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Cooperative Economic Insect Report

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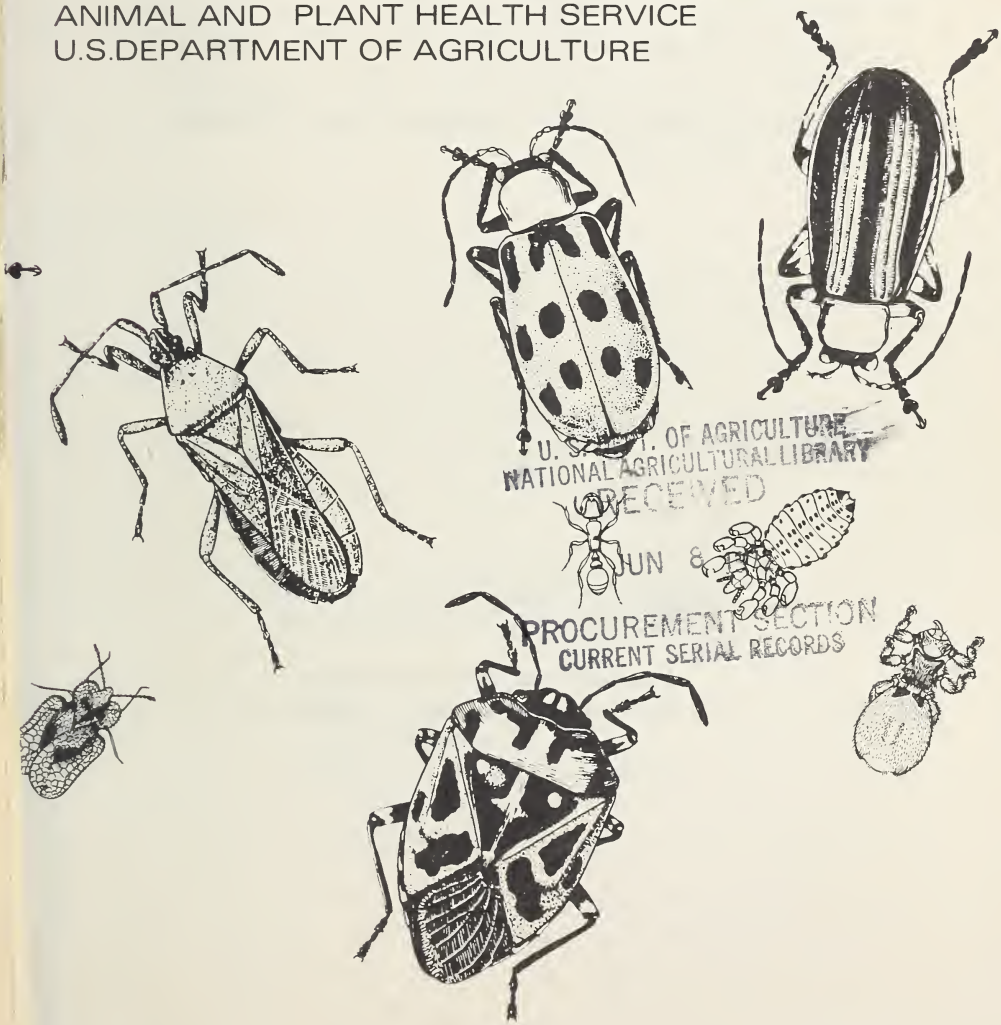

ANIMAL AND PLANT HEALTH SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
ECONOMIC INSECT SURVEY AND DETECTION STAFF

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

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Volume 22 May 26, 1972 Number 21

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMY CUTWORM larvae heavy on wheat and alfalfa in Montana. (p.301).

ARMYWORM larvae damaged corn and cotton in Tennessee and corn in Virginia. (p. 301).

HORN FLY heavy on cattle in Oklahoma. Populations increased in Texas and Alabama. (p. 308).

Detection

New State records include CEREAL LEAF BEETLE from Tennessee (p. 309) and a MESOSTIGMATIC MITE from Hawaii (p. 310).

For new county records see page 310.

Special Reports

Preparation of Notes for Cooperative Insect Report (pp. 313-314).

Reports in this issue are for week ending May 19 unless otherwise indicated.

CONTENTS

WEATHER OF THE WEEK ENDING MAY 22

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

PRECIPITATION: A low was centered over lower Michigan Monday May 15. From this low a cold front trailed southward to the Gulf of Mexico. This system dampened much of the area from the Great Lakes to the Atlantic Coast, and southward to the Florida Peninsula. Rain also fell from scattered thunderstorms near the western gulf coast. A high pressure covered much of the western two thirds of the Nation. It brought sunny skies. Thunderstorms developed Tuesday afternoon over the Great Plains, Mississippi River Valley, and the Florida Peninsula. A few sprinkles fell in the Pacific Northwest. Some heavy thunder showers soaked spots in southern Texas. In general, weather making systems at midweek were weak and fair weather prevailed over most of the Nation. Precipitation was sparse. A few showers dotted the Southeast and Northeast, and light scattered rains fell in the Northwest. The drought in the Southwest continued. Sunny skies covered most of the Nation over the weekend. There were two exceptions, however. A Pacific front produced light showers from Washington, Oregon, and the northern California coast to the western edge of the northern Great Plains, and a low off the Atlantic coast produced light to heavy rains east of the Appalachians. Almost 6 inches of rain fell at Miami Thursday and Friday. A large area from southeastern California to Wisconsin and Illinois received no rain, except widely scattered light sprinkles. More than 20 weeks have passed with only a few drops of rain at Phoenix, Arizona. Totals over the Atlantic Coastal States ranged mostly from 1 inch to 2 inches. Totals ranged up to about 1 inch from the Pacific coast to the Red River of the North Valley and from none to an inch or so in southern Texas.

TEMPERATURE: Temperatures dropped to below freezing Monday morning, May 15, in the higher parts of the Rocky Mountains. Leadville, Colorado, registered 22 degrees Monday morning. A high pressure prevailed over most of the western two thirds of the Nation. It Weather of the week continued on page 312.

ARMY CUTWORM (Euxoa auxiliaris) - MONTANA - Larvae infested 1,500 acres of winter wheat in Cascade County period ending May 12. Currently larvae 30 per row foot of alfalfa in 80 acres and 20+ per row foot in 200 acres of winter wheat in Stillwater County. Larvae 6 per plant on 3,000 acres of irrigated alfalfa in Madison County. (Pratt). IDAHO - Light to moderate in Canyon County sugar beets, alfalfa, and corn and scattered in Springfield, Bingham County, alfalfa seed field. (Weston et al.). COLORADO - Moths moderate in northeastern areas. Many complaints in homes. (Hantsbarger). KANSAS - Moth collections abundant in light traps in Barton County and few as far north as Phillips County. (Bell).

ARMYWORM (Pseudaletia unipuncta) - MISSISSIPPI - Infestations light to moderate in Tate, Coahoma, Issaquena, and Tallahatchie Counties. (Robinson). TENNESSEE - Larvae light to heavy in small grain in west area. (Johnson). Damage light to severe to barley and grasses in Lincoln County. (Winsett). Damage light to severe to small grain and corn in Franklin County. Destroyed 15-acre cornfield. (Cagle). Destroyed 15 acres of corn in Monroe County. (Mullett). Damaged grain and cotton in Tipton County. (Swindol). KENTUCKY - Larvae up to 9 per stalk of no-till corn in Monroe County. (Barnett, Jordan). Larvae 2 per 100 sweeps of wheat in Hardin County and 1 per 100 sweeps in Hart and Barren Counties. (Barnett et al.). VIRGINIA - Larval damage severe to sod-planted corn in Pittsylvania and Southampton Counties, and damaged wheat in Independent City of Virginia Beach. (Roberts). ILLINOIS - Populations light, ranged 0.1-0.2 per linear foot of wheat statewide. (Ill. Ins. Sur.). WISCONSIN - Moth collections heavier than normal in blacklight trap at Lancaster, Grant County. (Wis. Ins. Sur.). KANSAS - No larvae in wheatfield in Riley County and trace in 1 of 3 fields of bromegrass. Moths numerous in Republic and Brown Counties. (Bell). MISSOURI - Light to moderate, ranged 2-12 per row foot, in wheat and barley statewide. (Houser). Ranged 1-5 per foot in dense stands of wheat in east-central area. Less than 1 larva per foot in thin standing wheat. (Munson).

ASTER LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Spring migrants appeared in Dickey, Sargent, Richland, Ransom, and Cass Counties in winter rye, roadside grasses, and brome-alfalfa fields. (Brandvik). MINNESOTA - Increased to 250+ per 100 sweeps in rye and winter wheat in Dakota, Goodhue, Rice, and Carver Counties. About 4 percent of leafhoppers moving into State carrying aster-yellows disease. (Minn. Pest Rpt.). WISCONSIN - Populations heavier than for several years. (Wis. Ins. Sur.).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Curly-top infection increased in some areas of western Fresno County. Five Points beetfield had 27 percent damage, Cantua Creek fields had 15 percent. Population lighter than 1971; numbers large enough to cause economic damage. Fall-planted beets in western Kings County show 2 percent infection with leafhopper counts of 2 per 10 sweeps. Virus in northwestern Fresno County and southwestern Merced County less than 1 percent. One isolated area near Cantua Creek has some sugar beets where infection ranges 6-9 percent. Light virus infection and light populations in southern part of San Joaquin Valley. Tomatoes and sugar beets in San Benito, Monterey, and Santa Clara Counties not affected. Spinach at West Side Field Station, Fresno County, damaged by curly-top virus. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - ARKANSAS - Larvae appeared in northwest area alfalfa. (Boyer). OKLAHOMA - First larva of season on alfalfa in Garvin County. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Generally light on grain sorghum throughout most central areas. Infestations decreased in many fields in Falls, McLennan, and Hill Counties. Predator and parasite populations increasing rapidly. Lady beetle larvae abundant in Hill County; counts of 2-5 larvae per plant and up to 20 adults per 100 sweeps common. Very light R. maidis populations on grain sorghum in Burleson, Robertson, Milam, and Burnet Counties. (Hoelscher, Green). OKLAHOMA - Averaged 100 per plant in field of 6-inch tall grain sorghum in Bryan County. (Okla. Coop. Sur.). NEW MEXICO - Light on young corn in Chaves County. (Mathews).

GREENBUG (Schizaphis graminum) - NEBRASKA - Ranged 0-8 per 50 sweeps in 8 wheatfields in Lancaster, Saline, Johnson, Nemaha, Otoe, and Cass Counties. (Keith, Berogan). KANSAS - First of season on seedling sorghum in Bourbon and Montgomery Counties. Some foliar mottling seen, but little damage. (Bell). TEXAS - Very light throughout most central counties. Populations held in check by beneficial insects. Greenbug noted in Wilson Community of Falls County, in Ellis County, and from San Gabriel Community of Milam County. Counts of 10 per 100 sweeps in Milam County. (Hoelscher et al.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Adults appearing in alfalfa in southeastern counties. Counts ranged as high as 2 per 25 sweeps in some Kenosha County fields. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEBRASKA - Ranged 0-25 per 100 sweeps in 16 Dawson County fields.(Manglitz). Ranged 3-12 per 100 sweeps in 3 fields in Johnson and Otoe Counties. (Keith, Berogan). KANSAS - Counts per 10 sweeps: 5-15 in 2 Harper County fields, 0-38 in 6 Barber County fields, and 10-15 in 3 Kingman County fields. (Bell). NEW MEXICO - Light on alfalfa in Chaves County. (Mathews).

CORN, SORGHUM, SUGARCANE

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Increased, adults ranged 1-2 per plant, in newly emerged corn in Talbot, Dorchester, and Wicomico Counties. (U. Md.,Ent. Dept.) KENTUCKY - Adults averaged 1.4 per plant on 1.5-inch tall corn in Hart County. (Barnett). ILLINOIS - Damage light in 8-inch tall sweet corn in St. Clair and Madison Counties. (Ill. Ins. Sur.). KANSAS - Light populations and damage on seedling corn in Linn, Greenwood, and Montgomery Counties. (Bell).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - First egg masses of season on weeds and potatoes in Sussex County. Pupation averaged 61 percent. Adults 2-3 per night in blacklight trap collections. (Burbutis). NEBRASKA - Overwintered borers averaged 5,025 per acre in 12 Hall County fields. Current population 3.35 times heavier than normal. Winter mortality estimated at 97 percent. (Keith et al., May 9).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI - Larval survival heavier than normal in Mississippi County. Pupation 20 percent. (Langille).

A CORN BLOTCH LEAFMINER (Agromyza parvicornis) - FLORIDA - Severe on 300 acres of sweet corn and moderate on 400 acres in Baker County. (Collins, Dekle).

SMALL GRAINS

WHEAT STEM MAGGOT (Meromyza americana) - OKLAHOMA - Damage light to wheat in Kiowa and Washita Counties. (Okla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - TENNESSEE - Damage ranged 10-15 percent in wheat in McMinn County. (Mullett).

WIREWORMS - WASHINGTON - Larvae heavy on 5 of 10 acres of wheat near Ephrata, Grant County. Larvae feeding within stalks and up into crowns. Worst infestation reported in several years for area. (Kulp, Foeppel).

FALSE WIREWORMS (Eleodes spp.) - SOUTH DAKOTA - Larval counts of 1-2 per square foot of winter wheat near Ideal, Tripp County. Some damage observed. (Calkins, Ortman).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Adults, up to 100 per 100 sweeps, migrated into winter rye in Cass, Ransom, Richland, Sargent, and Dickey Counties. (Brandvik).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Damage moderate to severe to small grains in dryland areas of San Juan County. (Jones, Knowlton).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VERMONT - Present in Chittenden and Addison Counties. Expect populations to be below economic levels in most areas. (Nielson, May 10). NEW JERSEY - Larval feeding significant in many southern fields. Most damage since 1968. (Ins.-Dis. Newsltr.). DELAWARE - Larvae ranged 3-50 per sweep and damage light to moderate in alfalfa in most areas. (Burbutis). PENNSYLVANIA - Adults and larvae heavy in Cumberland County. (Bierlein). MARYLAND - Pupation underway statewide. Heaviest damage in Washington, Frederick, and Carroll Counties. Tip damage ranged moderate to heavy (40-90 percent) in most fields. (U. Md., Ent. Dept.).

KENTUCKY - H. postica larval counts of 20 per 100 sweeps and defoliation 30 percent in Bullitt County alfalfa. Larvae 100 per 100 sweeps and adult foliage damage 30 percent in Nelson County. Larval counts of 4,000 and 1,500 per 100 sweeps noted in 2 Hardin County fields. (Barnett). OHIO - Light to moderate in Butler, Clark, Hamilton, and Madison Counties. Pupation underway in eastern Butler County. Percent damage by county per plant: 2-4 in Clark, 5-25 in Madison and Hamilton Counties, and 20-60 in Butler. (Fox). INDIANA - Feeding declined in portions of southern area. Little activity expected for western half of central districts. (Meyer). ILLINOIS - Larvae in untreated alfalfa averaged 8 per sweep in Hancock and McDonough Counties. Averaged 15 per sweep in Menard County. (Ill. Ins. Sur.). MINNESOTA - Egg hatch

spotty in Dakota, Rice, Goodhue, and Carver Counties. (Minn. Pest Rpt.). IOWA - Larvae per 100 sweeps of alfalfa by county: 78 Lee, 74 Des Moines, and 200 Louisa. (Iowa Ins. Sur.). KANSAS - Pupation near complete in southern counties. Some small larvae found in regrowth alfalfa in Coffey County. Pupation beginning in central district as far north as Saline County. Larvae moderate in Wabaunsee, Riley, and Pottawatomie Counties. (Bell).

ARKANSAS - H. postica ranged 700-800 per 100 sweeps of alfalfa in experimental field in Washington County. (Boyer). OKLAHOMA - Adults heavy in alfalfa in Washita County and light in Beaver, Garfield, and Washington Counties. Adults ranged 5-53 per 10 sweeps and larvae ranged 6-19 per 10 sweeps in alfalfa in Alfalfa County. Adults and larvae light in vetch in Kay and Garvin Counties. (Okla. Coop. Sur.). UTAH - Injury conspicuous in Moab, Grand County, and Bluff, San Juan County alfalfa. (Jones). NEVADA - Larval counts per sweep of alfalfa hay fields by county: Douglas 10; Pershing 22-100; and Humboldt 35-40. (Martinelli et al.).

ALFALFA SNOUT BEETLE (Brachyrhinus ligustici) - NEW YORK - Adults ranged 8-10 per square foot in alfalfa in Wayne County. Adults feeding on crowns of alfalfa and moving across highways. Few larvae noted. (York, Gyrisco).

BEAN LEAF BEETLE (Cerotoma trifurcata) - NEBRASKA - Unusually abundant, adults 40 per 100 sweeps, in Johnson County alfalfa field. (Berogan, Keith).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - OHIO - One adult per 50 sweeps in Butler County alfalfa; found on clover and timothy mixture in Clark County. (Fox).

ALFALFA BLOTCH-MINER (Agromyza frontella) - NEW JERSEY - Moderate feeding on alfalfa near Mount Holly on May 15 and as many as 50 punctures per leaf in several Burlington County fields on May 16. (Ins.-Dis. Newsltr.).

SEEDCORN MAGGOT (Hylemya platura) - WASHINGTON - Larvae feeding inside roots and stems of alfalfa. Damage 60-90 percent; may need reseeding at Pasco, Franklin County. (Rogers et al.).

PEA APHID (Acyrthosiphon pisum) - NEBRASKA - Ranged 40-280 (averaged 150) per 100 sweeps in 16 Dawson County fields. (Manglitz). NEW MEXICO - Ranged 50-100 per 25 sweeps on alfalfa in Chaves County. Most fields cut for first time. (Mathews).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Spittle masses evident with heaviest counts in southwestern counties. Some fields average 20+ per square foot. (Wis. Ins. Sur.). KENTUCKY - Larvae heavy on alfalfa in central areas, light in northeast, and adults heavy in southern areas. (Barnett).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Light to moderate, larvae 2-6 per square foot, in alfalfa in southeast area. (Munson).

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - OKLAHOMA - First of season in alfalfa in Garvin County. (Okla. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - Count of 56 weevils per acre in one field, no live weevils in two fields of seedling cotton in southern areas. (Womack). ALABAMA - Adults occurred on cotton earlier and in greater numbers than in 1971 and 1970. (McQueen).

THRIPS (Frankliniella spp.) - OKLAHOMA - Averaged 1 per linear foot on young cotton in Webbers Falls area of Muskogee County. (Okla. Coop. Sur.). TEXAS - Continued heavy in untreated fields in counties surrounding Erath. Populations light in Burleson, Robertson, and Milam Counties. Thrips damaged some cotton in Ellis, Kaufman, Fannin, and Dallas Counties. (Hoelscher et al.). ALABAMA - Damage by F. fusca and other thrips severe in several untreated cotton fields in Monroe and Dallas Counties. (McQueen).

COTTON APHID (Aphis gossypii) - ALABAMA - Damage severe in untreated cotton in Henry, Covington, and Monroe Counties. (McQueen).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Overwintered adults more numerous than in 1971; many killed before oviposition occurred. Egg masses generally distributed but no hatching observed. Noticeable larval feeding should occur within the next 10 days in Accomack and Northampton Counties. (Hoffmaster).

BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - WASHINGTON - Adults damaged peas throughout Whitman County. (Retan, Johansen). Adult collected at Toppenish, Yakima County. (Togashi). Adults in trap pans at Walla Walla, Walla Walla County. This is a new county record. (Landis). IDAHO - Late April and early May feeding restricted to legumes before peas emerged. Populations heavy; damaged entire fields in Latah County. Control treatments needed in most pea and some lentil fields. Adults feeding in Nez Perce County. This is a new county record. Controls necessary. (Futter et al.).

CUCURBITS

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ALABAMA - Adults ranged 4-6 per hill of young watermelon plants in Tallapoosa County. Damage economic. (Henderson).

DECIDUOUS FRUITS AND NUTS

GREEN PEACH APHID (Myzus persicae)- UTAH - Heavy and curling peach foliage at Moab, Grand County, (Judd); also damaging at Blanding, San Juan County. (Jones).

BLACK CHERRY APHID (Myzus cerasi) - UTAH - Curling sweet cherry foliage at Moab, Grand County. (Judd, Jones). Some emergence noted in Davis, Salt Lake, and Tooele County orchards. (Burningham).

MEALY PLUM APHID (Hyalopterus pruni) - CALIFORNIA - Nymphs and adults 25 per leaf on apricot at Fresno, Fresno County. (Cal. Coop. Rpt.).

GRAPE MEALYBUG (Pseudococcus maritimus) - OREGON - Crawlers appeared on pears first week of May in Valley View area, Jackson County. Increasing range within county. (Berry).

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) - OREGON - First emergence at The Dalles, Wasco County, May 14. (Thienes).

MCDANIEL SPIDER MITE (Tetranychus mcdanieli) - OREGON - Found for first time in north Medford area, Jackson County. Locality 10 miles from initial find at Talent in 1971. (Berry).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Increased on fruit and nut trees in several central counties. Heaviest infestations in Milam and Burleson Counties. (Green).

A NOCTUID MOTH (Xylomyges curialis) - CALIFORNIA - Larvae 5 per limb on almond trees at Chico, Butte County. (Cal. Coop. Rpt.).

CITRUS

Insect Situation in Florida - Mid-May - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 74 (norm 61) percent of groves; economic in 54 (norm 41) percent. Population expected to decrease, will remain above normal and in high range. New fruit will develop important infestations by mid-June in many groves. Highest districts south, west, and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 45 (norm 49) percent of groves; economic in 25 (norm 26) percent. Population will advance into high range, but not expected to exceed normal abundance for June. Highest districts central, south, and east. CITRUS RED MITE (Panonychus citri) infested 31 (norm 51) percent of groves; economic in 5 (norm 25) percent. Much below normal abundance and expected to remain in low range despite June increase. Highest district central. GLOVER SCALE (Lepidosaphes gloverii) infested 79 (norm 83) percent of groves; economic in 4 (norm 4) percent. Although most numerous scale on citrus, infestations are lighter and fewer than in any May since 1963. Slight increase expected. Highest district west. PURPLE SCALE (L. beckii) infested 76 (norm 80) percent of groves; economic in 5 (norm 10) percent. Little change expected from current moderate and subnormal level. Highest district north. CHAFF SCALE (Parlatoria pergandii) infested 60 (norm 61) percent of groves; economic in 1 (norm 9) percent. Population below normal and in low range in all districts. Slight increase predicted. YELLOW SCALE (Aonidiella citrina) infested 41 (norm 62) percent of groves; none economic (norm 7 percent). Will remain below normal and in low range despite predicted increase.

BLACK SCALE (Saissetia oleae) infested 41 (norm 26) percent of groves; economic in 23 (norm 10) percent. Population above normal and expected to increase to high level in early June. Highest districts east and central. AN ARMORED SCALE (Unaspis citri) infested 32 percent of groves; economic in 21 percent. Will continue to spread and intensify. WHITEFLIES more numerous than normal. Larval stage, which is most destructive form, is in high range and further increase expected. Highest districts central and west. MEALYBUGS appeared in 23 percent of groves, which is near normal. Strong increase predicted. (W.A. Simanton (Citrus Exp. Sta. Lake Alfred)).

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - CALIFORNIA - Larvae damaging citrus trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

SMALL FRUITS

MEADOW SPITTLEBUG (Philaenus spumarius) - MICHIGAN - Unusually heavy, as many as 6 nymphs per stem, in several southwestern area strawberry plantings May 16. Wet, humid weather favored nymphal survival. Spittle masses forming but still time for control. (Thompson).

FOREST AND SHADE TREES

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Overwintering second-instar larvae feeding on jack pine needles in east-central area. Winter survey collections, as well as early larval checks, indicate populations reduced in Pine County from 1971. At this time, no controls expected in 1972. (Minn. Pest Rpt.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - COLORADO - Abundant, 5 galls per 40 twigs, at Fort Collins, Larimer County. Most numerous in 4 or 5 years. (Thatcher).

PINE SPITTLEBUG (Aphrophora parallela) - MISSISSIPPI - Light to moderate on loblolly pine statewide. Ranged 2-3 per tree in Grenada and Montgomery Counties. (Killebrew).

CONIFER SAWFLIES (Neodiprion spp.) - MICHIGAN - First-instar larvae of N. sertifer (European pine sawfly) appeared May 16 at East Lansing, Ingham County. (Wellso). VIRGINIA - Feeding damage by N. pratti pratti less than predicted, primarily due to early hatch and cool temperatures. Following exotic parasites of N. pratti pratti released in Caroline County May 4-10: Exenterus amictorius and Pleolophus basizonus (ichneumons) and Monodontomerus dentipes (a torymid wasp). (Va. For. Pest Sur.). TENNESSEE - N. taedae linearis larvae caused light to severe defoliation of 1971 needles in many counties. (Winsett et al.). Larvae observed in small stand of pine in Tipton County and on pines in Haywood County for new county records. (Gordon).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Hatch noted May 11 in Littlefork and International Falls area. Ninth consecutive annual defoliation expected for Koochiching County and portions of adjacent counties. Light in Lake of the Woods, Beltrami, St. Louis, Itasca, and adjacent counties where some spotty heavy outbreaks may occur. Small infestation expected to continue near Clitherall and Battle Lake in Otter Tail County, but appears populations may be stable or reduced from 1971.

Infestation adjacent to Lobster Lake in Douglas County expected to spread. (Minn. Pest Rpt.).

WESTERN TENT CATERPILLAR (Malacosoma californicum) - COLORADO - Tents are twice as numerous as during 1971 in Larimer County, about 4 times as numerous as in 1970. Could become epidemic in 1974. (Thatcher).

A LEAFMINING WEEVIL (Odontopus calceatus) - WEST VIRGINIA - Adult damage heavy to 90 percent of foliage of most yellow-poplar in Clay County. (W. Va. Ins. Sur.).

PERIODICAL CICADAS (Magicicada spp.) - TENNESSEE - Adults of M. tredecim (13-year race) emerged in Davidson, Lincoln, Sumner, Trousdale, and Williamson Counties. (Gordon, Williams). SOUTH CAROLINA - M. septendecim (17-year race) emergenced in York County (Fant), and in McCormic, Abbeville, and Edgefield Counties (McCaskill). ALABAMA - M. septendecim adults emerged in Madison, De Kalb, Etowah, Tallapoosa, Lee, Blount, Lawrence, Marengo, Lowndes, Colbert, St. Clair, Tuscaloosa, Perry, Wilcox, Monroe, Montgomery, and Shelby Counties.(Magnusson et al.). Emergence heavy and widespread in Montgomery County. (McCabe). MISSISSIPPI - M. septendecim emergence noted in many areas of State. (Robinson). MISSOURI - First M. septendecim of season noted in Phelps County. (Munson).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 500-600 per head on cattle and averaged 3,000 per head on 3 bulls in Payne County. Ranged 400-900 per head in Alfalfa County. Heavy in Craig and Washington Counties; moderate in Cotton, Beaver, and Wagoner Counties. (Okla. Coop. Sur.). TEXAS - Increased on cattle in several Rolling Plains counties. (Boring). ALABAMA - Increasing on beef cattle in Wilcox County. (Farquhar).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 3 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.). MARYLAND - Adults ranged 3-10 per head on dairy cattle in Baltimore, Frederick, and Harford Counties. (U. Md. Ent. Dept.).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Averaged 3 per head on cattle in Lake Carl Blackwell area of Payne County. T. lineola (striped horse fly) most common, with few T. americanus and T. abactor noted. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Moderate to heavy on cattle in Craig, Wagoner, and Marshall Counties. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

A LADY BEETLE (Coleomegilla maculata) - OHIO - Adult counts per 50 sweeps by county Madison 1 (wheat); Clark 1-2 (wheat), 2-3 (clover and timothy mixture), 2-3 (alfalfa); Hamilton 3 (wheat); Franklin, 1 per 8-10 grape plants. (Fox)

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Eggs in oats 3-4 inches tall at rate of 0.4-0.8 per stem in several fields in north-central district. Adults 17-20 per 100 linear row feet in oats. Adults moving from wheat to oats. (Gutierrez, Shade). OHIO - Counts per square foot in Fairfield County wheat: Eggs 300-500, larvae 120; adults 610 per 100 sweeps. Larvae light in Clark, Hamilton, and Ross Counties. Damage 5 percent or less. Expect infestation of oats soon. (Fox et al.). WEST VIRGINIA - Eggs averaged 6 per square foot in oats and larvae 3 per square foot. Adults abundant and laying eggs. Mostly early instars in oats and late instars in wild grass in Mason County. (W.Va. Ins. Sur.). TENNESSEE - Larvae collected from oats in Pickett County May 9, 1972, by C.D. Gordon and J. Hammett. This is a new State record. Larvae collected from wheat in Macon County May 10 by B. Cole and A. Morris, and on wheat in Clay County May 11 by W.E. Jennings and L.C. Greene. These are new County records. Determinations by C.D. Gordon and V.H. Owens; confirmed by R.E. White. (Gordon).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Five larvae collected from lawn turf of residence in Mount Vernon, Skagit County, May 5, 1972, by R.W. Rosander. Determined by R.J. Gagne. First larval infestation in Skagit County. (PP).

GRASSHOPPERS - OKLAHOMA - Nymphs ranged 200-300 per square yard on rangeland in Kiowa and Washita Counties. Heavy in northeast Beaver County. Ranged 5-10 per square yard in alfalfa in Lincoln County. (Okla. Coop. Sur.). NEVADA - On rangeland nymphs of Oedaleonotus enigma averaged 8 per square yard on 1,000 acres in Elko County and ranged 5-60 per square yard on 1,200-1,400 acres in Kings River Valley. Melanoplus sanguinipes and M. bivittatus ranged 1-45 per square yard on 1,200 acres of abandoned cropland and rangeland at Orovada, Humboldt County. M. bivittatus, M. sanguinipes, and Aulocara elliotti ranged 10-50 per square yard on 1,000 acres of newly cultivated and abandoned cropland in northern half of Kings River Valley, Humboldt County, and 15-25 per square yard on 1,500 acres of newly cultivated and abandoned cropland in southern half of county. (Martinelli et al.). OREGON - Grasshoppers appearing on eastern area rangeland. (Goeden et al.). WASHINGTON - First and second-instar nymphs up to 4 per square yard in Steptoe and Wawai Canyons, near Pullman, Whitman County. Examination of egg pods reveals hatching just begun. (Jackson).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - Egg hatch general throughout the State. (Relli).

RED IMPORTED FIRE ANT (Solenopsis invicta) - GEORGIA - Collected in Jenkins County April 4 by H.L. Quatlebaum. TEXAS - collected in Marion County March 27 by B.J. Tapscott. Determinations by V.H. Owens. These are new county records. Confirmed by D.R. Smith. (PP).

New State Record - Specimens of a MESOSTIGMATIC MITE (Hypoaspis nidicorva) collected from rats at Kilauea Forest Reserve and Hawaii Volcanoes National Park, Hawaii, on August 1, 1971, by F. Radovsky; additional collections through January 1972. Determined by F. Radovsky. Reported from England. (Kawamura).

General Vegetables - SWEETPOTATO LEAFMINER (Bedellia orchilella) larval mines remain heavy in 4 acres of sweetpotato at Hoolehua, Molokai. (Fujimoto).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) and MONKEYPOD MOTH (Polydesma umbricola) abundant under debris at bases of monkeypod and opiuma trees at Barbers Point, Oahu. Larvae of M. indomita noted under loose, scaly bark of 40 monkeypod trees at Lahaina; defoliation 40-95 percent on Maui. Damage heavy to same host, as much as 90 percent defoliation. (Funasaki, Miyahira).

Man and Animals - Mosquito collections during April from 59 light traps on Oahu totaled 1,604 Aedes vexans nocturnus (vexans mosquito) and 3,609 Culex pipiens quinquefasciatus (southern house mosquito). Aedes ranged 0-436 per trap at Kahaluu. Culex ranged 0-408 per trap at Kaneohe. (Mosq. Contr. Br., State Dept. of Health).

Beneficial Insects - On Kauai, cowpea and snap bean material infested with BEAN FLY (Melanagromyza phaseoli) continues to be heavily parasitized by braconids (Opius phaseoli and O. importatus); parasitism ranged 50-100, averaged 91, percent. Cowpea material collected at Kekaha and Pakala parasitized lightly by a pteromalid wasp (Halticoptera patellana). In cooler areas of Pukalani and Kula damage negligible. Remains negligible in all commercial plantings of snap beans on Oahu. (Sugawa, Miyahira).

DETECTION

New State Records - CEREAL LEAF BEETLE (Oulema melanopus) - TENNESSEE - Pickett County. (p. 309). A MESOSTIGMATIC MITE (Hypoaspis nidicorva) - HAWAII - Hawaii Island. (p. 310).

New County Records - CEREAL LEAF BEETLE (Oulema melanopus) TENNESSEE - Macon, Clay (p. 309). A CONIFER SAWFLY (Neodiprion taedae linearis) TENNESSEE - Tipton, Haywood (p. 307). PEA LEAF WEEVIL (Sitona lineatus) WASHINGTON - Walla Walla; IDAHO - Nez Perce (p. 305). RED IMPORTED FIRE ANT (Solenopsis invicta) GEORGIA - Marion (p. 309).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege comptalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
FLORIDA																							
Gainesville 5/12-18			BL	2	13			8		1											4		
ILLINOIS																							
Rochelle 5/9-5/15			BL														1	55					
KANSAS																							
Colby 5/8			BL	2		7	4										4	4					
Great Bend 5/10-16			BL	23		625	45										145	180					
KENTUCKY																							
Bowling Green 5/16,17			BL															4					
MICHIGAN (County)																							
Lenawee 5/10-14			BL															33					
MISSISSIPPI (County)																							
Jeff Davis 5/12-18			BL	6				7		2				1				52			7		
Oktibbeha 5/12-18			BL	2				1									1	8			2		
Washington 5/12-18			2BL	63	1			3	1	10							138	646			7		
MISSOURI																							
Portageville 5/12-18			BL	2													3	8					
NEBRASKA																							
Concord 5/11			BL	1													4	13					
Lincoln 5/18			BL	14		2											16	54					
OHIO																							
Reynolds 5/15-5/17			BL	4														3					
Wooster 5/12-5/18			BL	15													2	275					
OREGON																							
East Salem 5/13-17			BL	1													2						
TENNESSEE																							
Dyer 5/15-19			BL	5	8											1	15	6				1	
Franklin 5/15-19			BL		2					1						15		39			1	2	
Hardeman 5/15-19			BL	8	6			12								4	4	29			2	1	
Haywood 5/15-19			BL													17		11				1	
TEXAS																							
Waco 5/11-18			BL	20				22		26							9	8	2		20	2	

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, Hg = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia prunivora (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
VIRGINIA																								
Holland 5/11-16			BL	1													1		5					
Montgomery 5/10-18			BL	12													2		112					

Weather of the week continued from page 300.

brought clear skies that favored radiation at night and rapid warming by day. Southerly breezes and bright sunshine pushed afternoon temperatures into the 80's and the 90's over much of the Great Plains. Devils Lake, North Dakota, warmed to 90 degrees Tuesday and to 91 degrees Wednesday. Flagstaff, Arizona, cooled to 34 degrees Tuesday morning. Hot weather was the rule over the southwestern deserts with maximum temperatures near 100 degrees. Blythe, California, recorded 104 degrees Monday and 103 degrees Tuesday. Nighttime temperatures were balmy over the Great Plains, ranging from the 50's to the 60's. The lowest temperature at Fargo, North Dakota, Wednesday morning was 61 degrees. Wednesday afternoon was extremely pleasant. The mercury at International Falls, Minnesota, climbed to 93 degrees, the warmest of record for so early in the spring. Warm weather over the Great Plains continued through Sunday with maximums in the high 80's and low 90's. Warm weather spread eastward to New England by Sunday. Concord, New Hampshire, registered 86 degrees Sunday afternoon.

Preparation of Notes for Cooperative Economic Insect Report

The report is organized on a principal crop basis. This format is designed to make the material more accessible and readable. It is hoped this approach will also stimulate greater participation by pointing out lack of reporting on individual crop problems. Efforts will continue to be made to evaluate and present the information in ways to make it more useful in insect control.

Forecasting statements will be developed wherever field reports support such action. Reporters are encouraged to include this important information in their notes. The Cooperative Economic Insect Report will focus on the important insect problems of a regional and national nature. Notes on routine insect occurrence will be kept to a minimum. Routine notes submitted on common insects will be added to the Scientific Record System as warranted, however.

The following guidelines are suggested for preparation of notes. It is realized that all of the information outlined will not be available in each situation, but give the following information when possible.

1. Common (if available) and scientific name of species involved. Stages of insect involved. (If a taxonomic problem exists, it should be noted).
2. Location (definite, recognized area within state, such as region, county or town), date, name of observer or reporter. If note is for period other than current reporting period, give date of observation.
3. Host involved, scope and extent of infestation in number of acres, trees, animals, etc. Also stage of host.
4. Quantitative evaluation of infestation according to recognized survey methods. Where such methods are not available, give numerical data such as number per linear foot, per plant, per sweep or per animal. These data should be based on a representative sampling. An adjectival rating should be accompanied by a numerical rating.
5. Estimation of extent of injury or damage.
6. Comparisons with previous infestations, outlook or predictions for future infestations, unusual influences.
7. Status of natural or applied control.
8. When reporting new State, United States, or North America records include the above information insofar as applicable, as well as name of taxonomist making determination.

Examples of notes including these data are as follows:

EUROPEAN RED MITE (Panonychus ulmi) - Egg populations have reached point where protective sprays are warranted in 10 percent of apple orchards in Knox County. Counts on June 30 showed 0 to 4.8 live mites per leaf and 0 to 37.6 eggs per leaf. Further increase and spread expected with continued favorable weather. (Jackson, July 2).

EUROPEAN CORN BORER (Ostrinia nubilalis) - Oviposition and hatch practically complete in central counties. Fifty egg masses per 100 stalks in northwest area. In southern counties, all corn 35 inches or taller, 70 to 100 percent infested with 2 to 22 larvae per stalk. Larvae from first to third instar. (Smith).

Measuring Insect Infestations

You are aware of the increasing need for more adequate means for measuring insect populations. As you know, survey methods are available for about 80 pests. Limitations of some of these methods are recognized, but they do give a common language. What can be done about the many economic species for which survey methods have not been developed? With a little effort, we believe a lot can be done by simply making counts or numerical estimates if actual measurement is not possible or practical.

A review of the "Cooperative Economic Insect Report" will show that much survey information is reported in indefinite terms: Heavy, light, medium, moderate, rather heavy, considerable, troublesome, etc. It would seem that many of these abstract evaluations could be stated in definite terms such as insects per square foot, per square yard, per sweep, per plant, per animal. There is also a great need for more concrete information on insect damage. Compare the following reports on the same condition: "Approximately 40 percent defoliation in a 100-acre grove." "Heavy defoliation in one large grove."

The use of more numerical evaluations in insect survey would greatly improve communications between entomologists and others interested in survey results. Such evaluations would also make the data much more useful for records purposes.

We ask your help in improving the quality of reports on insect populations and their damage. We are aware that only through more research can we have better methodology in measuring insect populations and damage. Adequate research in this area is not likely to be forthcoming in the foreseeable future, however. In the meantime, we believe there are some constructive steps that can be taken to improve the existing situation.

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