County. (Sartor).

SUGARBEETS

BET WEBWORM (Loxostege sticticalis) - WYOMING - Adults heavy in sugarbeets in southeast area. (Parshall).

SPINACH LEAF MINER (Pegomya hyoscyami) - COLORADO - Light in Weld, Larimer, and Boulder Counties. Infested 10-40 percent of plants. Damage light. (Johnson).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Pupation 50-93 (averaged 71) percent in Walsh and Pembina Counties. No adults. Predation by seed-corn beetle adults evident. (Kaatz).

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) - NORTH DAKOTA - Shotholing evident in several fields in Walsh and Pembina Counties. Shotholes, 1-6 per plant, on up to 100 percent of plants. Early beets in 2 to 4-leaf stage of development. (Kaatz).

CARMINE SPIDER MITE (Tetranychus cinnabarinus) - ARIZONA - Abundant on sugarbeet seed field foliage on west side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Treatments applied to canning tomatoes every 4-7 days at Yuma, Yuma County. (Ariz. Coop. Sur.).

BET ARMYWORM (Spodoptera exigua) - FLORIDA - Damage light in 20 acres of bell peppers treated at Sanford, Seminole County, May 28. (Greene). Troublesome in Ft. Myers area, Lee County, on bell peppers; one 40-acre field treated showed little population reduction June 2. (Poe).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - IDAHO - First adults of season May 28 near Caldwell, Canyon County. (Walz, Homan). UTAH - Adults heaviest in years in Weber and northern Davis Counties. Commercial tomato plantings sprayed twice, will be sprayed again after eggs hatch (averaged 3 egg masses per plant). Adults unusually numerous at Logan, Cache County, on volunteer potatoes. (Knowlton, Duncan, June 4). COLORADO - Adults and eggs still light in Weld County potato area. Egg masses 0-3 per 10 plants. No larvae to date. (Johnson). NEW JERSEY - Hatch begun. (Ins.-Dis. Newsltr.).

POTATO APHID (Macrosiphum euphorbiae) - NEW JERSEY - Building up in all areas. No problems anticipated. (Ins.-Dis. Newsltr.).

GENERAL VEGETABLES

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Generally light, ranged less than 3 per row yard. Damage heavy on 3 acres of sweetpotatoes at Salisbury, Wicomico County; needed replanting. (U. Md., Ent. Dept.). VIRGINIA - Adults very heavy on sweetpotato transplants in Painter area on Eastern Shore; some plants killed before treatment possible. (Hofmaster).

TAWNY GARDEN SLUG (Limax flavus) - NEVADA - Specimens collected at home in Reno, Washoe County, July 8, 1969, by R.W. Lauderdale. Determined by H.H. Crowell. This is a new State record. (Bechtel).

DETECTION

New North American Record - A DARKLING BEETLE (Tribolium audax Halstead) described from Utah. Also recorded from 19 other States and 6 Provinces in Canada. (p. 396).

New State Record - TAWNY GARDEN SLUG (Limax flavus) - NEVADA - Washoe County (p. 387).

New County Records - ALFALFA WEEVIL (Hypera postica) MINNESOTA - Winona; MISSOURI - Clay, Clinton, Daviess, De Kalb, Harrison (p. 384). BANKS GRASS MITE (Oligonychus pratensis) NEVADA - Esmeralda (p. 383). BROWN RECLUSE SPIDER (Loxosceles reclusa) NEBRASKA - Nance (p. 392). BROWN WHEAT MITE (Petrobia latens) NEVADA - Esmeralda (p. 383). CEREAL LEAF BEETLE (Oulema melanopus) ILLINOIS - Christian, Macon, Montgomery; KENTUCKY - Barren, Breckinridge, Laurel, Russell; VIRGINIA - Bath, Frederick (p. 392). EASTERN TENT CATERPILLAR (Malacosoma americanum) IOWA - Winnebago (p. 390). MEADOW PLANT BUG (Leptopterna dolabrata) MISSOURI - Platte (p. 385).

CORRECTIONS

CEIR 20(21):344 and CEIR 20(22):355 - ... a NOCTUID MOTH (Melipotis indomita) ... should read a NOCTUID MOTH (Melipotis indomita) ...

CEIR 20(22):360 - CEREAL LEAF BEETLE (Oulema melanopus) - Line 4 - " ... Determined by V.H. Owens; confirmed by R.E. White. (PPD)." Should read: ... Determined by R.E. White. (PPD).

Weather of the week continued from page 380.

Roswell, New Mexico, set a record low for June with 40° on Tuesday, and a record low (45°) for the date on Wednesday. Many localities from Texas to the lower Great Lakes set low temperature records between Wednesday and Friday. The cool air moved slowly eastward, giving the east coast a pleasant weekend. Very warm air covered the Western States early in the week, with 90° readings in many areas, including a few coastal stations in Washington and Oregon on Monday. Temperatures in the upper 90's to low 100's persisted in interior Washington and Oregon until the weekend, while 100 plus readings were common in interior California and southwest Arizona. On Monday, Bakersfield, California, recorded their highest temperature (110°) so early in the season. The warm air gradually moved eastward, and by the weekend temperatures in the upper 80's and 90's were common from Texas to the Canadian border. On Sunday, Minneapolis (92°) and St. Cloud (91°), Minnesota, set new high temperature records for the date. (Summary supplied by Environmental Data Service, ESSA.)

DECIDUOUS FRUITS AND NUTS

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - First-brood adults peaked week ending May 5 in Lower Yakima Valley. (Johnson). UTAH - Flight heavy May 25-27. Averaged 35-40 per trap at Pleasant Grove and Linden, Utah County. (Davis, Barlow). COLORADO - Damage very light on small green peaches up to June 2 in Palisade and Vineland Districts, Mesa County. (Sisson). ALABAMA - Probably second-generation larvae cut back new twigs on many peach trees in Lee and other central counties. (McQueen). CONNECTICUT - Some injury to peach terminals at New Haven, New Haven County, and Storrs, Tolland County. (Savos, June 2).

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - Infested pear fruits May 29 at Pomona, Yakima County. First-brood larvae at Grandview, Yakima County, May 27; entries in 22 percent of fruit in 20 acres of unsprayed apples. (Gregorich, Johnson). UTAH - Flight heavy May 26 at Bountiful, Davis County; May 27 at Pleasant Grove, Utah County; June 3 at Logan, Cache County. (Davis). MICHIGAN - Adults abundant last week of May. Egg laying should be started. Hatch expected in 8-14 days. (Thompson, June 1).

TORTRICID MOTHS - CONNECTICUT - Archips argyrospilus (fruit-tree leaf roller) larvae reached maturity and beginning to leave apple trees. Foliar injury severe on many unsprayed and sprayed trees. (Savos, June 2). MICHIGAN - Argyrotaenia velutinana (red-banded leaf roller) rolled leaves. Hard to reach with chemicals. (Thompson, June 1). IDAHO - First instars of A. argyrospilus active June 1 on fruit trees at Moscow, Latah County. (Gittins).

GREEN FRUITWORM (Lithophane antennata) - CONNECTICUT - Feeding on young apple fruit in sprayed and unsprayed orchards at Storrs, Tolland County. (Savos, June 2). WASHINGTON - Infested small green apples 25 days past full bloom at Naches, Yakima County. (Gregorich).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - WISCONSIN - Numerous on untreated apple trees at several southern locations. Defoliation heavy on choke-cherry, black cherry, mulberry, and some ornamental crab apple trees. Mostly fifth instars in Dane County. (Wis. Ins. Sur.). OHIO - Adults emerged at Reynoldsburg, Franklin County. (Roach).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW JERSEY - Find of 42 adults in 12 minutes June 2 in Gloucester County. (Ins.-Dis. Newsltr.). CONNECTICUT - Very active past 7 days. Egg laying and feeding scars on apple statewide. Will probably be major pest for next 7-14 days. (Savos, June 2).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Curled peach foliage at Albuquerque, Bernalillo County, and Belen and Los Lunas, Valencia County. Frost-destroyed crop not treated. (Heninger, May 29). COLORADO - Foliar damage severe, as high as 50 percent, in unsprayed or poorly sprayed peach orchards in Mesa County. (Sisson).

PERIODICAL CICADAS (Magicicada spp.) - OHIO - Of 474 adults collected May 27 and 30 from orchard in Fairfield County, 357 were M. septendecim, 50 M. cassini, and 67 M. septendecula. Emergence nearly ended but no oviposition apparent. (Holdsworth). INDIANA - M. septendecim and M. cassini emerged May 13 and M. septendecula May 15 in Monroe County. Emergence still heavy in south area. (Young).

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - First generation development almost completed. Scattered hard shell "nymphs" few and adults heavy. Some eggs on unsprayed pear trees at Fennville, Allegan County. (Thompson).

GRAPE MEALYBUG (Pseudococcus maritimus) - OREGON - Light in untreated check plot of Anjou pear trees at Medford, Jackson County. (Gentner, May 22).

TEPHRITID FLIES (Rhagoletis spp.) - NEW YORK - R. fausta (black cherry fruit fly) emerged moderately but steadily in cages May 26 at Geneva, Ontario County. (N.Y. Wkly. Rpt.). OREGON - First R. indifferens (western cherry fruit fly) adults of season emerged in field cages June 2 at Salem, Marion County. (Rassmussen).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Apple injury easy to find on check trees at Storrs, Tolland County; New Haven, New Haven County; and East Lyme, New London County. (Savos, June 2).

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Second-generation eggs hatched May 29 and still hatching. Immatures numerous and adults heavy where prebloom control failed. Many orchards will need summer miticides ahead of schedule. (Thompson). NEW YORK - Heavy in orchards where oil not used this spring at Monroe, Orange County, and Orleans, Ontario County. (N.Y. Wkly. Rpt., June 1).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - WASHINGTON - Damaged pears in Spokane County. (Kruiswyk, Foepfel).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Heavy in phylloxera galls in Gonzales County. Some larger galls contain 2-4 larvae. (Cole).

BLACK-MARGINED APHID (Monellia costalis) - NEW MEXICO - Heavy on Dona Ana County pecan trees. Honeydew heavy. (N.M. Coop. Rpt.).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TEXAS - Heavy in Lee County. (Cole).

SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Moderate on grapes at Tucson, Pima County. (Ariz. Coop. Sur.).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Few moths active in problem vineyards. Peak emergence expected this week. (Janes, June 1).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - OHIO - Adults beginning to emerge on infested strawberry plants in Franklin County. Destroyed 50-75 percent of crop in certain spots of one-acre plot. Berries forming. Up to 10 adults and pupae per plant. (Roach).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - DELAWARE - Overwintered successfully in loblolly pine in central Sussex County; injury serious. (Bray, Boys).

OLETHREUTID MOTHS - MISSOURI - Rhyacionia buoliana (European pine shoot moth) moderate to heavy on Scotch pines in Jackson County. Infested up to 20 percent of tips on scattered trees. Pupae collected from Austrian and red pine tips. Adult emergence well underway. (Kearby). MINNESOTA - Taniva albolineana (spruce needle miner) active on spruce. (Minn. Pest Rpt.).

TORTRICID MOTHS (Choristoneura spp.) - MINNESOTA - C. fumiferana (spruce budworm) mostly second instar, some third, in north. Mined buds and needles. Defoliation appearing. C. conflictana (large aspen tortrix) defoliating and rolling leaves in northeast. C. pinus (jack-pine budworm) feeding on staminate flowers in east-central area. (Minn. Pest Rpt.). WISCONSIN - C. pinus light to medium May 27 in Marinette County. Development slow. (Wis. Ins. Sur.).

A CONIFER SAWFLY (Neodiprion pratti pratti) - INDIANA - Infested about 5,000 acres of shortleaf and Virginia pine plantations in Hoosier National Forest. Defoliation severe in 200+ acres and light to moderate in remainder. (Doerner, White). OHIO - Larvae continuously reported during May on shortleaf pine throughout south half of State. (Ehlers).

GEOMETRID MOTHS - MARYLAND - Erannis tiliaria (linden looper) heavily defoliated oaks, basswoods, elms, and maples over extensive areas of Frederick and Montgomery Counties. (U. Md., Ent. Dept.). MINNESOTA - Alsophila pometaria (fall cankerworm) and Paleacrita vernata (spring cankerworm) defoliated many trees in Lake Calhoun and Lake Harriet area at Minneapolis. Some larvae fully grown and dropping from trees. (Minn. Pest Rpt.).

TENT CATERPILLAR MOTHS (Malacosoma spp.) - COLORADO - M. californicum fragile (western tent caterpillar) and M. disstria (forest tent caterpillar) nests one-fourth fewer than in previous years in foothills of Larimer and Jefferson Counties. (Thatcher). IOWA - M. americanum (eastern tent caterpillar) larvae in Winnebago County June 3 for a new county record. (Iowa Ins. Sur.). VERMONT - M. americanum tents very large now. (Nielsen, June 1).

FALL WEBWORM (Hyphantria cunea) - OREGON - First adults of season May 20 in basement of home at Salem, Marion County. Adults numerous in blacklight traps in Clackamas County. (Goeden). TEXAS - Moderate on Kinney County shade trees. (Neeb). OHIO - First instars on elm in Scioto Trail State Forest. (Ehlers).

SADDLED PROMINENT (Heterocampa guttivitta) - PENNSYLVANIA - First adult of season in Schuylkill County light trap May 28. (Quinter).

PERIODICAL CICADAS (Magicicada spp.) - VIRGINIA - M. septendecim adults emerged in wooded areas of Shenandoah and Warren Counties. (Nelson, May 28). MARYLAND - M. septendecula and M. septendecim damage heavy from Prince Georges County westward into Allegany County. Heaviest damage, 10-20 percent, due to egg laying on many maples and locust in southwest Baltimore City. (U. Md., Ent. Dept.). PENNSYLVANIA - Magicicada sp. heavily damaged forest trees May 26 in Cumberland and Dauphin Counties. (Sleesman, Simons). MICHIGAN - M. septendecim emergence heavy at Ann Arbor, Washtenaw County. Expect only lower southern peninsula to be affected. (Wallner, May 29).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - First instars at Fallen, Churchill County. (Arnett). NEW MEXICO - Eggs on 95-100 percent of Siberian elms; first and second instars on 30-50 percent of new leaves at Albuquerque, Bernalillo County. (Heninger). TEXAS - Larvae damaged foliage of Chinese elms in Pecos, Midland, Ward, Glasscock, Upton, and Reagan Counties. (Neeb). OKLAHOMA - Larvae skeletonized up to 65 percent of leaf surface on isolated American elms in Major County. Heavily damaged Siberian elms in Mayes and Payne Counties. (Okla. Coop. Sur.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - ALABAMA - First-generation larvae very light, some pupae, on black locust trees in Lee and other central counties. First generation appears much lighter than last 4-5 years and may be result of past cold winter. (McQueen).

BRONZE BIRCH BORER (Agrilus anxius) - MICHIGAN - May become more of problem statewide. Pupae present, no adults. (Wallner, May 29).

A JUNE BEETLE (Phyllophaga fusca) - WISCONSIN - This and Phyllophaga spp. defoliated trees locally in southern counties. (Wis. Ins. Sur.).

MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 7 cases reported in U.S. May 31 to June 6 as follows: TEXAS - Medina 4; ARIZONA - Cochise 3. Total of 51 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 41, Chihuahua 3, Nuevo Leon 2, Tamaulipas 5. Total of 8 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 30,888,000; New Mexico 840,000; Arizona 5,810,000; California 610,000; Mexico 129,120,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - WYOMING - Adults 0-10 (averaged 4) per head on 3 cattle herds in Converse and Platte Counties. (Parshall). TEXAS - Building up in many areas week ending May 29. Currently moderate in Trans-Pecos area, expect increase with afternoon showers. (Neeb). OKLAHOMA - Averaged 250 per head on cows and steers in Payne County; up to 2,000 per head on bulls. (Okla. Coop. Sur.). MISSISSIPPI - Averaged 140 per head on 525 cattle in Monroe and Oktibbeha Counties. (Sartor). MISSOURI - Ranged 0-25 (averaged 7.1) per head on treated cattle in Boone County. Ranged 19-325 (averaged 107.1) per head on untreated cattle. (Thomas). WISCONSIN - Light in nearly all counties, but no appreciable annoyance to cattle. (Wis. Ins. Sur.). NEW JERSEY - Building up in all dairy areas. (Ins.-Dis. Newsltr.). VERMONT - Building up. (Nielsen, June 1).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Averaged 4 per face on 100 Monroe County cattle. (Sartor). MISSOURI - Ranged 0-7 (averaged 1.3) per face on treated cattle in Boone County; 0-14 (averaged 2) per face on untreated cattle (Thomas). WISCONSIN - Slightly annoying cattle in Dane, Columbia, and Richland Counties. (Wis. Ins. Sur.). MARYLAND - Still moderate to heavy, 15-50 per face, on cattle in Montgomery, Frederick, and Baltimore Counties. (U. Md., Ent. Dept.). NEW JERSEY - Building up in all dairy areas. (Ins.-Dis. Newsltr.). VERMONT - Numbers decreased over previous week. (Nielsen, June 1).

HOUSE FLY (Musca domestica) - OKLAHOMA - Continued to increase in Payne County. Ranged 15-20 per Scudder grid in untreated barns. (Okla. Coop. Sur.). NEW JERSEY - Commencing to accumulate in poultry houses and egg rooms. Building up in all dairy areas. (Ins.-Dis. Newsltr.).

STABLE FLY (Stomoxys calcitrans) - VERMONT - Heavy where allowed to develop in warm barns during winter. Numbers otherwise still low. (Nielsen, June 1). WISCONSIN - Slight nuisance to cattle in Sauk, Walworth, Rusk, and Dane Counties. Very light elsewhere. (Wis. Ins. Sur.). OKLAHOMA - Averaged 6 per head on cattle checked in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - UTAH - Aedes dorsalis extremely numerous south of Brigham City, Box Elder County. (Hanson). Mosquitoes annoying in agricultural fields west of Richmond, Cache County. (Thornley, Knowlton). NEW MEXICO - A. vexans heavy in fields and pastures near Belen, Valencia County. Annoyed livestock and humans. (Henger, May 29). MINNESOTA - A. vexans in 88 percent of larval collections made at Minneapolis and St. Paul week ending May 30. All larval instars of A. vexans present earlier this week following rains which totaled over 5 inches. Aedes larvae present continuously since April 1. A. vexans 4,941 of 5,558 females in light traps week ending May 29. Most light trap catches light and annoyance minimal up to June 4. Light trap at Lino Lakes caught 4,190 A. vexans females. Larvae very heavy. Annoyance could range from heavy to severe beginning about June 10. (Minn. Pest Rpt.). WISCONSIN - Biting light in most counties; no significant problems. Slightly annoyed dairy cattle in Rusk, Crawford, and Columbia Counties. No significant increase in biting likely in next 2 weeks. (Wis. Ins. Sur.). ALABAMA - Probably Culex pipiens quinquefasciatus still heavy in central and south areas; extremely annoying in late afternoon and evening. Unusually heavy rains last 7 days will probably result in unusual explosion of larvae and adults statewide. (McQueen). NEW JERSEY - Increase expected. Horse owners advised to vaccinate horses for encephalitis. (Ins.-Dis. Newsltr.). VERMONT - Arrived in numbers. (Nielsen, June 1).

BLACK FLIES - IDAHO - Larvae and adults collected in the South Hills and in east Twin Falls County where last year's outbreak reduced weight gain in lambs. (Jessen et al., May 26). MARYLAND - Simulium spp. still troublesome to campers and in resort areas in Montgomery, Frederick, and Washington Counties. Range of 6-30 per person still common in mountainous areas. (U. Md., Ent. Dept.). VERMONT - Black flies still annoying cattle. (Nielsen, June 1).

CATTLE GRUBS (Hypoderma spp.) - VERMONT - H. bovis (northern cattle grub) leaving backs of cattle. (Nielsen, June 1). WYOMING - H. bovis emergence continues from 3 calves from Bosler, Albany County. Emergence completed May 19 from 3 calves from Gillette, Campbell County. (Grow). TEXAS - H. lineatum (common cattle grub) adult activity decreased or ended in most counties in Trans-Pecos area. (Neeb).

A TORYMID (Monodontomerus obscurus) - IDAHO - This parasite of Megachile rotundata (alfalfa leafcutter bee) first emerged for year on June 1 at Parma, Canyon County. (Waters).

HARD-BACKED TICKS (Dermacentor spp.) - WISCONSIN - D. variabilis (American dog tick) heavy in parts of Waupaca, Juneau, Chippewa, Rusk, and Marinette Counties. In one section of Waupaca County 44 ticks removed from dog weekend of May 23-24 and 29 ticks removed from another dog weekend of May 30-31. (Wis. Ins. Sur.). MINNESOTA - D. variabilis still numerous. (Minn. Pest Rpt.). IDAHO - D. andersoni (Rocky Mountain wood tick) at high level. Considered 10-year high for Bruneau, Owyhee County, by sheepman. (Sutherland, May 22). Numerous calls in Blaine County May 26. (Eakins).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - NEBRASKA - Collected from home at Fullerton, Nance County, for a new county record. (Zollinger, June 1).

BENEFICIAL INSECTS

LADY BEETLES - NEVADA - Mostly Hippodamia convergens (convergent lady beetle) adults up to 2-3 and larvae 2-5 per sweep in alfalfa where pea aphid populations heaviest. These beetles, damsel bugs, Geocoris spp. and Aphidius spp. holding pea aphid in check in Churchill, Douglas, Lyon, and Pershing Counties. (Adams et al., May 29). WYOMING - Lady beetle adults averaged 1.5 per 10 sweeps of alfalfa in Platte, Goshen, Laramie, Converse, and Niobrara Counties. (Parshall). OKLAHOMA - H. convergens ranged 0.5-1.5 per plant on aphid-infested sorghum in several Southwest counties. Light on alfalfa and cotton in this area. (Okla. Coop. Sur.).

A KLAMATH-WEED BEETLE (Chrysolina quadrigemina) - WASHINGTON - Adults on Klamath-weed May 20 at Friday Harbor, San Juan County. Very little weed growth due to control by beetle. (Baker).

ALFALFA LEAFCUTTER BEE (Megachile rotundata) - WASHINGTON - First naturally overwintered adults emerged June 1 at Prosser, Benton County. (Klostermeyer).

BRACONIDS (Leiophron spp.) - ARIZONA - Released 100-200 parasitized lygus bug nymphs June 4 in alfalfa at Eloy, Pinal County. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - Following infestations light on oats on farms. All are new county records and determined by R.E. White. VIRGINIA - Larvae collected at Clear Brook, Frederick County, by E. Thompson June 1. Larvae at Williamsville, Bath County, by Saucier and Lyle June 2. KENTUCKY - Adults on barley at Cloverport, Breckinridge County, by R. Troendle May 20. Larvae on oats at Russell Springs, Russell County, by J.H. Milner May 21. Larvae at Glasgow, Barren County, by J.L. Wheeler May 21. Larvae at Keavy, Laurel County, by W.A. Smith May 22. ILLINOIS - Adults in Milam Township, Macon County, by C.H. Damery May 26. Adults in Assumption Township, Christian County, by R.D. Lovejoy May 27. Larvae in East Fork Township, Montgomery County, by D.B. Reincke May 27. (PPD). INDIANA - Eggs 22-60 per linear foot of oats at New Carlisle, St. Joseph County. Larvae mostly first instar. First pupa of year present. (Shade). In central districts larvae and/or eggs 0.4 per linear foot of oats with extended leaf height of 9-20 inches, latter figure more frequent. Oats often beginning to head. (Meyer). OHIO - Adults per 100 sweeps (and eggs per square foot) of oats by county: Preble 112 (10) May 20, Darke 45 (8) May 20, Montgomery 41 (12) May 20, Clark 93 (7) May 21, and Logan 213 (48) May 27. Larvae ranged from 0.5 early

instars per square foot up to 1,300 late instars per 100 sweeps. Larvae 5 per plant; defoliation up to 20 percent in heavily damaged oatfield in Richland County. Heaviest on oats but still serious on wheat in several counties. (Forrester, Newsome). MICHIGAN - Hatch well underway in south area. Hatch beginning or just reaching peak in central area. (Ruppel, June 1). PENNSYLVANIA - Adults 1-27 per 100 sweeps of oats in Butler County; heaviest damage, 33 percent of stems. Adults 1-5 per 100 sweeps of oats in Mercer County; eggs and larvae noted. (Adams, May 21). Heaviest infestation on Beaver County oats had 150 adults per 100 sweeps and averaged 1-2 larvae per stem. Several fields in area show white cast on tops of plants. (Adams, June 3).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Specimens collected from mimosa tree over 100 feet from infested mulberry trees at Porterville, Tulare County. Second season on this host. Before this collection no evidence of persistence on any host other than fruitless mulberry. (Cal. Coop. Rpt.).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Additional infestations in lawns at Blaine, Whatcom County. Larvae 50-150 per square foot. Lawn damage severe. One pupa and 18 pupal cases positively identified; empty pupal cases suggest adult emergence unusually early. All 20 infested properties totaling 10.2 acres treated. (PPD, Wash. Dept. of Agr.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Annual surveys of pines in nursery and residential plantings in Willamette Valley about 85 percent complete. Single specimen infested in nursery in Clackamas County. (Goeden, Larson).

GRASSBUGS - NEBRASKA - Labops hesperius common on crested wheatgrass throughout panhandle; ranged 6-3,000 per 100 sweeps. Native grasses appear unaffected. Severe damage in Sioux and Dawes Counties, several stands nearly killed. (Bell, June 1-3). WYOMING - L. hesperius moderate to heavy on 400 acres of crested wheatgrass at Chugwater, Platte County. Leaves white. No movement into adjoining wheat as of June 3. (Burkhardt). IDAHO - Last instars of Labops sp. damaged 0.5 acre of grass at Fairfield, Camas County. (Hazen, Sutherland, May 28).

GRASSHOPPERS - WASHINGTON - Melanoplus sanguinipes, Oedaleonotus enigma, and M. bivittatus first instar to adults 6-7 per square yard near Wishram, Klickitat County. (Nonini). NEVADA - M. sanguinipes first and second instars light and spotted on alfalfa in Diamond Valley, Eureka County. (Harms). First to third instars, mostly O. enigma, 3-5 per square yard on range southeast of Orovida, Humboldt County. (Lundahl, Peters). UTAH - First to third instars 1-2 per 10 sweeps on fence rows and range at Providence and Cove, and 1 in 50 sweeps at Richmond, Cache County. (Knowlton, June 4). WYOMING - Aulocara elliotti and Ageneotettix deorum hatching east of Lucerne, Hot Springs County, and west of Douglas, Converse County. Ranged 5-40 per square yard west of Douglas. (Patch, Hardy). Early species still hatching at Glendo and Guernsey, Platte County; heaviest at Guernsey June 4--A. elliotti 10 and Amphitornus coloradus 9 per 100 square feet. Late species still in egg stage. (Pfadt). OKLAHOMA - Major hatch underway on range in 14 western counties by May 15. First to third instars 2-15 per square yard. Hatch late in 10 central and eastern counties. First instars 0-2 per square yard. Very little interest in control programs in any area. A. deorum, A. elliotti, Phlibostroma quadrimaculatum, and A. coloradus dominant. (Okla. Coop. Sur.). NEBRASKA - Melanoplus spp., up to fourth instar, heavy at several locations in Dundy, Chase, Perkins, Keith, Lincoln, and Garden Counties. Some heavy localized damage possible. (Hohnholt, Bell, June 1-3). SOUTH DAKOTA - Light hatch underway week ending May 23 in south area. A. deorum, A. elliotti, and M. sanguinipes in southwest Custer County and in east Fall River County. Mostly M. bivittatus and a few M. sanguinipes in south Tripp and Gregory Counties. M. bivittatus and M. differentialis in Charles Mix, Hutchinson, Douglas, Aurora, Davison, Hanson, McCook, Miner, and Sanborn Counties. (Zimmerman). NORTH DAKOTA - Light hatch in cropland in south Cass and north Richland Counties. Up to 4 first and second instars per square yard in weedy

field margins. Melanoplus bivittatus and M. packardii dominant. M. bivittatus eggs 55 percent segmented and 40 percent eyespot. Carabid and meloid larvae and eggs at all locations. Up to 25 percent of pods partly destroyed. (Brandvik). MINNESOTA - Light hatch in Wright, Meeker, Hennepin, Anoka, and Sherburne Counties. General hatch of M. bivittatus in sandy soils of central district expected in 7 days. M. femurrubrum eggs coagulated to eyespot. In southwest district M. differentialis eggs in late eyespot and M. femurrubrum eggs coagulated. All eggs coagulated in northern counties of west-central district. (Minn. Pest Rpt.). IOWA - Second instars 10 per square yard in Mahaska County pasture. (Iowa Ins. Sur.).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Larvae migrating. Overwintered eggs indicate infestations will be much more severe than they have been in several years. (Savos, June 2).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - Larvae 18 per square foot of lawn in some areas of Blacksburg, Montgomery County. (Kosztarab).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moth releases May 28 to June 4. CALIFORNIA - Coachella Valley 5,118,000, total to date 41,904,250; Kern County, 1,400,000, total to date 8,771,700. ARIZONA - Redington, Pima County, 67,500, total to date 337,500. First collection of 4 native moths and 2 sterile moths this season at Redington. First rosetted bloom recorded in Coachella Valley. (PPD). NEW MEXICO - Two moths in hexalure traps in Eddy County. (Mathews).

HAWAII INSECT REPORT

General Vegetables - All stages of LEAF MINER FLIES (Liriomyza spp.) generally heavy on snap beans and watermelon at Waianae and Waimanalo, Oahu. Mining severe in 0.25 acre of snap beans at Waianae; adults heavy, as many as 16 (average 12) per leaf, in adjacent small planting of foot-long watermelon vines. At Kaunakakai, Molokai, all stages heavy in small plantings of tomato, eggplant, and snap beans despite chemical sprays. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) adults heavy in 2,500-square foot planting of snap beans at Kaunakakai; all stages light in 0.5 acre of eggplant at Waianae. (Fujimoto et al.).

Ornamentals - Adults of an ARMORED SCALE (Phenacaspis cockerelli) light, 3-10 per leaf, on roadside oleander at Kahului, Maui. (Miyahira).

Miscellaneous Insects - Nymphs and adults of a RHOPALID BUG (Jadera haematoloma) heavy on a balloonvine (Cardiospermum halicacabum) at Hickam Air Force Base, Oahu. Nymphs and adults of a GRASSHOPPER (Oedaleus abruptus) heavy in dry, grassy areas throughout Hickam Air Force Base; heaviest in 0.25 mile radius of original focal point. (Olson).

A New Species of Tribolium from North America

The Results of Past Confusion

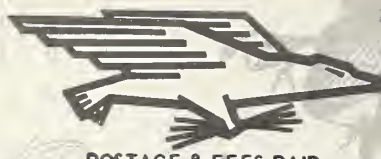
D.G.H. Halstead of the Pest Infestation Laboratory at Slough, England, has published (1969, J. Stored Prod. Res. 4:295-304, 18 figs.) an interesting study on an American stored product pest. His conclusions may be summarized as follows: The species of Tribolium from North America previously identified as T. madens is distinct from T. madens (Charpentier) from the Old World and is described as T. audax n. sp. The type locality is Flowell, Utah. He recorded other specimens from Alabama, Arizona, British Columbia, Colorado, Manitoba, Massachusetts, Michigan, Minnesota, Montana, Nebraska, New Mexico, Oregon, Quebec, Texas, Utah, Washington, and Wyoming. (From literature records and from the files of the United States Department of Agriculture, I can now add the following to the above distribution: Alberta, Iowa, Louisiana, Minnesota, North Dakota, Ontario, Pennsylvania, Saskatchewan, and Virginia.) The true T. madens does not occur in North America. All previous mention of T. madens by American authors actually apply to T. audax Halstead. The larvae, pupae, and adults of T. audax and T. madens are described and differentiated by Halstead.

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20(24):396, 1970

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