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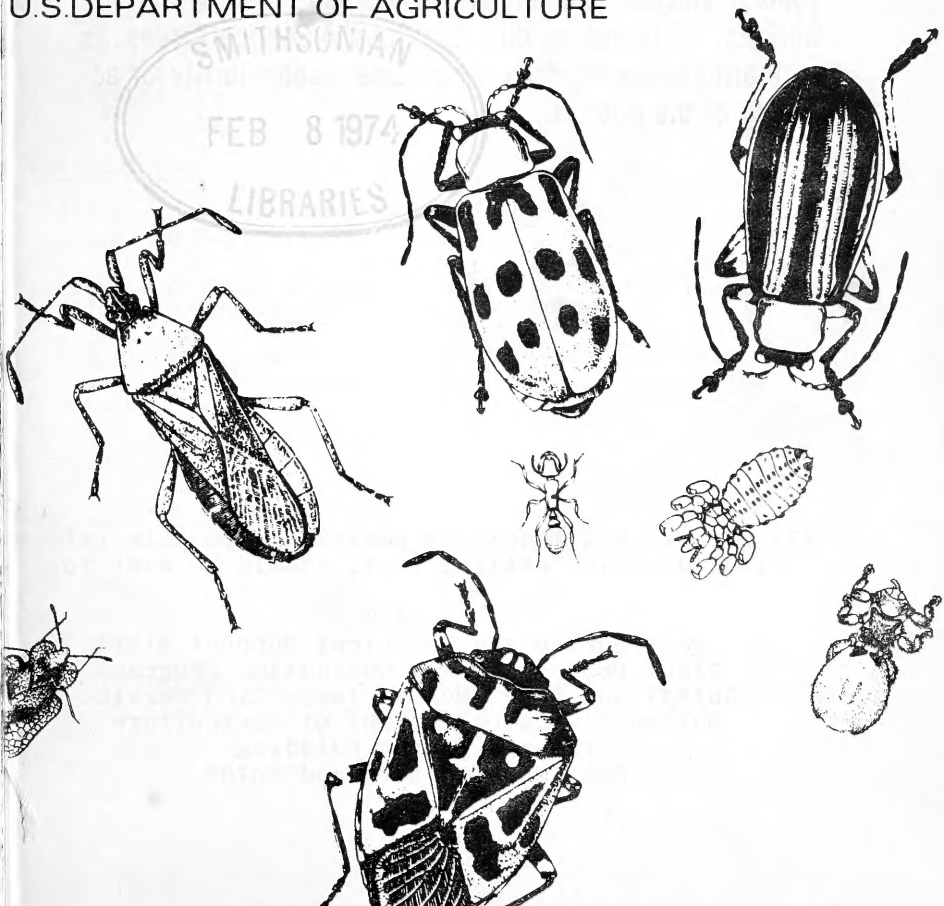
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Cooperative Economic Insect Report

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PLANT PROTECTION AND QUARANTINE PROGRAMS
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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG active in small grains during late December and early January in Kansas, Oklahoma, and Texas. Populations variable; some damage and some controls reported in Texas. (pp. 3-4).

FALL WEBWORM adults collected in Florida; first report of season. (p. 7). Extensive SUBTERRANEAN TERMITE flights observed in New Mexico during mid-January. (p. 10).

Detection

New State records include an APHID in Oklahoma (p. 10); a BRACONID WASP (p. 10) and a LIMACODID MOTH (p. 7) in Alabama; an ERIOPHYID MITE (p. 7) and a EULOPHID WASP (p. 10) in New Mexico; a LOUSE FLY in Oregon (p. 9); a SPIDER MITE in Pennsylvania (p. 7); and SPRING CANKERWORM in Idaho (p. 8).

For new county records see page 11.

Special Reports

The 1974 outlook for GRASSHOPPERS based on the 1973 adult survey. See centerfold map.

A List of the Aphids of Staten Island, New York, (Homoptera: Aphididae). (pp. 12-18).

● Insect Detection in the United States. Fifteen new United States records reported. (pp. 19-27).

Reports in this issue are for weeks ending December 21, 1973, through January 18, 1974, unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JANUARY 21

PRECIPITATION: Most of the Nation received only light precipitation during the week. Precipitation amounts of 0.80 inch or more were limited to two general areas: An area from the Great Lakes to the gulf and in the western tier of States. No measurable precipitation fell over most of the Plains States, southern Arizona, New Mexico, and southwestern Texas, and parts of Florida, Virginia, and Maryland. The week began with a large High pressure system located over Washington, D.C., which kept the east coast clear. Most of the precipitation was confined to a 10-State area stretching from the Carolinas to the Texas gulf coast and Pacific Northwest. Rainfall amounts were excessive in parts of Mississippi and Texas as 2 inches or more fell: Houston, Texas, 3.04 inches. Another storm moving into the Pacific Northwest dropped 1 to 4 inches of moisture from San Francisco northward. Tuesday, precipitation was light and scattered in the Southeast except at Houston which received another 1.03 inches of rain. The storm in the Pacific Northwest continued to intensify, dropping another 2 to 4 inches. Wind gusts topped 80 m.p.h. at Cape Blanco, Oregon. Strong winds lashed the Pacific coast from central California northward. Wednesday, precipitation was confined to the western tier of States and the New England area. High coastal winds continued in the West due to the combination of two Lows in southwestern Canada and a High over Colorado. Wind gusts at Livingston, Montana, reached 83 m.p.h. Rains of 2 to 5 inches fell within 12 hours in southern Oregon aggravating the already serious flood conditions. Late Wednesday, rains finally subsided in the Northwest. Most of the precipitation which fell over New England was in the form of snow. Precipitation was scattered but very light across the Nation on Thursday. However, by Friday, major rainfall patterns had developed and heavy rains fell through Texas and Louisiana, the Ohio River Valley, New England, and another major storm system was moving into the Pacific Northwest. Heavy rains in the Northwest continued through Saturday. Friday and Saturday considerable rain and freezing drizzle caused glaxed highways in many North Atlantic States. Thunderstorms were heavy and severe at times in the southeastern Plains and lower Mississippi River Valley. Record fog conditions have existed at Shreveport, Louisiana, since the first of the year. Visibilities have remained less than 3 miles and only. Weather of the week continued on page 28.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Heavy on wheat 10-12 inches tall near Marlin, Falls County, week ending January 11; ranged 2-300 per row foot. (Wood).

GREENBUG (Schizaphis graminum) - ARKANSAS - Light, less than 100 in 100 sweeps, in wheat in Washington County week ending December 21. No parasites found, probably due to colder temperatures; however, parasitized aphids present. (Boyer). KANSAS - Due to protection of snow cover, populations in heavily infested wheat in Morton and Stanton Counties remained nearly stable since last surveys made in mid-December. About one percent of greenbug population dead in these fields. (Bell).

OKLAHOMA - Greenbug counts per linear foot in wheat during week ending December 22 ranged up to 500 in Greer County, 300 in Kiowa, Jackson, and Harmon Counties, 250 in Tillman County, and 50-150 in Canadian County. Continued moderate to heavy in west-central counties. Light in Beaver and eastern Texas Counties, but 500-1,000 per linear foot in scattered fields in Texas County, and 2,000-4,000 in some fields west of Keyes, Cimarron County. Fields near Keyes sprayed about 30 days ago. Counts per linear foot in wheat ranged 5-10 in Cimarron and 2-7 in Mays Counties week ending December 29. Averaged 30 per linear foot in wheat checked in Kiowa County week ending January 4; some live aphids reported under ice in Washita County. Ranged 25-200 per linear foot in wheat in Kiowa County, 25-100 in Jackson County, and 20-40 in Greer County week ending January 18. Ranged 15-30 per linear foot in Tillman County with parasites common. Moderate to heavy in Comanche County, averaged 50 per linear foot in Harmon County. Up to 400 per linear foot noted in Washita County but only about 80 in most fields. Ranged 0-10 per linear foot in most fields in Texas County. One field ranged 500-600 per linear foot December 2, currently ranged 30-35. (Okla. Coop. Sur.).

TEXAS - Greenbug generally heavy on small grains throughout most panhandle counties during period December 9-21; most fields in area treated. Several dryland fields, usually small wheat, abandoned in central panhandle area due to drought and greenbug damage. (Daniels). Increased activity noted in small grains throughout Rolling Plains area; infestations continued light to moderate in most fields. Some controls applied in Motley, Childress, Knox, and Stonewall Counties. Populations well below damaging levels in most fields week ending December 21. S. graminum generally light in other areas of State. Populations in small grains about same or decreased slightly in most Rolling Plains counties during period December 24 through January 4. In heavily infested fields, greenbug counts of 150-200 per row foot found. In many of these fields 6-15 percent of greenbugs parasitized. Populations in High Plains ranged light to heavy but generally remained static during week ending January 11 due to cold weather. Scattered moderate to heavy populations damaged small grains in north-central and High Plains areas during week ending January 18. Parasitic wasps, nabids, and spiders observed in many fields. (Boring et al.).

NEW MEXICO - Greenbug populations persisted in many small grain fields week ending January 4 in spite of control efforts. In some cases, counts ranged up to 100-300 per linear foot in Curry and Roosevelt Counties. Still present on wheat in Curry, Roosevelt, and Chaves Counties week ending January 11. Up to 100+ per linear foot noted in some fields. (N.M. Coop. Rpt.). ARIZONA - Light in some winter oats at Stewart district, Cochise County, week ending January 11. (Ariz. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Very light on alfalfa at Gainesville, Alachua County, January 7. Averaged 17 per 100 sweeps, apparently due to subfreezing weather in December. (Fla. Coop. Sur.). CALIFORNIA - Prevalent in alfalfa in Imperial County week ending December 21 and required treatment. (Cal. Coop. Rpt.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - During 1973 fall survey, 381 larvae collected and examined by J.V. Maddox for incidence of microsporidiosis disease; 21 percent of larvae infected. Infection heaviest in northwestern counties and districts where borer populations also heaviest. Incidence of microsporidiosis heaviest (89 percent infection) in Adams County which had heaviest borer population of 658 per 100 plants. The west district, which had heaviest district borer population of 246 per 100 plants, also had highest percent of microsporidiosis infection of 63. (Ill. Ins. Rpt.).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI - Corn in southwest district surveyed during September 1973. Percent infestation (and percent stalks girdled in parentheses) by county as follows: Butler 35.2 (12.8), Cape Girardeau 24 (6.4), Dunklin 45.6 (13.2), Mississippi 43.2 (17.6), New Madrid 43.2 (15.2), Pemiscot 15.2 (1.0), Scott 53.6 (20.8), Stoddard 23.2 (5.6). (Munson).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Soil samples collected from 230 fields in late September 1973 for indexing egg numbers have been processed. From each field, 10 soil samples of 2.25 inches in diameter by 2 inches deep collected from corn rows by systematic pattern that compensated for field size. Indexing of eggs accomplished by pooling and mixing 10 samples from each field. One-pint subsample removed and mixed with 1.5 M sucrose solution in floating trap flask. Mixture stirred frequently for 30 minutes, allowed to stand for 15 minutes. Trap closed, egg-bearing supernatant poured through series of screens. Eggs collected on 60-mesh sieve, backwashed onto black cloth, and counted. State average count was 6.23 eggs per pint, a 4-fold increase over 1972 average. Heaviest increase was 7-fold in south-east district. Counts of 0-5 per pint considered noneconomic, 6-15 per pint intermediate, and 16+ per pint heavy or potentially damaging. High counts were indexed in 20 counties, intermediate counts in 13 counties. Noneconomic counts indexed in Grant, Iowa, Lafayette, Crawford, and Richland Counties in southwest district. This area historically has had counts comparable to south-central and west-central districts. Average counts by district as follows: Northwest 1, north-central zero, northeast 0.3, west-central 9.3, central 4, east-central 5.7, southwest 3.1, south-central 8.5, and southeast 12.3. (Wis. Ins. Sur.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Counts per linear foot in wheat ranged 1-5 in Cimarron County and averaged 4 in one Mays County field week ending December 29. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Remained light in most small grains in Rolling Plains area week ending December 21. Light to heavy in Falls and McLennan Counties. Caused some graying of leaf surfaces. Ranged 6-20 per row foot of small grain in Archer, Baylor, and Foard Counties week ending January 4. (Boring, Hoelscher). OKLAHOMA - Averaged 300 per linear foot in wheat in Kiowa County, light in west-central counties week ending December 22. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus leucopterus) - INDIANA - Adults taken in only 6 of 23 sites during annual 1973 fall survey as follows: Benton County 2, Jay County 3, Blackford County 1. All noneconomic. (Meyer).

A SATURNIID MOTH (Hemileuca nevadensis) - OKLAHOMA - Larvae taken on rangeland near Mexhoma, Cimarron County, in late August by P.D. Curry. Determined by V.H. Owens. This is a new county record. Species common on shinnery oak in Ellis County, but not previously noted from other counties. (Okla. Coop. Sur.).

A SOD FLY (Inopus rubriceps) - CALIFORNIA - Adults collected September 27, 1973, in Alameda County by A. Kaplan. Determined by C. Koehler, verified by M. Wasbauer. This is a new county record. Indicates fly is spreading out of San Francisco peninsula where it has been known since 1948. (Cal. Coop. Rpt.).

FORAGE LEGUMES

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Some adults and larvae swept from alfalfa in several areas of State. Alfalfa regrowth up to 8 inches in some areas since last cutting; fields ragged due to irregular growth as result of cool, wet weather. Weevils very serious in 1973; late populations equaled early populations of normal years. Possible two generations in 1973 may be cause. H. brunneipennis has preempted H. postica (alfalfa weevil) in most locations and may have become a 2-generation pest. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Counts in late December indicated larval populations of 3-5 per square foot in alfalfa in Stephens, Garvin, and Payne Counties. Eggs averaged 1,132 and 730 per square foot in 2 alfalfa fields in Stephens County and 612 per square foot in a Garvin County field January 12; averaged 410 per square foot in Payne County January 14. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Problem on alfalfa and required much treatment in El Centro area of Imperial County week ending December 21. (Cal. Coop. Rpt.). OKLAHOMA - Ranged 25-150 per 10 sweeps in alfalfa checked in Muskogee and Wagoner Counties week ending December 22; light in west-central counties. (Okla. Coop. Sur.). FLORIDA - Population very light on alfalfa, about 3 per sweep January 7 at Gainesville, Alachua County; apparently due to subfreezing weather in December. (Fla. Coop. Sur.).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Major pest of lettuce in Imperial Valley of Imperial County week ending December 21. Very troublesome due to fall buildups as lettuce heads increased in size. Much treatment necessary. (Cal. Coop. Rpt.).

GENERAL VEGETABLES

A LEAFMINER FLY (Liriomyza sp.) - FLORIDA - Caused very serious damage to celery over most of Everglades celery-growing region centered near Belle Glade, Palm Beach County, during period November 15-29. Some leaves almost white due to heavy mining; some mines observed on celery petioles. No treatments were effective. Infestations mainly in commercial fields; also present in celery seedbeds. (Fla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - ALABAMA - Larvae continued to emerge from fallen pecan nuts at location in Ashland, Clay County, week ending December 21. During the week ending January 4, larvae completed emergence from pecan nuts and entered soil for pupation under 10 check trees in Lee County. Infestation heavy, 20-25 percent of nuts, on one of these trees; damage unusually heavy on this tree every season. Some developing larvae observed still in nuts under pecan tree January 9 in Elmore County. Damaged nuts where larvae previously emerged on ground. (Thompson et al.).

A CERAMBYCID BEETLE (Neoclytus caprea) - NEW MEXICO - Heavy adult emergence from pecan wood noted in Dona Ana County week ending January 18. Thirty adults taken from cordwood 10-16 inches in length. This insect previously collected from pecan wood in 1958, 1961, 1964, and 1968; however, no series taken prior to this week. Several reports of larval damage to stressed pecan trees during last few years now suspected to be this insect. (N.M. Coop. Rpt.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larvae overwintering in pecan shucks on ground under 10 check trees in Lee County week ending January 4; 1-5 about full-grown larvae per 20 shucks, with several thousand shucks under each tree. None pupated (McQueen).

AN ERIOPHYID MITE (Eriophyes brachytarsus) - NEW MEXICO - Originally collected from 2 severely infested walnut trees near Virden, Grant County, September 5, 1973. Original collection destroyed; second collection from same trees made October 10. This is a new State record. Lightly infested single twig of native black walnut in Chaves County near Lewis Park in Sacramento Mountains. Collected September 27, 1973. This is a new county record. Both collections by W.A. Iselin. Determinations by H.H. Keifer. (Iselin). E. brachytarsus previously known only from California. (PPQ).

SMALL FRUITS

A CUTWORM (Orthodes crenulata) - MICHIGAN - Moderate on grape (fruit ripening) in commercial vineyard at Keeler, Van Buren County. Larvae collected September 24, 1973, by J. Patter. Determined by D.M. Weisman. This is a new county record. (Sauer).

ORNAMENTALS

A SPIDER MITE (Eotetranychus uncatus) - PENNSYLVANIA - Adults taken on Tilia americana at Equinunk, Wayne County, July 26, 1973, by A. Andreychik. Determined by R. Lehman. This is a new State record. (Kim).

A LIMACODID MOTH (Parasa indetermina) - ALABAMA - Larvae collected on dogwood tree at nursery in Wilmer, Mobile County, October 31, 1973, by L.W. Lockhart and G.E. Howell. Determined by D.M. Weisman. This is a new State record. (McQueen).

A TORTRICID MOTH (Platynota rostrana) - ALABAMA - Larvae observed rolling leaves and feeding on stems of 5-10 percent of several hundred potted gloxinia in commercial greenhouse at Columbia, Houston County, October 31, 1973. Collected by M.H. Roney. Determined by D.M. Weisman. This is a new county record. (McQueen).

A COREID BUG (Alydus eurinus) - WEST VIRGINIA - Adults heavy on hemlocks in 2.5-acre block at Glen, Clay County, November 2, 1973. Collected by G. Gibson. Determined by A.E. Cole. This is a new county record. (Hacker).

A MEALYBUG (Spilococcus cactearum) - OREGON - Light to very heavy on cactus plants (Mammillaria spp. and Echinopsus spp.) in 2 nurseries at Portland, Multnomah County, week ending December 21. About 4,000 plants under hold order until infestation controlled. Infested material originated from 2 out-of-State nurseries. Recommended treatment ineffective, growers forced to hold material since October 1973. (Nicoliasen, Wheeler).

FOREST AND SHADE TREES

FALL WEBWORM (Hyphantria cunea) - FLORIDA - Adults collected at blacklight trap in Belle Glade, Palm Beach County, January 10. First report of season. (Fla. Coop. Sur.).

LINDEN LOOPER (Erannis tiliaria) - WEST VIRGINIA - Seven male adults taken in blacklight trap in Dolly Sods area of Grant County November 14, 1973. Collected by P. Van Buskirk. Determined by A.R. Miller. This is a new county record. (Hacker).

SPRING CANKERWORM (Paleacrita vernata) - IDAHO - Larvae caused minor defoliation of hawthorn at Orofino, Clearwater County. Collected May 25, 1973, by N. Fitzsimmons. Determined by D.M. Weisman. This is a new State record. (Fitzsimmons).

A TIGER MOTH (Halisidota ingens) - NEW MEXICO - Small colony collected from young pinyon pine north of Silver City, Grant County, during week ending December 28. This is a new forest district and new county record. Light scattered larval infestations of this species and Phenacaspis pinifoliae (pine needle scale) caused light to moderate damage to pinyon pine on 20,000+ acres of private land near Las Vegas, San Miguel County. Many tents of H. ingens contain only dead first to third-instar larvae; fewer tents with hibernating fourth to sixth-instar larvae week ending December 21. Heaviest P. pinifoliae damage on pines bordering dusty roads. (N.M. Coop. Rpt.).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - KENTUCKY - Collected November 5, 1973, by L. Booth in dwelling in Martin County. Determined by R.A. Scheibner. This is a new county record. (Barnett).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 319 cases reported from continental U.S. during period December 9, 1973, through January 5, 1974, as follows: Texas 295, Arizona 10, California 13, Louisiana 1. Total of 356 cases confirmed from Mexico. Number of sterile flies released this period totaled 304,663,000; all in Texas. Total of 354,452,600 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - NORTH CAROLINA - Survey to determine distribution conducted during period July 18 to September 6, 1973; periodic sampling also included. From Sampson to Graham Counties, 49 herds examined. Sweep collections taken from fresh manure when flies observed on cattle in counties not known to be infested. Collections positive in Person, Durham, Randolph, Stanly, Montgomery, Moore, Alamance, and Davidson Counties. Determined by D.L. Stephan. Randolph, Stanly, Montgomery, Moore, Alamance, and Davidson are new county records. Infestations generally heavier in mountains and western Piedmont. (Hunt).

HORN FLY (Haematobia irritans) - FLORIDA - Ranged 17-18 per beef animal in herds north of Gainesville, averaged 35 per beef animal in herd at Gainesville, Alachua County, week ending January 4. Averaged 28 per animal in one beef herd, 38 per animal in another beef herd north of Gainesville, January 18; averaged 72 per animal in beef herd at Gainesville. (Fla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Counts per head ranged 0-24 (average 18) on yearlings and 0-16 (average 14) on cows checked in Payne County week ending December 22. Ranged 0-20 per head in Comanche County, moderate in Pawnee County. During the week ending December 29, counts per head ranged 0-28 (average 22) on yearlings and 0-23 (average 21) on mature cows checked in Payne County. Counts per head ranged up to 25 on cattle checked in Payne County and 0-15 on few cattle in Major County week ending January 4. Light in Logan County, moderate in Pawnee County, and heavy on one untreated herd in Lincoln County.

H. lineatum populations were moderate on cattle in Pawnee County, week ending January 11. During the week ending January 18, populations ranged 0-34 (average 23) per head on cattle checked in Payne County; 0-20 per head in Comanche County. Moderate in Pawnee County week ending January 18. (Okla. Coop. Sur.).

CATTLE LICE - ALABAMA - Various species became problem in some Shelby County beef herds week ending January 18. Fewer infestations reported statewide than in most years as of this date. (Clark et al.). MISSISSIPPI - Linognathus vituli (longnosed cattle louse) and Haematopinus eurysternus (shortnosed cattle louse) increased on cattle in Oktibbeha County and surrounding counties last week in December 1973 and first 14 days of January 1974. (Combs). OKLAHOMA - H. eurysternus averaged 2 per hair part on cattle checked in Payne County week ending December 22; moderate to heavy in Comanche County and moderate in Pawnee County. During week ending December 29, this species ranged up to one per hair part on about 50 percent of cattle herd checked in Payne County. About 7 days later, H. eurysternus increased up to 3 per hair part on cattle checked in this county. Bovicola bovis (cattle biting louse) moderate on cattle in southwest counties during same period. Mainly H. eurysternus reported moderate on cattle in Pawnee County and moderate to heavy in Comanche County week ending January 18. (Okla. Coop. Sur.).

A LOUSE FLY (Hippobosca longipennis) - OREGON - Original shipment of 6 adult cheetahs arrived at Wildlife Safari, Winston, Douglas County, during spring 1972, probably May. All animals apparently infested upon arrival as park personnel noted flies on cheetahs during summer 1972. Collection made at that time, but apparently flies not considered serious and were not submitted for identification. Report of infestation in California (CEIR 23(11):159, 23(41):704, and 23(43):728) caused concern and additional collection made from cheetah cub in spring 1973. Determined by B. Keh. This is first authenticated record of H. longipennis in State. Data on identified slides held by Vector Control Section, Oregon Board of Health as follows: "Wildlife Safari, Winston, Ore., October 16, 1973, ex. cheetah cub, Bob Gresbrink, identification by California Bureau of Vector Control." At present there are 10 cheetahs housed at Winston, 6 adults and 4 cubs; all are infested. (Penrose). Treatment of these cheetahs to be made. Surveillance of associated animals as well as trapping and examination of native carnivores planned for spring 1974. (Gresbrink, Goulding). CALIFORNIA - Flies averaged one per adult cheetah at San Diego Wild Animal Park, San Pasqual, San Diego County, as result of warm sunny weather during week ending December 28. None found on 8 new cubs (see CEIR 23(49-52):780). Pest persisted in spite of repeated treatments. Areawide treatment scheduled for February. So far, no evidence of pest found on domestic or native wildlife. (Cal. Coop. Rpt.).

MOSQUITOES - CALIFORNIA - Mosquitoes annoyed homeowners and gardeners during few days of warm weather week ending December 28. (Cal. Coop. Rpt.). MISSISSIPPI - Culex pipiens quinquefasciatus (southern house mosquito) larvae totaled 125 in 6 samples (one quart in volume) taken from one-acre poultry waste lagoon in Simpson County during second week of December. Psychoda spp. larvae (268) and few stratiomyid and syrphid larvae also taken in these samples. (Combs).

HOG LOUSE (*Haematopinus suis*) - OKLAHOMA - Widespread light infestations reported on hogs in southwest counties week ending January 4. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) - MISSISSIPPI - Heavy infestations (over 5 mites per 5 locations) occurred on White Leghorn, New Hampshire, and Barred Plymouth Rock breeds of laying hens in Oktibbeha County week ending January 18. (Robinson).

HOUSEHOLDS AND STRUCTURES

A SUBTERRANEAN TERMITE (*Reticulitermes tibialis*) - NEW MEXICO - Extensive flights began January 11, still observed January 14. Most of Las Cruces, Dona Ana County, covered by winged adults. (N.M. Coop. Rpt.).

MISCELLANEOUS WILD PLANTS

AN APHID (*Neoprociphilus aceris*) - OKLAHOMA - Collected on *Smilax* sp. near Lake Carl Blackwell in Payne County September 14, 1973, by W.A. Drew. Determined by L.M. Russell. This is a new State record. (PPQ).

STORED PRODUCTS

RICE WEEVIL (*Sitophilus oryzae*) - ALABAMA - Populations heavy and damaged all corn stored in bins at farm near Bay Springs, Houston County, week ending January 18. Treatments applied. (Roney).

BENEFICIAL INSECTS

A EULOPHID WASP (*Elasmus polistis*) - NEW MEXICO - Reared from nest of *Polistes* sp. (a vespid wasp) taken from porch in Las Cruces, Dona Ana County, September 24, 1973, by A. Smith. Determined by B.D. Burks. This is a new State record. *E. polistis* described by B.D. Burks in 1971 from specimens collected in Georgia, Maryland, and Pennsylvania. Dr. Burks has also determined specimens from Texas. This eulophid wasp is probably of foreign origin. (PPQ).

A BRACONID WASP (*Iphiaulax manteri*) - ALABAMA - About 25 specimens developed in single specimen of *Thyridopteryx ephemeraeformis* (bagworm) larvae collected in Morgan County September 27, 1973, and emerged inside stored container. Collected by H.F. McQueen. Determined by P.M. Marsh. This is a new State record. (McQueen).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - ARIZONA - Adult surveys completed at end of September showed infestations to be lightest in several years. Problems revealed on 1,300 scattered acres of National Forest and Park Service rangeland. (Ariz. Coop. Sur.).

PINK BOLLWORM (*Pectinophora gossypiella*) - OKLAHOMA - Lint clean: inspections during December 1973 showed larval counts per 5 bales by county as follows: Cotton 85, Jefferson 25, Kiowa 6, Tillman 40. Inspections negative in Muskogee and Wagoner Counties. (Okla. Coop. Sur.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Several mounds found in Palestine, Anderson County, November 28, 1973, by W.E. Jackson. Ant specimens determined by V.H. Owens. Confirmed by D.R. Smith. This is a new county record. (Ramsay). Mound building activity by this species and S. xyloni (southern fire ant) in south-central area decreased due to cold weather during week ending January 11. Specimens still reported in some counties in area. (Cole).

DETECTION

New State Records - AN APHID (Neoprociphilus aceris) - OKLAHOMA - Payne County. (p. 10). A BRACONID WASP (Iphiaulax manteri) - ALABAMA - Morgan County. (p. 10). AN ERIOPHYID MITE (Eriophyes brachytarsus) - NEW MEXICO - Grant County. (p. 7). A EULOPHID WASP (Elasmus polistis) - NEW MEXICO - Dona Ana County. (p. 10). A LIMACODID MOTH (Parasa indetermina) - ALABAMA - Mobile County. (p. 7). A LOUSE FLY (Hippobosca longipennis) - OREGON - Douglas County. (p. 9). A SPIDER MITE (Eotetranychus uncatas) - PENNSYLVANIA - Wayne County. (p. 7). SPRING CANKERWORM (Paleacrita vernata) - IDAHO - Clearwater County. (p. 8).

New County Records - ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) KENTUCKY - Martin (p. 8). A COREID BUG (Alydus eurinus) WEST VIRGINIA - Clay (p. 7). A CUTWORM (Orthodes crenulata) MICHIGAN - Van Buren (p. 7). AN ERIOPHYID MITE (Eriophyes brachytarsus) NEW MEXICO - Chaves (p. 7). FACE FLY (Musca autumnalis) NORTH CAROLINA - Randolph, Stanly, Montgomery, Moore, Alamance, Davidson (p. 8). LINDEN LOOPER (Erannis tiliaris) WEST VIRGINIA - Grant (p. 7). RED IMPORTED FIRE ANT (Solenopsis invicta) TEXAS - Anderson (p. 10). A SATURNIID MOTH (Hemileuca nevadensis) OKLAHOMA - Cimarron (p. 5). A SOD FLY (Inopus rubriceps) CALIFORNIA - Alameda (p. 5). A TIGER MOTH (Halisidota ingens) NEW MEXICO - Grant (p. 8). A TORTRICID MOTH (Platynota rostrana) ALABAMA - Houston (p. 7).

A List of the Aphids of Staten Island, New York
(Homoptera: Aphididae)

Mortimer D. Leonard 1/

No aphids were known to occur on Staten Island until 11 species were collected in 1943 in connection with the U.S. Department of Agriculture Special Survey of Ports of Entry. No further collections were made until Edwin A. Rundlett, then Horticulturalist for the Parks of Staten Island, began to collect in 1960. He continued to collect intermittently until early in 1973. During this time he made about 200 collections representing about 73 species of aphids. Of these, 8 species do not occur elsewhere in New York; they are indicated by an asterisk (*). The Special Port Survey collections are represented by slides in the U.S. National Museum and those by Rundlett in the Cornell University collection.

M. D. Leonard has published four papers on the aphids of New York as follows:

A list of the Aphids of New York. Rochester Acad. of Sci. Proc. 10(6):289-428, March 1963.

A Supplement to a List of the Aphids of New York. Ibid 11(4); 257-361, May 1968.

A Second Supplement to a List of the Aphids of New York. Cornell Univ. Agr. Exp. Sta. SEARCH 1(12):1-31, Nov. 1971.

A Third Supplement to a List of the Aphids of New York. Cornell Univ. Agr. Exp. Sta. SEARCH 3(8):1-23, July 1973.

Although Rundlett's records have appeared in these papers, it would seem advisable to here assemble them all together in one place and in alphabetical order for ready reference. The Port Survey records are also included. In this small part of New York City, Staten Island, a semirural borough of 57 square miles, 84 species of aphids would seem to be a fair showing, but I believe there should be well over 100. Rundlett wrote me in August 1973 that personal commitments will prevent him from doing any more collecting. It is therefore very doubtful that more aphids will ever be collected on Staten Island for an indefinite number of years to come.

Acyrtosiphon pisum (Harris). Fire Alarm, August 30, 1961, and Castleton Corners May 22, 1962, *alatae* in Moericke tray.

Acyrtosiphon sibiricum Mordvilko. New Springville, June 18, 1960, on Urtica dioica.

Acyrtosiphon solani (Kaltenbach). One Fairview Ave., June 6, 1969 11 apterae on crepemyrtle and June 8, 1969, one aptera on Rosa multiflora.

1/ Collaborator, ARS, USDA. Mail address: 2480 16th Street, Washington, D.C. 20009.

- Amphorophora crataegi (Monell). Port Richmond, September 1, 1943, on Crataegus sp. (Special Port Survey.)
- Anoecia corni (Fabricius). Castleton Corners, November 16, 1961, 3 alatae from laundry on line.
- Anoecia oenotherae Wilson. Fire House, September 18, 1961, one alata in Moericke tray.
- Aphis asclepiadis Fitch. Clove Lakes Park, June 7, 1969, few in all stages on Asclepias syriaca.
- Aphis cephalanthi Thomas. 12 apterae, nymphs on Cephalanthus occidentalis, twigs and leaf-stems laden with aphids. High Rock Park, New Dorp, June 23, 1969, on C. occidentalis.
- Aphis coreopsidis (Thomas). High Rock Park, June 10, 1969, few in all stages on Nyssa sylvatica. One Fairview Ave., Castleton Corners, July 22, 1969, about 50 on Bidens polyleptis.
- Aphis craccivora Koch. New Brighton, August 31, 1943, on Gleditsia tricanthus. (Special Port Survey.)
- Aphis fabae Scopoli. Castleton Corners, August 4, 1962, on cultivated nasturtiums; May 20, 1973, on Viburnum dentatum.
- Aphis gossypii Glover. Rossville, June 17, 1969, few on Catalpa bignonioides.
- Aphis hederæ Kaltenbach. One Fairview Ave., June 8, 1969, few and Castleton Corners, October 13, 1969, about 30 in all stages on Hedera helix.
- Aphis heraclella Davis. "S I," June 19, 1969, on Pastinaca sativa.
- Aphis impatientis Thomas. High Rock Park, October 23, 1968, many on Impatiens capensis.
- * Aphis knowltoni Hottes & Frison. New Dorp, May 19, 1969, on Taraxacum officinale. Only record for New York.
- Aphis nerii Fonscolombe. One Fairview Ave., October 15, 1969, several and September 2, 1969, about 55 on Asclepias tuberosa heavily infested. Castleton Corners July 8, 1969, two clumps of this same milkweed on same property--one heavily infested, the other not.
- Aphis pomi De Geer. One Fairview Ave., June 5, 1969, many on Chaenomeles lagenaria and few on Malus arnoldiana; May 19, 1973, on Hibiscus syriaca. High Rock Park, June 12, 1969, few on Malus sargentii.
- Aphis rumicis Linnaeus. Clove Lakes Park, June 7, 1969, on Rumex crispus. Castleton Corners, November 19, 1960, and June 8, 1973, on Rumex crispus.
- Aphis spiraeicola Patch. One Fairview Ave., June 5, 1969, few on Spiraea prunifolia and 4 on Chaenomeles sp. Clove Lakes Park, June 8, 1969, several on Apocynum cannabinum, and October 17, 1969, on Euparioium sessifolium.

- * Calaphis leonardi Quednau. High Rock Park, New Dorp, June 27, 1969, one alata on Betula populifolia. New to New York.
- Callipterinella calliptera (Hartig). Clove Lakes Park, June 11, 1969, 7 alatae, 7 apterae on Betula populifolia. New to New York.
- Capitophorus hippophaes (Walker). Castleton Corners, November 1, 7, 20, 1960, number of alate males in Moericke tray. One Fairview Ave., June 1969, about 69 in all stages on Polygonum longisetum.
- Chaitophorus populicola Thomas. Richmond, September 2, 1943, on leaves of balm-of-Gilead. (Special Port Survey.)
- Chaitophorus populifolii (Essig) subspecies simpsoni Hille Ris Lambers. High Rock Park, New Dorp, June 27, 1969, on Populus grandidentata.
- Chaitophorus viminalis Monell. Richmond, September 3, 1943, on Salix sp. (Special Port Survey.)
- Dactynotus ambrosiae (Thomas). Castleton Corners, August 25, 1961, on Ambrosia trifida; August 29, 1968, on A. artemisiifolia; and September 15, 1963, and October 6, 1968, alatae in Moericke tray. "S I," September 14, 1943, abundant on seeded lettuce plants. (Special Port Survey.)
- Dactynotus nigrotuberculatus Olive. Clove Lakes Park, August 19, 1962, on Cirsium arvense. Grassmere, October 1, 1963, on Solidago rugosa. Castleton Corners, June 1, 1963, on Solidago sp. and November 6, 1960, on S. sempervirens.
- Dactynotus pseudambrosiae Olive. Castleton Corners, October 10, 1963, on Lactuca canadensis, and September 15, 1963, and October 6, 1963, about 63 alatae in Moericke tray.
- Dactynotus rudbeckiae (Fitch). Port Richmond, September 1, 1943, on stem below flower of Cirsium sp. (Special Port Survey.) Castleton Corners, August 29, 1965, on Rudbeckia laciniata.
- * Drepanaphis saccharini Smith & Dillery. Castleton Corners, June 16, 1968, on Acer saccharinum. New to New York.
- Drepanosiphum platanoides (Schrank). Barrett Park, June 18, 1969, on Acer pseudoplatanus.
- * Dysaphis crataegi (Kaltenbach). "Staten Island," September 14, 1943, on crown of carrot roots. (Special Port Survey.) Only record for New York.
- Dysaphis tulipae (Fonscolombe). Castleton Corners, September 7, 1963, and July 6, 1964, on cultivars of tall bearded Iris spp.; November 2, 1964, number of apterae and 2 alatae on Iris alberta, I. pallida, I. aphylla, I. croatica, I. perieri, and I. variegata; November 1-7, 1968, 2 alatae in Moericke tray.

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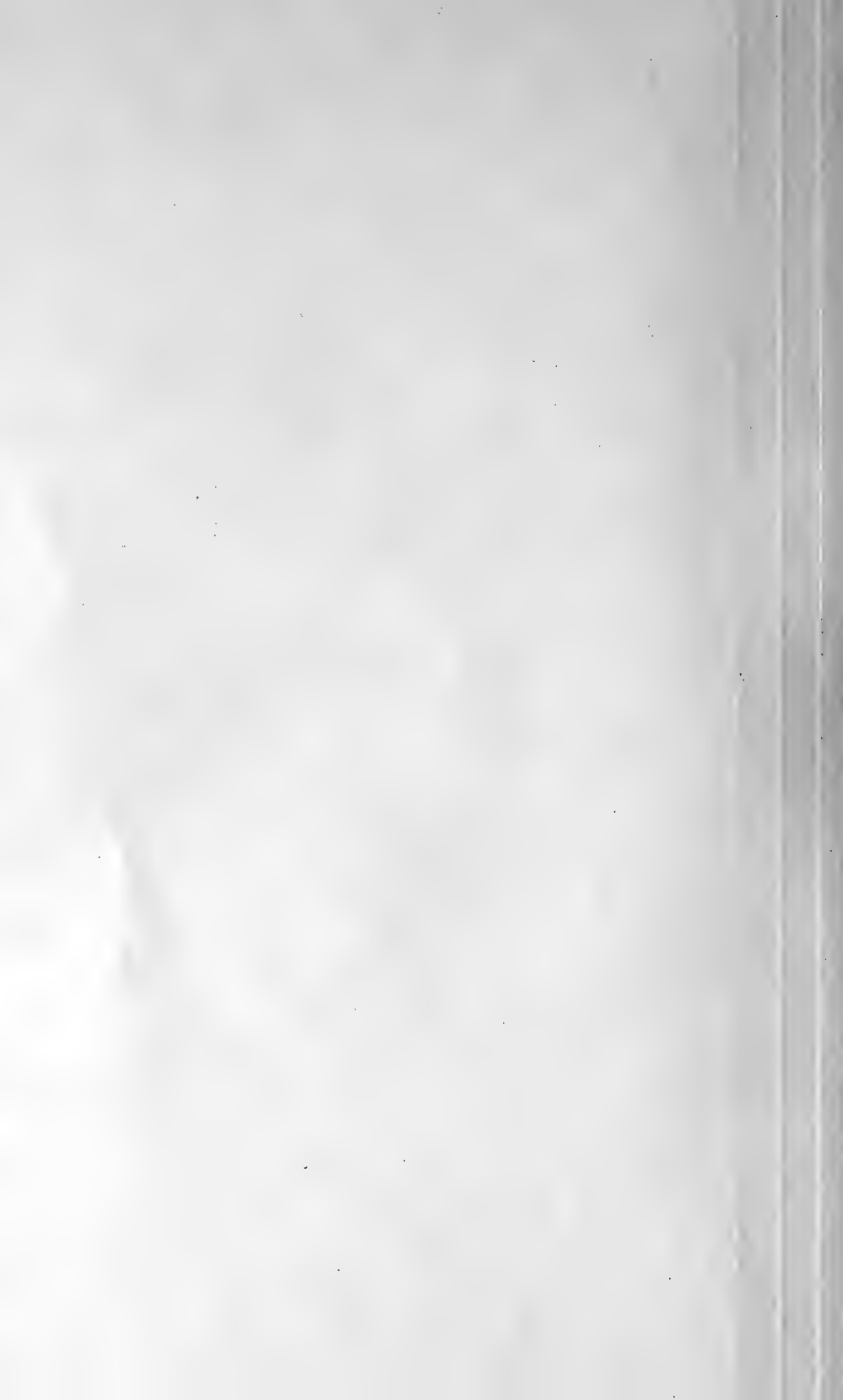
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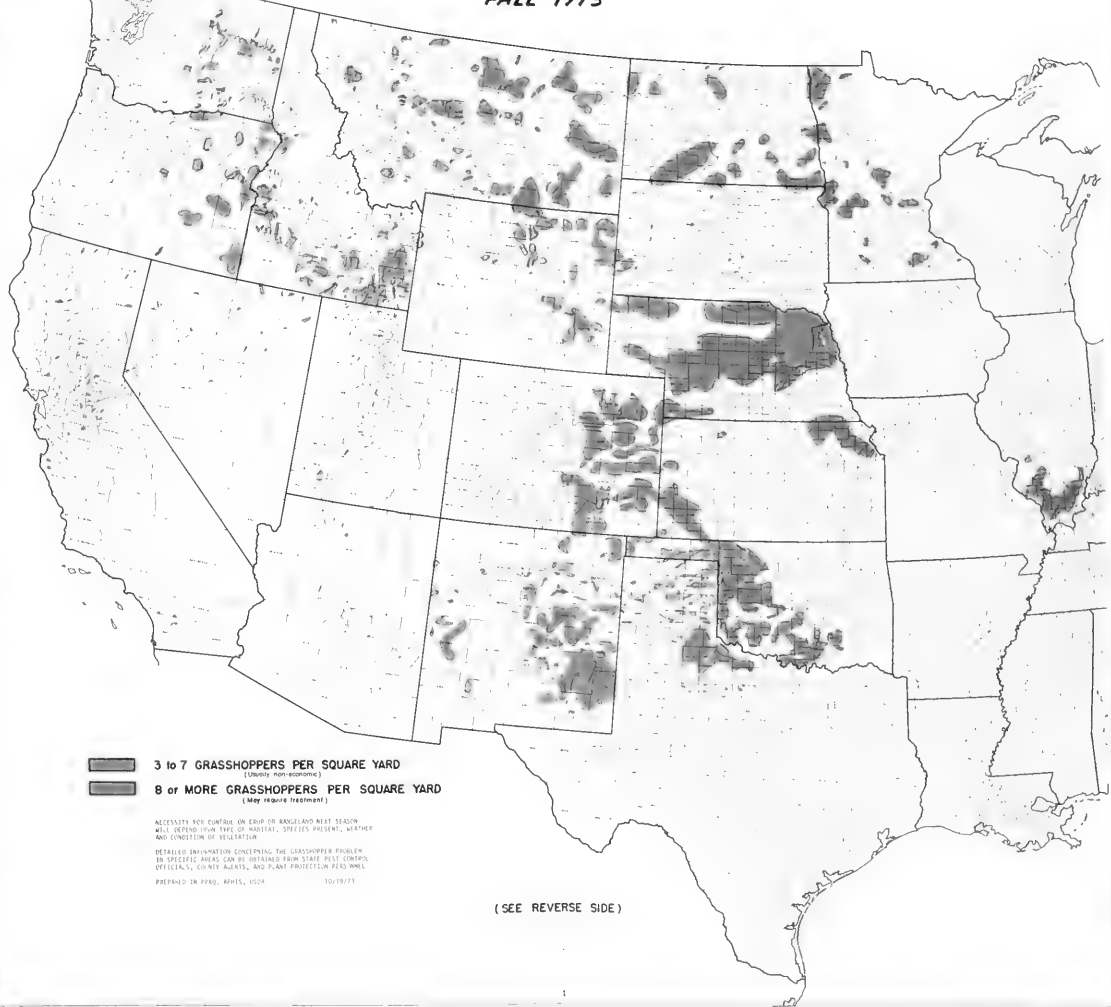
- 1,300
- 24,235
- 79,400
- 62,660
- 65,600
- 22,660
- 49,240
- 35,750

and Quara



GRASSHOPPER ADULT SURVEY

FALL-1973



3 to 7 GRASSHOPPERS PER SQUARE YARD

(Usually non-economic)



8 or MORE GRASSHOPPERS PER SQUARE YARD

(May require treatment)

NECESSITY FOR CONTROL ON CRIP FOR RANGE AND NEXT SEASON
WILL DEPEND ON TIME OF MORTALITY, SPECIES PRESENT, WEATHER
AND CONDITION OF VEGETATION

DETAILED INFORMATION CONCERNING THE GRASSHOPPER PROBLEM
IN SPECIFIC AREAS CAN BE OBTAINED FROM STATE PEST CONTROL
OFFICIALS, COUNTY AGENTS, AND PLANT PROTECTION PERSONNEL

PREPARED BY PERD, ADAMS, 10/28

10/19/73

(SEE REVERSE SIDE)

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
Plant Protection and Quarantine Programs

TO COOPERATORS:

This map is based upon the results of cooperative grasshopper adult surveys made during the late summer and fall of 1973. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1974. Nymphal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1974.

Control on grasshopper infested croplands will be handled by the farmers with technical assistance from Plant Protection & Quarantine and State personnel. The infested rangeland areas total 8,709,097 acres in 14 Western and Midwestern States. Areas on the map are diagrammatic. Within these areas, infestations may be solid or spotted.

RANGELAND GRASSHOPPER INFESTATIONS
ACREAGE BY REGIONS, FALL 1973

(Areas shown in red)

REGION AND STATE	LANDOWNERSHIP — ACRES		TOTAL ACRES	REGION AND STATE	LANDOWNERSHIP — ACRES		TOTAL ACRES
	PRIVATE & STATE	PUBLIC DOMAIN			PRIVATE & STATE	PUBLIC DOMAIN	
WESTERN							
Arizona	—	1,300	1,300	Washington	366,000	23,000	389,000
California	102,150	22,085	124,235	Wyoming	410,572	58,200	468,772
Colorado	279,400	—	279,400				
Idaho	189,080	473,580	662,660	SOUTH			
Montana	243,600	222,000	465,600	CENTRAL			
Nevada	8,300	14,360	22,660	Nebraska	900,000	100,000	1,000,000
Oregon	225,440	123,800	349,240	New Mexico	1,871,601	1,003,679	2,875,280
Utah	18,150	17,600	35,750	Oklahoma	1,217,000	—	1,217,000
				Texas	818,200	—	818,200

The survey was planned and performed by Plant Protection and Quarantine personnel in cooperation with various State Agencies concerned.





- Eriosoma crataegi (Oestlund). Rosebank, August 24, 1943, extremely heavy infestation on stems of Crataegus sp. (Special Port Survey.) Borough Hall, November 2, 1961, Clove Lakes Park, August 20, 1963, and Castleton Corners, September 1, 1963, many on Crataegus crugalli.
- Eriosoma lanigerum (Hausmann). Castleton Corners, October 20, 1960, in bark wounds of Malus floribunda. Fairview Ave., June 6, 1969, few in bark wound of Arnolds crab. "S I," June 16, 1972, in bark wounds of Malus arnoldiana.
- Eucallipterus tiliae (Linnaeus). High Rock Park, June 12, 1969, on Tilia platyphyllos.
- Euceraphis deducta Baker. Clove Lakes Park, June 11, 1969, 2 alatae, 1 aptera on Betula sp.
- Euceraphis lineata Baker. Clove Lakes Park, June 27, 1969, one alata on Betula populifolia.
- Euceraphis mucida (Fitch). Clove Lakes Park, June 7, 1969, on Betula lenta.
- Hormaphis hamamelidis (Fitch). Clove Lakes Park, August 22, 1961, on witchhazel and July 19, 1969, few on witchhazel.
- Hyadaphis foeniculi (Passerini). Tompkinsville, August 24, 1943, heavy infestation on flowering portion of Thaspium aureum. (Special Port Survey.) Castleton Corners, September 20, 1960, one alata in Moericke tray. New Dorp, June 19, 1969, about 40 on Pastinaca sativa.
- Hyalopterus pruni (Geoffroy). "Staten Island," September 2, 1943, on blades of marshgrass, Spartina sp. (Special Port Survey.) Castleton Corners, November 1 and 7, 1960, number of males in Moericke tray.
- Hysteroneura setariae (Thomas). Castleton Corners, October 31, 1960, on Salix babolonica; October 1962, one alata in Moericke tray.
- Longicaudus trirhodus (Walker). Castleton Corners, July 17, 1962, several alatae, apterae on Aguilegia sp. cultivated.
- Macrosiphoniella sanborni (Gillette). One Fairview Ave., June 5, 1969, and May 14, 1973, several on garden chrysanthemums.
- Macrosiphum avenae (Fabricius). Castleton Corners, November 23, 1963, 5 on tall bearded iris, probably accidental.
- Macrosiphum euphorbiae (Thomas). Castleton Corners, October 18, 1968, one alata and one aptera, 3 nymphs on bearded iris cultivar; June 3, 1969, several on Petunia sp. "Cascade." One Fairview Ave., November 1, 1969, several in all stages on tall bearded iris; one aptera on Spiraea prunifolia and 2 apterae on climbing cultivated rose. Clove Lakes Park, June 8, 1969, several on Apocynum cannabinum; June 9, 1969, about 30 alatae, apterae on Celastrus scandens, and 3 apterae, 3 nymphs on Rosa multiflora; June 7, 1969, on Asclepias syriaca; June 8, 1969, 2 apterae, 2 alatae on Asclepias purpurascens and 2 apterae, 10 nymphs on Solanum dulcamara;

June 11, 1969, 6 alatae, 1 aptera, 4 nymphs on Lycium chinense; October 21, 1969, on Ambrosia trifida.

? Macrosiphum gaurae (Williams). One Fairview Ave., June 12, 1969, about 75 alatae, apterae on Oenothera fruticosa. (Determination queried.)

Macrosiphum kickapoo Hottes & Frison. Fairview Ave., August 1, 1972, on Polygonatum biflorum.

Macrosiphum lilii (Monell). New Dorp, September 10, 1962, on Lilium speciosum rubrum.

Macrosiphum liriodendri (Monell). Grassmere, August 2, 1961, on tuliptree.

Macrosiphum rosae (Linnaeus). One Fairview Ave., June 6, 1969, on Rosa moyesi; June 3, 1969, several on climbing cultivated rose; May 14, 1973, on hybrid tea rose "Mrs. Pierre DuPont" and Rosa multiflora hybrid "Betty Prior." Clove Lakes Park, June 7, 1969, few on Rosa multiflora. Castleton Corners, October 13, 1969, several in all stages on Rosa cultivar; October 17, 1963, on hybrid tea rose.

Monellia costalis (Fitch). Drake Ave., August 28, 1961, several on "hic-can" (hickory X pecan). Castleton Corners, August 26, 1963, on Carya tomentosa and September 1, 1963, 2 alatae on C. cordiformis.

Myzocallis coryli (Goeze). Clove Lakes Park, June 8, 1969, few alatae, apterae, "pupae" on Corylus avellana.

* Myzocallis ephemerata Richards. Clove Lakes Park, June 7, 1969, 10 alatae, apterae on Quercus rubra var. borealis. New to New York.

Myzocallis frisoni Boudreaux & Tissot. Clove Lakes Park, September 6, 1961, on Quercus palustris.

Myzocallis exultans Boudreaux & Tissot. Clove Lakes Park, August 28, 1961, and September 6, 1961, on Quercus palustris.

Myzocallis longiunguis Boudreaux & Tissot. Clove Lakes Park, June 8, 1969, on Quercus palustris.

Myzocallis melanocera Boudreaux & Tissot. Clove Lakes Park, June 15, 1962, on Quercus rubra var. borealis.

Myzocallis multisetis Boudreaux & Tissot. Clove Lakes Park, June 8, 1969, one alata on Quercus velutina and August 20, 1961, 2 apterae. Fairview Ave., July 4, 1964, 3 on Q. velutina.

Myzocallis punctata (Monell). High Rock Park, June 12, 1969, many on Quercus coccinea and few on Q. prinus and Q. bicolor.

* Myzocallis tuberculata Richards. High Rock Park, New Dorp, June 12, 1967, 12 alatae, 2 apterae on Quercus alba. New to New York.

- Myzocallis walshii (Monell). Clove Lakes Park, August 28, 1961, on Quercus rubra var. borealis and September 6, 1961, on Q. palustris. One Fairview Ave., July 3, 1964, 2 on hybrid oak (willow X red oak).
- Myzus persicae (Sulzer). Castleton Corners, November 6, 1961, one alata in Moericke tray; summer 1964, 42 alatae in Moericke tray.
- Nasonovia ribisnigri (Mosley). New Dorp, June 19, 1969, few on Cichorium intybus.
- Nearctaphis bakeri (Cowen). Fairview Ave., Castleton Corners, June 29, 1969, on Trifolium pratense.
- Neosymydobius annulatus (Koch). Clove Lakes Park, June 11, 1969, many in all stages on Betula populifolia.
- Periphyllus lyropictus (Kessler). Clove Lakes Park, a few on Acer platanoides. New Brighton, August 31, 1943, on Acer sp. (Special Port Survey.) Castleton Corners, October 31, 1960, sexuales present on Acer platanoides.
- Phyllaphis fagi (Linnaeus). Grassmere, August 29, 1961, on Fagus americana.
- * Pleotrichophorus glandulosus (Kaltenbach). Clove Lakes Park, June 16, 1969, 2 alatae, 3 apterae and October 10, 1969, many on Artemisia vulgaris. Only record for New York.
- Prociphilus corrugatus (Sirrinc). Port Richmond, September 1, 1943, on bark of Crataegus sp. (Special Port Survey.)
- Prociphilus erigeronensis (Thomas). Castleton Corners, October 9, 1961, apterae on roots of Taraxacum officinale. "Staten Island," October 9, 1961, few on roots of T. officinale.
- Pterocomma pseudopopulea Palmer. Rosebank, September 4, 1943, on twig of Populus sp. (Special Port Survey.) Recorded elsewhere only from Colorado, Idaho, and Utah.
- Rhopalosiphum fitchii (Sanderson). Castleton Corners, November 26, 1960, several alatae, one a male, in Moericke tray.
- Rhopalosiphum maidis (Fitch). Castleton Corners, September 1954 on Setaria faberii.
- Rhopalosiphum nymphaeae (Linnaeus). High Rock Park, July 21, 1968, one alata, 7 apterae, nymphs on Nuphar variegata; June 10, 1969, few on Sagittaria latifolia; June 27, 1969, few on Nymphaea odorata.
- Roepkea crataegifoliae (Fitch). "Staten Island," June 19, 1972, 30 in all stages on Crataegus crusgalli.
- Sitomyzus rhois (Monell). Tottenville, October 9, 1960, on Rhus copellina. West New Brighton, July 30, 1972, many on R. copallina.

Stegophylla sp. Castleton Corners, October 6, 1960, on Quercus palustris.

* Takecallis arundinaria (Essig). Clove Lakes Park, July 19, 1969, 2 alatae "accidental" on Solidago sp. This aphid breeds only on bamboos and occurs only in California. In answer to my questions Mr. Rundlett wrote me on January 9, 1971:

"Ornamental hardy bamboos did exist not far from the point of my collection. It was a border planting next to the road-side beside the site of a demolished Old Actors Home. That kind of plant is very rare here. I did not try collecting from bamboo and unfortunately the patch has now been obliterated to make a parking lot. At the moment I can think of no other site where there is a planting of it."

Thecabius populiconduplifolius (Cowen). Nature Trail, September 22, 1960, on Ranunculus repens.

Tinocallis ulmifolii (Monell). Barrett Park, June 16, 1969, few on Ulmus americana.

Tuberculatus salignus (Gmelin). Castleton Corners, September 6, 1961, on Salix discolor and October 6, 1961, on S. nigra.

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(1-4):12-18, 1974

There were 15 new United States records reported in the Cooperative Economic Insect Report during the year. These include three species reported for the first time on the North American Continent - one each in Florida, Massachusetts, and Washington. Of the seven species reported from Hawaii, none is known to occur in the continental United States. There were 102 new State distribution records of species already found in the United States reported.

NEW UNITED STATES RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Anabrolepis bifasciatus</u> 1/ <u>an encyrtid wasp</u>	Hawaii	Oahu Island	Japan or India	Parasitized armored scale	781	Probably beneficial
<u>Callosobruchus pulcher</u> 1/ <u>a bruchid</u>	Hawaii	Maui Island	Philippine Islands	Light trap, pigeon pea	171	Unknown
<u>Camptozygum aequale</u> <u>a plant bug</u>	Pennsylvania	Several counties	Europe	Scotch pine	228	Could be injurious to pine
<u>Cheiloneuromyia javensis</u> 1/ <u>an encyrtid wasp</u>	Hawaii	Oahu Island	Indonesia	A soft scale	130	Could be beneficial
<u>Chorebus rondanii</u> 2/ <u>a braconid wasp</u>	Massachusetts	Franklin	Europe	Puparia of <u>Ophiomyia simplex</u>	729	Could be beneficial
<u>Dactynotus cirsi</u> <u>an aphid</u>	South Dakota	Moody	Europe	<u>Cirsium arvense</u>	780	Unknown
<u>Erionota thrax</u> 1/ <u>banana skipper</u>	Hawaii	Oahu Island	Asia	Banana	676	Could be economic
<u>Frankliniella intonsa</u> 2/ <u>a thrips</u>	Washington	Whatcom	Europe, Asia	Bush beans	269	Unknown

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Melanotus dichrous</u> a click beetle	Maryland	Baltimore City	Southern Europe	Blacklight trap	472	Probably noneconomic
<u>Muscaphis musci</u> an aphid	Utah	Cache	Unknown	Moss	8	Unknown
<u>Penthelispa rufipennis</u> 1/ a cylindrical bark beetle	Hawaii	Oahu Island	New Caledonia	Under bark of <u>Eucalyptus</u> tree	241	Unknown
<u>Sepsis thoracica</u> 1/ a sepsid fly	Hawaii	Oahu Island	Palaearctic, Ethiopian, or Oriental Region	At large	241	Noneconomic
<u>Taeniothrips eucharii</u> a thrips	Georgia	Spalding	Asia, Hawaii, or Bermuda	Morningglory	727	Unknown
<u>Taeniothrips hawaiiensis</u> 2/ a thrips	Florida	Volusia	Orient, Southeast Asia, Pacific Islands	Rose	287	Known to damage orchids in Hawaii
<u>Wallacea albiseta</u> 1/ a stratiomyid fly	Hawaii	Oahu Island	Asia, Pacific Islands	At large	149	Noneconomic

1/ Not known to occur in continental U.S.
2/ First time reported from North American Continent.

NEW STATE RECORDS - 1973

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Acyrtosiphon scariolae</u> an aphid	New Jersey	Camden	<u>Latuca</u> sp.	759
<u>Acyrtosiphon solani</u> Foxglove aphid	Virginia	Arlington	Dandelion	769
<u>Adelges tsugae</u> an adelgid	Maryland	Calvert	Hemlock	72
<u>Agrilus concinnus</u> a buprestid beetle	Maryland	Somerset	Blacklight trap	780
<u>Agrilus sinuatus</u> sinuate peartree borer	Michigan	Manistee	Sticky trap	128
<u>Agriotes collaris</u> a click beetle	Maryland	Garrett	Flowers of <u>Acer spicatum</u>	779
<u>Agriotes pubescens</u> a click beetle	West Virginia	Hampshire	At large	777
<u>Amblyomma americanum</u> lone star tick	Kansas	Labette	Female deer	517
<u>Amblyomma dissimile</u> a hardbacked tick	New Hampshire	Strafford	In laboratory	5
<u>Aphis oestlundii</u> an aphid	Hawaii	Maui Island	<u>Oenothera</u> sp.	542
<u>Aponychus spinosus</u> a spider mite	Pennsylvania	Wayne	Basswood	582
<u>Ataenius erratus</u> a scarab beetle	North Carolina	New Hanover	Light trap	28
<u>Attagenus fasciatus</u> a dermestid beetle	California	Kings	Experimental dermestid trap at milling warehouse	131
<u>Aulacaspis rosarum</u> an armored scale	Hawaii	---	Correction of misidentification	473
<u>Brachycolus asparagi</u> asparagus aphid	Massachusetts	Hampshire	Asparagus	559
<u>Brachymeria intermedia</u> a chalcid wasp	Maine	Oxford	<u>Porthetria dispar</u> larvae	539
	New Hampshire	Merrimack	Adults collected near <u>Choristoneura fumiferana</u> infestation	539

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Bradysia impatiens</u> a sciarid fly	Oregon	Washington	Adults emerged from single potato tuber	755
<u>Cacama valvata</u> a cicada	Nevada	Clarke	Rangeland	754
<u>Caenurgina erechtea</u> forage looper	Alabama	Limestone	Soybeans	596
<u>Calomycterus setarius</u> a Japanese weevil	Maine	Kennebec	Mass of weevils on and beside home	622
<u>Calophya triozaomima</u> a psyllid	Missouri	Boone	Fragrant sumac	656
<u>Calosoma frigidum</u> a carabid beetle	West Virginia	Grant	Black locust	471
<u>Chaetosiphon minoe</u> an aphid	Virginia	Loudoun	Strawberry	769
<u>Chaitophorus populifolii</u> an aphid	Idaho	Custer	Black cotton-wood	168
<u>Cheiropachus colon</u> a pteromalid wasp	South Carolina	Edgefield	Reared from infestation of <u>Scolytus rugulosus</u>	28
<u>Cheyletiella yasguri</u> an itch mite	California	San Joaquin	Dog	169
<u>Cinara canadensis</u> a conifer aphid	Virginia	Montgomery	Juniper	769
	Wisconsin	Jefferson	<u>Juniperus</u> sp.	147
<u>Cinara nitidula</u> an aphid	Arizona	Coconino	Pinyon pine in nursery	742
<u>Cladius difformis</u> (= <u>isomerus</u>) bristly roseslug	Hawaii	Hawaii Island	Rose bushes	744
<u>Clepsis fucans</u> a tortricid moth	Pennsylvania	Northampton	Azalea	287
<u>Coccophagus albicoxa</u> a eulophid wasp	Colorado	Larimer	Parasitized unspecified scale insect	214

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Colliuris pennsylvanica</u> a carabid beetle	West Virginia	Kanawha	In lawn	652
<u>Corythucha confraterna</u> a lace bug	Nevada	Clark	<u>Plantanus</u> sp.	271
<u>Corythucha montivaga</u> a lace bug	Nevada	Lander	<u>Urtica bolosericea</u>	271
<u>Corythucha padi</u> a lace bug	Nevada	Lincoln	<u>Prunus virginiana</u> var. <u>demissa</u>	271
<u>Cylindrocopturus adspersus</u> a weevil	Maryland	---	<u>Hialanthus annus</u>	777
	Pennsylvania	Philadel- phia	Blacklight trap	777
<u>Dactynotus pseudambrosiae</u> an aphid	Hawaii	Mau Island	<u>Hypochoaeris radiata</u>	729
<u>Dalmania pacifica</u> a conopid fly	Nevada	Washoe	At large	205
<u>Dendroctonus valens</u> red turpentine beetle	North Dakota	Slope	Ponderosa pine	621
<u>Diglyphus intermedius</u> a eulophid wasp	Idaho	Kootenai	In bluegrass	169
<u>Drosophila virilis</u> a drosophilid fly	Hawaii	Mau Island	At bait	349
<u>Eriocampa ovata</u> a sawfly	Washington	Whatcom	<u>Alnus</u> sp.	228
<u>Eucosma sonomana</u> an olethreutid moth	Indiana	Elkhart	Larvae on Scotch pine	778
<u>Euthyrhynchus floridanus</u> a predaceous pentatomid bug	Missouri	New Madrid	On oak	111
<u>Euxoa oberfoelli</u> a noctuid moth	South Dakota	Lawrence	At large	215
<u>Ferrisia virgata</u> striped mealybug	Arizona	Maricopa	Texas sage	165

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEII Page</u>
<u>Glenosticta scitula</u> a sphecid wasp	Utah	Washington	At large	131
<u>Gynaikothrips ficorum</u> Cuban laural thrips	New Mexico	Bernalillo	<u>Ficus nitida</u>	183
<u>Helix aspersa</u> brown garden snail	New Mexico	Bernalillo	In yard	532
<u>Lecanodiaspis prosopidis</u> a lecanodiaspid scale	South Carolina	Oconee	Wild azalea	344
<u>Leucophenga maculosa</u> a drosophilid fly	Hawaii	Hawaii Island	At large	349
<u>Listroderes costirostris obliquus</u> vegetable weevil	Oregon	Linn	Spearmint field	211
<u>Melanoplus splendidus</u> a grasshopper	Nevada	Lincoln	Light trap	389
<u>Microctonus aethiops</u> a braconid wasp	Ohio	Wayne	Recovered from <u>Hypera postica</u> sample	214
<u>Micromyzus formosanus</u> an aphid	Arizona	Cochise	Garlic	535
<u>Minthozelia ruficauda</u> a tachina fly	Maryland	Prince Georges	Parasitic in unspecified cerambycid larvae	781
<u>Monellia microsetosa</u> an aphid	Virginia	Fairfax	<u>Carya</u> sp.	770
<u>Nasonovia pallida</u> an aphid	Idaho	Bear Lake	---	167
<u>Neoprociphilus aceris</u> an aphid	Virginia	Montgomery	<u>Acer saccharinum</u>	742
<u>Neosymydobius annulatus</u> an aphid	Virginia	Arlington	Birch	770
<u>Oedaleothrips hookeri</u> a thrips	California	Humboldt	No host given	326
<u>Oulema melanopus</u> cereal leaf beetle	New Jersey	Hunterdon	Oats	540
<u>Ovatus crataegarius</u> an aphid	Idaho	Payette	Mint root sample	445

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Papaipema arctivorens</u> a stalk borer	West Virginia	Monroe	Canada thistle	758
<u>Pemphigus tartarcus</u> an aphid	Virginia	Loudoun	<u>Bidens</u> sp.	770
<u>Perigaster obscura</u> a weevil	Georgia	Houston	Light trap	290
<u>Phyllophaga aemula</u> a May beetle	Maryland	Worcester	At lights	513
<u>Phyllophaga angulata</u> a May beetle	Maryland	Baltimore	Blacklight trap	472
<u>Phyllophaga foxii</u> a May beetle	Maryland	Somerset	Blacklight trap	472
<u>Phyllophaga knochi</u> a May beetle	Maryland	Caroline	Blacklight trap	472
<u>Phyllophaga margin- alis</u> a May beetle	West Virginia	Hampshire	Blacklight trap	513
<u>Polydrusus sericeus</u> a weevil	Ohio	Lucas	Nettle	204
<u>Prionus imbricornis</u> tilehorned prionus	South Dakota	Hutchinson	Cut hay	757
<u>Prociphilus tessellatus</u> woolly alder aphid	Oklahoma	Choctaw	Maple	490
<u>Pulvinaria floccifera</u> a soft scale	Delaware	New Castle	<u>Taxus</u> sp. and holly	304
<u>Rhizaspidotus dearnessi</u> an armored scale	Wisconsin	Monroe	Cranberry	778
<u>Saissetia miranda</u> a black scale	Hawaii	Oahu and Molokai Islands	Several hosts	205
<u>Saissetia neglecta</u> a black scale	Hawaii	Oahu and Hawaii Islands	<u>Stephanotis floribunda</u> , orchid, and tree fern	187
<u>Sepsis lateralis</u> a sepsid fly	Hawaii	Oahu Island	Decaying stump of kukui nut tree	362

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Sitomyzus rhois</u> an aphid	Oklahoma	Major	<u>Rhus aromatica</u>	714
<u>Spodoptera exigua</u> beet armyworm	Delaware	Kent	Pepper	655
<u>Steneretma laticauda</u> an otitid fly	Pennsylvania	Bucks	By sweeping	231
<u>Steniolia duplicata</u> a sphecid wasp	Utah	Washing- ton	At large	131
<u>Stenopelmus rufinasus</u> a weevil	Virginia	Indepen- dent City of Norfolk	Blacklight trap	776
<u>Stenoscelis brevis</u> a weevil	Georgia	Clarke	<u>Pinus echinata</u>	288
<u>Tabanus sackeni</u> a horse fly	Vermont	Rutland	At large	603
<u>Tabanus sagax</u> a horse fly	Vermont	Rutland	At large	603
<u>Tabanus super- jumentarius</u> a horse fly	Vermont	Chittenden	At large	603
<u>Taeniothrips frici</u> a thrips	New Jersey	Gloucester	Asparagus	285
<u>Taeniothrips hawaiiensis</u> a thrips	Georgia	Spalding	Sasangua, camellia, and blue sticky board	287
	South Carolina	Greenville	<u>Lonicea</u> sp.	727
<u>Tetranychus tumidus</u> tumid spider mite	Delaware	New Castle	Philodendron	343
<u>Thecodiplosis pini- rigidae</u> a gall midge	Pennsylvania	Franklin	Galls on pitch pine	288
<u>Thysanopyga intractata</u> a geometrid moth	Alabama	Crenshaw	Youpon holly	514
<u>Trachyphloeus aristatus</u> a weevil	Maine	Knox	Drop pan beneath oak	306
<u>Trichotaphe iothalles</u> a gelechiid moth	Pennsylvania	Adams	Sweet cherry	427

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Trisetacus juniper-</u> <u>inus</u> an eriophyid mite	Virginia	Fairfax	<u>Juniperus</u> <u>procumbens</u>	109
<u>Vespula vulgaris</u> a vespid wasp	Hawaii	Maui	Ground nest	579
<u>Zadiprion townsendi</u> a conifer sawfly	Utah	San Juan	<u>Pinus</u> <u>ponderosa</u>	515

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Weather of the week continued from page 2.

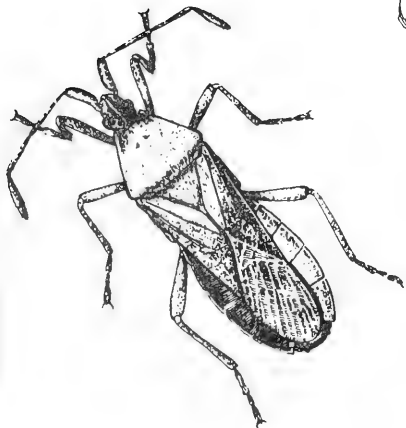
8 percent of the total possible sunshine has struggled through the clouds. Sunday was wet and cloudy in the eastern half of the country. Rain and drizzle fell from Tennessee to the Great Lakes. The Plains were generally clear and warm.

TEMPERATURE: The entire Nation enjoyed an exceptionally warm week as temperatures averaged 9 degrees to 23 degrees above normal from the Sierras to the Appalachians. This exceptionally warm weather broke one of the long cold spells on record in many Plains States. The week began with a general warming trend over the entire Nation except northern Montana and North Dakota where a sharp cold wave was moving in. While Sheridan, Wyoming, reached a record breaking 60 degrees temperatures dropped 28 degrees in one hour at Bismarck, North Dakota, dropping readings into single figures. The cold wave was associated with a Low over Saskatchewan which was rapidly moving eastward. The combination of storm systems that brought high winds to the Northwest on Tuesday and Wednesday also brought very warm temperatures. Records for the date were set at Sheridan, Wyoming, 70 degrees, and Lander 60 degrees. Pendleton Oregon, recorded its highest temperature ever for January--68 degrees. The cold front which remained across the Dakotas provided sharp temperature contrasts. Rapid City, South Dakota, reached 63 degrees while Grand Forks, North Dakota, could only reach 2 degrees. Thursday was very warm over much of the Nation except New England where one of the coldest nights of winter was expected. A High located just east of James Bay was bringing frigid air southward. Meanwhile, many record high temperatures were set in the South: Midland, Texas, 84 degrees; Abilene 80 degrees; Lake Charles, Louisiana, 77 degrees; Meridian, Mississippi, 79 degrees; Mobile, Alabama, 78 degrees. Friday morning, temperatures lived up to expectations in the New England area. Messena, New York, reached -35 degrees; Burlington, Vermont, -23 degrees. The weekend continued moderate. A large Low over Lake Superior lowered temperatures in that area. A High over the gulf continued to moderate temperatures through the Plains areas.

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Cooperative Economic Insect Report

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PLANT PROTECTION AND QUARANTINE PROGRAMS
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U.S. DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

CEIR
Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG threatening on wheat in some west-central and southwest counties of Oklahoma, light on wheat in Rolling Plains of Texas. (p. 31).

Overwintering CHINCH BUG populations very light in Illinois. (p. 31).

ALFALFA WEEVIL may be economic on alfalfa in southern Missouri this spring. (p. 31).

AZALEA LACE BUG active on azalea in Florida. (p. 32).

Detection

A GEOMETRID MOTH reported for first time in Kentucky is a new State record. (p. 33).

For new county records see page 33.

Special Reports

EUROPEAN CORN BORER fall 1973 populations increased in 11 of 15 States reporting. The increase in Illinois was 4-fold while populations in Delaware and on the Eastern Shore of Maryland were twice those of fall 1972. (pp. 34-40).

Insects Not Known to Occur in the Continental United States.
African Mole Cricket (Gryllotalpa africana Beauvois).
(pp. 41-43).

Reports in this issue are for the week ending January 25 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

FEBRUARY 1974

The National Weather Service's 30-day outlook for February is for temperatures to average above seasonal normals over most of the eastern half of the Nation and in the southern Great Plains. Below normal averages are indicated for the central Intermountain Region and for California. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed the median amount (i.e., the 50th percentile) from the Mississippi Valley to the Appalachian Mountains and also over the Northeast, the north Pacific coast, and the central Intermountain Region. Elsewhere less than the median amount is indicated.

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

WEATHER OF THE WEEK ENDING JANUARY 18

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

PRECIPITATION: A quasi-stationary front in the Southeast was established on Wednesday and started a procession of waves moving along the front which continued until the entire system moved out of the country early Sunday. Warm, moist tropical air moving north from the Gulf of Mexico was lifted at each wave as it moved along the front and spread heavy precipitation northward as warm air moved over cooler air to the north. Monday morning, a frontal system moving through the Eastern United States produced rain, fog, and in New York, freezing rain along and ahead of the front. Late Monday, this system had moved out of the country. Elsewhere on Monday, snow was falling from northern Colorado northward through Montana and westward to Utah as a counter clockwise flow around a Low in southern Colorado caused moist air to be lifted as it flowed westward up the mountains. By midmorning, Sheridan, Wyoming, had received 5 inches of new snow in the previous 6 hours. Weather of the week continued on page 44.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged up to 100 per linear foot on wheat in Beckham, Custer, Caddo, and Washita Counties, and up to 70 per linear foot in Harmon and Jackson Counties. Moderate in Tillman County and moderate to heavy in Comanche County. (Okla. Coop. Sur.). NEW MEXICO - Counts of 20-25 per linear foot persisted in wheat near Carlsbad, Eddy County. (N.M. Coop. Rpt.). TEXAS - Light in wheat in Hardeman, Wichita, Knox, Haskell, Throckmorton, Archer, Wilbarger, Baylor, and Young Counties. Remained generally below 50 per row foot in most fields. Some fields in Wichita County had counts of 100-120 per row foot. Parasitized specimens observed in Hardeman and Knox Counties, with 1-17 per row foot reported. Other active beneficial species included spiders, lady beetles, and nabids. Lady beetles active during warmer days. Small grains throughout Rolling and High Plains areas badly damaged by lack of moisture; potential yields will continue to decline unless moisture received soon. S. graminum also light on oats in Burleson and Brazos Counties. (Boring et al.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Light to moderate on oats in Burleson and Brazos Counties. (Cole).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Ranged 20-30 per square foot along with 200+ Acyrtosiphon pisum (pea aphid) per square yard on newly planted alfalfa near Carlsbad, Eddy County. (N.M. Coop. Rpt.).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus leucopterus) - ILLINOIS - Overwintering populations in bunch grass samples very light in 1973; this is same as for several years. Heaviest populations noted in Champaign and Iroquois Counties; averaged 25 and 23 per square foot, respectively. (Ill. Ins. Rpt.).

SOUTHERN FIRE ANT (Solenopsis xyloni) - TEXAS - Infestations reported on pastureland in Brazos, Matagorda, and Washington Counties. (Cole).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSOURI - December egg counts from southern areas processed; all believed to be high enough to cause economic spring infestations. Counts per square foot by county follow: Gasconade 120.5; Cape Girardeau 130; Wright 39; Howell 178; Dallas 57; Osage 134; Howard 170. (Munson). ILLINOIS - Eggs averaged 70 and 51 per square foot of alfalfa, respectively, in Adams and Mason Counties; samples collected from 9 fields in December 1973. This is considered high for this area. Individual fields ranged 24-102 eggs per square foot. (Ill. Ins. Rpt.). KENTUCKY - Eggs in alfalfa averaged 24 per square foot in Barren County and 3.4, 7, and 11 per square foot in Fayette County. (Barnett, Parr).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County by area: Gila Valley 2,500; Yuma Valley 2,000-3,000; Yuma Mesa 100-200. (Ariz. Coop. Sur.).

COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - MISSISSIPPI - Larvae moderate to heavy and damaged 20 acres of collards in Perry County. Treatment applied. (Cochran).

DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - NEW MEXICO - Shelling of 1973 pecan crop from quarantined trees in Tularosa, Otero County, completed. No weevils in any stage recovered and no emergence holes observed this season. Treatments will continue on these trees for at least two years. (N.M. Coop. Rpt.).

PECAN CARPENTERWORM (Cossula magnifica) - ALABAMA - Larvae active in several large pecan trees at two homes in Auburn, Lee County. Frass pellets falling to ground from entrance holes near base of tree trunks. Treatments applied. (Andrews, Barwood).

ORNAMENTALS

AZALEA LACE BUG (Stephanitis pyrioides) - FLORIDA - All stages severe on leaves of 300 azalea plants at nursery in Apopka, Orange County, January 18. (Fla. Coop. Sur.).

HEMISPHERICAL SCALE (Saissetia coffeae) - ALABAMA - Specimens collected from ferns at various locations during host plant survey. Taken from Morgan County greenhouse January 14, 1974, and in Purdue, Bibb County, home December 11, 1973. These are new county records. (McQueen).

EUONYMUS SCALE (Unaspis euonymi) - NEW MEXICO - Heavy on Euonymus japonicus on university campus at Albuquerque, Bernalillo County. This scale insect not observed to any extent since severe freeze of January 1972. (N.M. Coop. Rpt.).

FOREST AND SHADE TREES

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - MARYLAND - Overwintering larval populations in Frederick City Watershed area north of Frederick, Frederick County, ranged 8-10 per square foot. Oaks in these 10-15 square miles 60-100 percent defoliated in 1973. (U. Md., Ent. Dept.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Salvage of outbreak-related timber in November 1973 was 3.6 million board feet of sawtimber and 5,350 cords of pulpwood. This roughly 3 times volume of sawtimber salvaged during December 1972, and about 1,000 cords less than that salvaged same month. (USFS).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 9 cases reported from continental U.S. during period January 6-12; all from Texas. Total of 62 cases confirmed from Mexico. Number of sterile flies released this period totaled 86,285,400; all in Texas. Total of 184,221,000 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged up to 35 per head on cattle in Comanche County. Heavy in Pawnee County and moderate in Hughes County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Cattle lice, mainly Haematopinus eurysternus (shortnosed cattle louse), heavy on cattle in Pawnee and Comanche Counties, moderate in Hughes County. (Okla. Coop. Sur.). MISSISSIPPI - Infestations of Solenoptes capillatus (a wrinkled sucking louse) and other cattle lice increased in Oktibbeha and surrounding counties. S. capillatus heavy on 50 head of mixed beef cattle in Oktibbeha County. Dust bags used as treatment. (Robinson).

MISCELLANEOUS WILD PLANTS

A CERAMBYCID BEETLE (Dectes texanus texanus) - TENNESSEE - Immatures observed on ragweed in Dickson County January 22, 1974. Collected by J. Bogard. Determined by G. Gordon. This is a new county record. (Gordon, Bruer).

BENEFICIAL INSECTS

A BRACONID WASP (Lysiphlebus testaceipes) - OKLAHOMA - Adults averaged one per 3 row feet in wheat in Harmon County and 2 per 3 row feet in Jackson County. Light parasitism of S. graminum (greenbug) reported from several west-central counties. (Okla. Coop. Sur.).

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - This species and Nabis spp. (damselfly bugs) light in wheat in several west-central counties. (Okla. Coop. Sur.).

DETECTION

New State Record - A GEOMETRID MOTH (Biston ypsilon) KENTUCKY - Adult taken from light trap in Fayette County April 5, 1973. Collected by D.E. Barnett. Tentatively determined by C.V. Covell, Jr. Confirmed by D.C. Ferguson. (Barnett, Gregory).

New County Records - A CERAMBYCID BEETLE (Dectes texanus texanus) TENNESSEE - Dickson (p. 33). HEMISPHERICAL SCALE (Saissetia coffeae) ALABAMA - Morgan, Bibb (p. 32).

CORRECTIONS

CEIR 23(45-48):754 - A CICADA "... Clarke County, July 3 ..." should read "Clark County, July 9..."

Status of the European Corn Borer in 1973^{1/}

Introduction: Surveys to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hübner)) in the fall of 1973 were conducted by cooperating agencies in 15 States. All survey data, summaries, and records of field observations were processed by the Pest Survey and Technical Support Staff in Hyattsville, Maryland.

The 1973 European corn borer survey was conducted during late summer and early fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. Except for some minor differences in compiling data, the accepted survey methods were followed in all cases. The survey was continued on a district basis wherever possible in 1973. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: European corn borer was reported for the first time from 12 counties in Tennessee and one county in the Oklahoma Panhandle. As damage to field corn is generally insignificant in North Carolina, an annual survey for this pest is not conducted. However, a survey conducted in that State in 1971 showed European corn borer occurred statewide.

Abundance: European corn borer fall populations showed increases in 8 of the 12 North Central States reporting in the survey. Increases also were noted in Kentucky, Maryland, and Delaware. Decreases in fall populations were indicated in three of the North Central States. A comparison can not be made in South Dakota as no survey was conducted in 1972. However, the 1973 fall population of 85 borers per 100 plants in South Dakota is much below the State average of 204 borers per 100 plants found in 1971.

The fall European corn borer survey in Illinois indicated a statewide population nearly four times greater than that of 1972. The State average of 126 borers per 100 stalks is near the 11-year average of 105 borers per 100 stalks. This is surprising due to the alltime low State average of 32 borers per 100 stalks in 1972 and the very light first generation in 1973. Infestation was heaviest in the west district where borers averaged 246 per 100 stalks. County averages were very consistent in this district except in Adams County which averaged 658 borers per 100 stalks, the heaviest county average in Illinois. Average counts of 71 borers per 100 stalks in the central and east districts were the lowest in the State. The increase in populations in 1973 may have been due to the larger acreage of late-planted corn in Illinois resulting from unfavorable spring weather.

^{1/} Survey data provided by State agricultural agencies. Data compiled and summarized by Pest Survey and Technical Support Staff, Plant Protection and Quarantine Programs, Animal and Plant Health Inspection Service, United States Department of Agriculture.

European corn borer populations increased in Iowa as did the percent of infested plants. Damage by this pest in 1973 was most apparent in the southern third of the State with heaviest infestations in the southeast (District XII). European corn borer showed substantial increases in percent infested stalks and borers per 100 stalks in the northeast and east-central districts of Kansas compared to 1972. Although infestations continued light in 1973, some increases over 1972 were noted in southeast and south-central Kansas. Of particular note is the sharp decline in infestations in the three western districts compared to 1972. Growers showed much concern in 1972 regarding the possibility that European corn borer might become a major pest and cause extensive losses in high-yield, irrigated corn in western Kansas. Fall populations in Nebraska were generally lighter than those of 1972, particularly in the northeast, central, and south districts. Slight increases were noted in the east and southeast districts.

The fall European corn borer population in Michigan was again the heaviest in the southwest district (District 3) as it was in 1972. Fall populations in Minnesota decreased in the west-central and southwest districts and remained about the same in other districts as compared to 1972. First-generation populations in 1974 are expected to be generally light to moderate and economic infestations are expected to be isolated and scattered in Minnesota.

The European corn borer population in Delaware increased 2-fold, with the heaviest increase observed in the southern part of that State. The average population on the Eastern Shore of Maryland was about twice that of the 1972 population.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1973, Compared with Data for 1972

States	1972		1973		Comparable Districts or Counties	
	:No. of :Districts :Surveyed	:Average No. :of Borers :Per :100 Plants	:No. of :Counties :Surveyed	:No. of :Districts :Surveyed	:Average No. :of Borers :Per :100 Plants	:No. of :Counties :Surveyed
<u>Eastern</u>						
Delaware	1	186	3	1	407	3
Maryland	3	101	12	3	161	12
Total	4		15	4		15
Average 1/						
<u>North Central</u>						
Illinois	9	33	45	9	125	46
Indiana	12	27	92	12	109	92
Iowa	12	54	99	12	85	99
Kansas	9	23	50	9	30	50
Michigan	5	85	20	5	113	20
Minnesota	7	52	34	7	41	34
Missouri	8	105	43	8	167	43
Nebraska	5	66	25	5	53	25
North Dakota	1	140	5	1	50	5
Ohio	5	24	33	5	136	33
<u>Southern</u>						
Dakota 2/	-	-	-	6	85	33
Wisconsin	9	25	54	9	76	54
Total	82		500	88		534
Average 1/						
<u>Southern</u>						
Kentucky	1	36	4	1	40	25
Total						
Average 1/						
Total						

1/ Weighted averages based on districts surveyed.
2/ Not included in 1972 fall survey.

Table 2 - European Corn Borer Abundance in Corn
Fall of 1973, Compared with Data for 1972

State (Districts or Counties)	Average Number: of Borers Per : 100 Plants :		State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1972	1973:		1972	1973
<u>Delaware</u> (Agr. Expt. Sta.)			<u>Iowa</u> (State Dept. Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; PESS, ARS, USDA)		
New Castle	91	233	District I	50	25
Kent	223	325	District II	33	24
Sussex	<u>245</u>	<u>663</u>	District III	43	81
Average	186	407	District IV	47	72
<u>Illinois</u> (Natural History Survey, Ext. Ser.)			District V	56	57
Northwest	55	121	District VI	45	86
Northeast	14	98	District VII	35	129
West	84	246	District VIII	55	50
Central	17	71	District IX	34	67
East	25	71	District X	55	100
West-southwest	10	138	District XI	80	143
East-southeast	11	105	District XII	<u>109</u>	<u>182</u>
Southwest	47	144	Average	54	85
Southeast	<u>9</u>	<u>132</u>	<u>Kansas</u> (Ins. Sur.)		
Average	33 <u>1/</u>	125 <u>1/</u>	Northeast	50	104
<u>Indiana</u> (Ext. Ser., Expt. Sta.)			North Central	40	19
North-northwest	44	134	East Central	30	117
North-northcentral	20	188	Central	8	7
North-northeast	63	194	Southeast	23	17
Northwest	18	62	South Central	Trace	1
North Central	24	140	Northwest	30	2
Northeast	38	109	West Central	20	2
Southwest	9	94	Southwest	<u>6</u>	<u>Trace</u>
South Central	10	47	Average	23	30
Southeast	13	48	<u>Kentucky</u> (Ins. Sur.)		
South-southwest	25	139	Surveyed counties	36	40
South-southcentral	18	70	<u>Maryland</u> (Agr. Ext. Ser.; Ins. Sur.)		
South-southeast	<u>41</u>	<u>83</u>	Eastern Shore	120	224
Average	27	109	Southern area	22	151
			Central and Western areas	<u>101</u>	<u>134</u>
			Average	101 <u>2/</u>	161 <u>2/</u>

1/ Average based on comparable counties surveyed in 1972 and 1973, rather than districts.

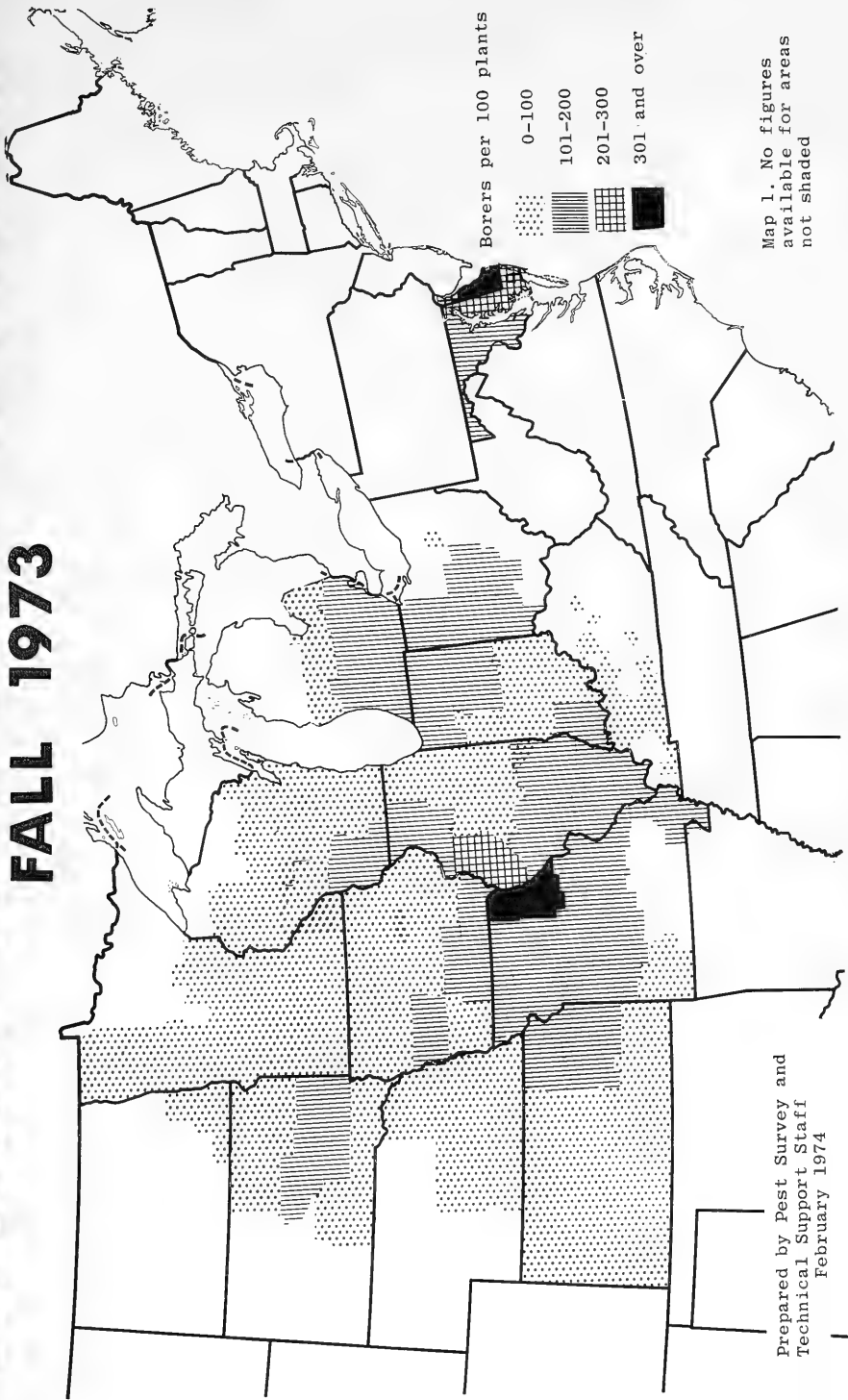
2/ Average based on county averages rather than district averages.

Table 2 (Continued)

State (Districts or Counties)	Average Number: of Borers Per 100 Plants :		State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1972	1973:		1972	1973
<u>Michigan</u> (Ins. Sur.)			<u>North Dakota</u> (State Dept. Agr.)		
District 1	98	126	Southeast	140	50
District 2	86	112	<u>Ohio</u> (Ext. Ser.; ARS, USDA)		
District 3	117	129	Northwestern	43	180
District 4	78	98	West Central	17	110
District 5	57	100	Central	11	121
Average	85 <u>3/</u>	113 <u>3/</u>	Southwestern	13	108
<u>Minnesota</u> (State Dept. Agr.)			Northeastern	4	77
Southwest	67	21	Average	18	119
South Central	22	25		24 <u>4/</u>	136 <u>4/</u>
Southeast	30	46	<u>South Dakota</u> (Agr. Expt. Sta., Ext. Ser.).		
West Central	131	62	North Central		98
Central	42	44	Northeast		36
East Central	44	61	Central		151
Northwest	29	31	East Central		127
Average	52	41	Southeast		82
<u>Missouri</u> (Ext. Ser., Ins. Sur.)			South Central		17
District I	129	174	Average	5/	85
District II	166	105	<u>Wisconsin</u> (State Dept. Agr.)		
District III	114	414	Northwest	33	72
District IV	58	108	North Central	24	14
District V	83	131	West Central	25	100
District VI	99	172	Central	13	85
District VII	59	65	Southwest	20	133
District IX	132	165	South Central	30	71
Average	105	167	Southeast	50	78
<u>Nebraska</u> (Agr. Expt. Sta.; Ext. Ser., Ins. Sur.)			East Central	26	40
Northeast	79	32	Northeast	6	25
East	44	57	Average	25	69
Southeast	55	89		29 <u>6/</u>	76 <u>6/</u>
Central	72	42	4/ Average based on counties surveyed.		
South	82	43	5/ Not included in 1972 fall survey.		
Average	66	53	6/ Based on field averages rather than district averages.		

3/ Averages based on field averages rather than district averages.

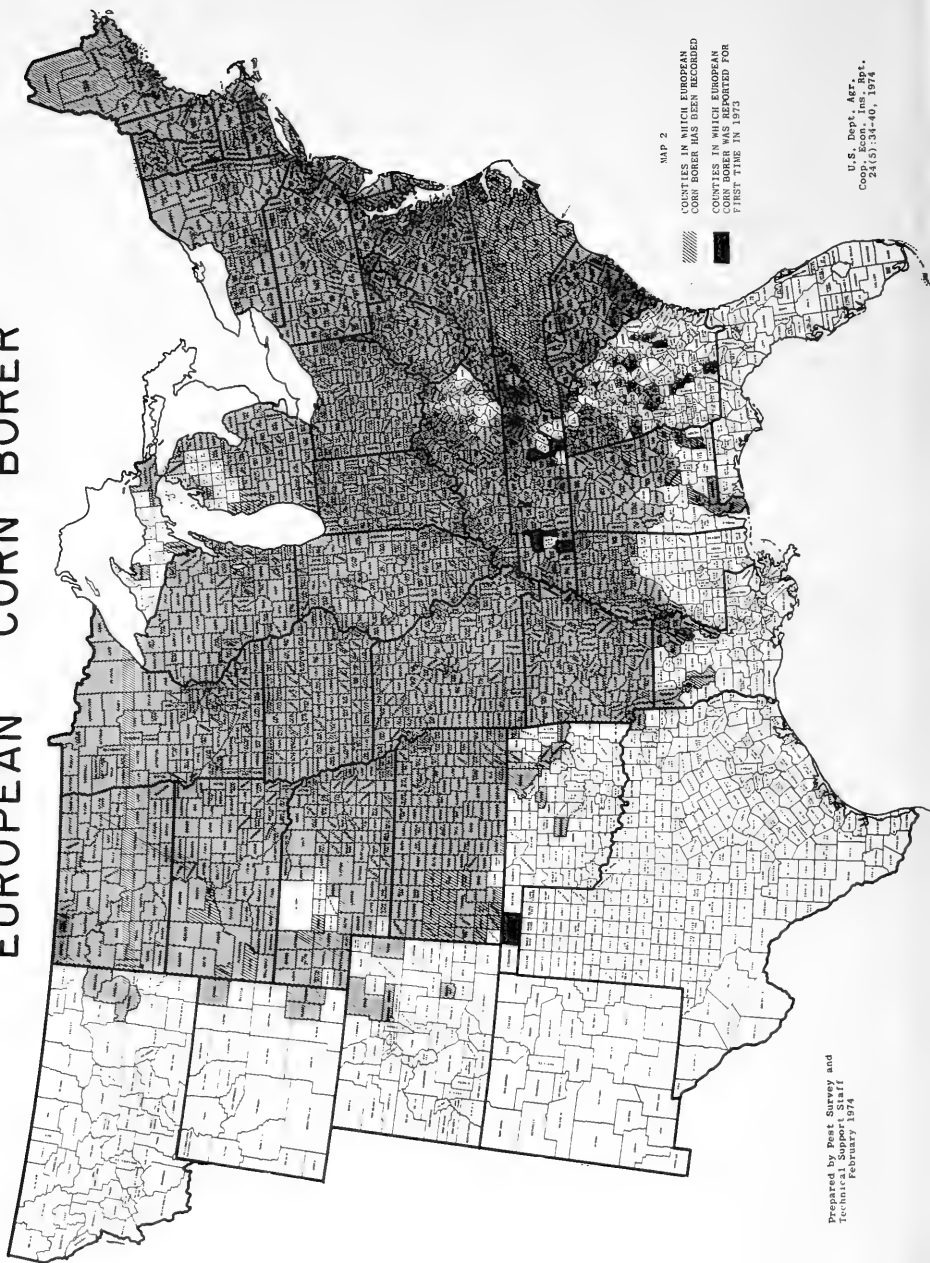
EUROPEAN CORN BORER ABUNDANCE FALL 1973



Map 1. No figures available for areas not shaded

Prepared by Pest Survey and
Technical Support Staff
February 1974

EUROPEAN CORN BORER



MAP 2

COUNTIES IN WHICH EUROPEAN CORN BORER HAS BEEN RECORDED
COUNTIES FIRST REPORTED FOR FIRST TIME IN 1973



Prepared by Pest Survey and
Technical Support Staff
February, 1974

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(5)34-40, 1974

INSECTS NOT KNOWN TO OCCUR IN THE CONTINENTAL UNITED STATES

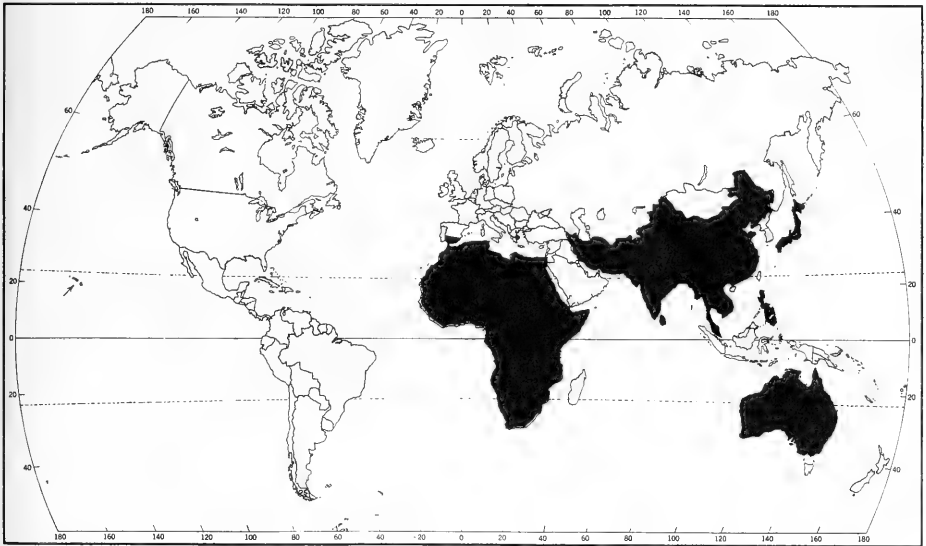
AFRICAN MOLE CRICKET (Gryllotalpa africana Beauvois)

Economic Importance - This cricket is a serious pest of potato, one of the main cash crops of West Bengal and at Memari in Burdwan District of India. Most of the damage is caused by the immatures and adults tunneling within the potato tuber. All stages destroy the smooth surfaces of lawns, golf and bowling greens, and tennis courts with their burrowing habits. They can cause serious damage in gardens and seed beds by churning up the soil, which exposes seeds and uproots seedlings. This cricket also damages other crops, such as maize, sugarcane, and vegetables, by feeding on the roots, cutting seedlings at the basal region just below the soil surface, or gnawing at succulent stems at ground level. Adults and nymphs feed on the roots and stems of unirrigated rice causing the plants to wither and dry. The tunneling of this cricket also has been known to cause leaks in irrigation ditches.

Hosts - Various species of grasses, potato, sugarcane, indigo, fruit trees, cotton, tobacco, rice, grape, cacao, coffee, tea, sorghum, rhubarb, and papaw.

Distribution - Africa, Indian and nearby islands, South Asia, Southeast Asia, China, Japan, Philippine Islands, Australia, Guam, Hawaii, and southern Spain.

This pest has been intercepted at U.S. ports of entry 31 times in international commerce since 1917, mostly during the 1960's from Southeast Asia.



General Distribution of African Mole Cricket

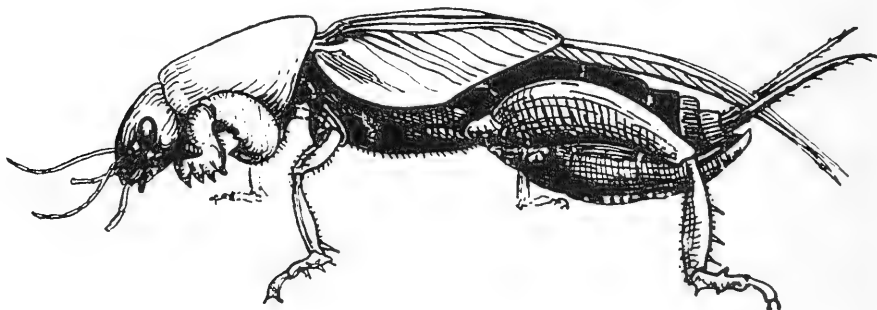
Life History and Habits - Females construct as many as five egg chambers, usually three, by digging vertical tunnels in the soil. The number of eggs per chamber varies greatly, up to 200 have

Orthoptera: Gryllotalpidae

No. 197 of Series

been observed. Oviposition occurs from November through the summer months. The young, which hatch in about 30 days, do not mature until the following spring and summer. There appears to be only one generation per year but all stages can be seen in the summer due to the prolonged oviposition period. In general, the adults predominate in the early summer months and immatures in late summer through autumn and winter. These insects live in galleries, usually constructed in sandy, moist soil. They are omnivorous, feeding on grass roots, succulent ground level stems, and to a lesser extent, other insects, including members of their own species. They are known to collect germinating wheat and other seeds, storing them in circular chambers 6-12 inches below ground level.

Description - The eggs are ovoid, brown, and about 3.17 mm in length. Newly hatched nymphs are grayish brown and about 5.08 mm long. The nymphs resemble the adults but are wingless. Before reaching maturity they undergo a series of 6 molts. Adult color ranges from yellowish-brown to black. They are elongate and about 30-35 mm in length. The compound eyes are much reduced and black. The ocelli are oval and conspicuous in size. This species differs from the northern mole cricket (*G. hexadoctyla* Perty) of the United States by the presence of a row of dorsal spines, usually four, on the hind tibia, along the inner margin near the apex (occasional specimens of the American species possess one or two spines). *G. africana* possesses powerful flattened front legs that are greatly modified with toothlike projections that are adapted for digging. The front tibiae are shaped like the front foot of a mole, terminated by four strong bladelike projections, referred to as dactyls in literature. This is in contrast to the two on the American species of *Scapteriscus*. Two of the tarsal segments are bladelike and can be moved across the projections like the cutting blades of a mowing machine. The prothorax is rounded and hard for forcing its way through the soil. The forewings are short and rounded. Hind wings are well developed; when not in use, they are folded, projecting backward beyond the forewings. A pair of cerci is present at the tip of the abdomen.



Adult of African Mole Cricket

Illustration from Maxwell-Lefroy, page 100.

(See following page for references.)

Major References - 1. Tripathi, R.L. and Shri Ram, 1968. Mole Cricket (*Gryllotalpa africana* Palisot de Beauvois) - As a pest of boro paddy. Indian J. Entomol. 30(4):320. 2. Banerjee, S.N. and B.K. Chatterjee, 1955. Studies on *Gryllotalpa africana* de Beauvois, a new major pest of the potato crop and its control. Indian J. Entomol. 17(2):219. 3. Tindale, Norman B., 1928. Australasian Mole - Crickets of the Family Gryllotalpidae (Orthoptera) from records of the S. Australian Museum 4(1):11. 4. Chopard, Lucien. Some crickets from South America (Grylloidea and Tridactyloidea) - From the Proceedings of the U.S. Nat. Mus. 106:242. 5. Maxwell-Lefroy, H. 1909. Indian Insect Life.

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24(5):41-43, 1974

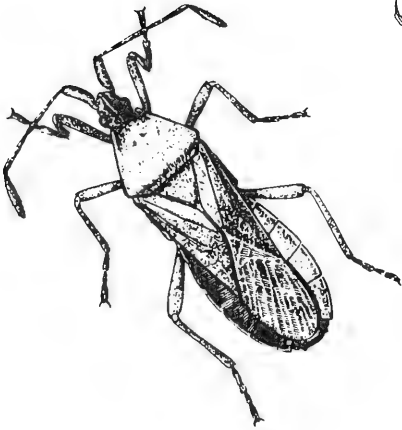
Tuesday was more uneventful as the Colorado Low moved to Indiana spreading precipitation, mostly rain, north and west of the center as it moved. A cold front extended from the Low to eastern Texas and a warm front eastward through Maryland. As the Low moved, snow persisted in Kansas and Nebraska. Snow accumulated to 9 inches in Chadron, Nebraska, before the storm moved on through. As the precipitation changed form, freezing rain and drizzle fell in Iowa and then became rain in Illinois and Indiana. A Low was in New York Wednesday and a cold front had moved to the Appalachians and had become stationary in Louisiana with some indication of a wave forming there. Rain was falling along and about 100 miles behind the front and ahead of it from Pennsylvania northward. Some severe weather had begun in northern Louisiana. Severe weather increased during the day as heavy showers and thunderstorms occurred from northeastern Texas through Tennessee. Flash flooding was reported in western Mississippi. Some freezing rain occurred in New York and snow fell behind a Low in Michigan. Elsewhere in the Nation, a polar front pushed southward into North Dakota and a Low formed in northwest Minnesota. Snow was falling along the front and west of the Low. There was little indication that this front would move further south. As Thursday progressed, a Low in New York moved into the Atlantic and a trailing front moved slowly southeast into warm, moist air from the gulf. This overrunning moist air carried rain, heavy at times, all the way into west Texas and 200 miles behind the front. In the East, rain fell as far north as Maryland as the front lingered from North Carolina to southern Louisiana. Friday, a Low formed on the front in the western gulf and by Saturday had moved to a position in northern Mississippi with a warm front eastward through South Carolina. Heavy rain and severe weather surrounded the Low as it moved north then northeast. Rain continued as far north as Maryland. A polar front continued to linger along the northern tier of States causing some local snowfall. Sunday the Low had moved rapidly northeastward and as the day progressed, the entire system moved out of the country. The weather cleared rapidly as the front passed but grim reminders were left in its wake in the form of flooding streams, tornado damage, and a generally soggy area east of the Appalachians.

TEMPERATURE: The second week of Indian Summer elapsed as most of The Nation basked in well above normal temperatures. The warmest area was in the States east of the Appalachian Mountains where warm, tropical air predominated during most of the week. Many alltime high temperature records were broken. In the District of Columbia, a maximum temperature of 75 degrees on Sunday broke the previous alltime record of 72 degrees set in 1954. The exception to the warm air was the plateau area of the Southwest where a large area of cold air was trapped. Grand Junction, Colorado, finished the week with an average temperature of 14 degrees below normal. The reason for the warm week was a lack of cold, arctic air moving southward which would normally be expected this time of year. Instead, the arctic air took on a west-east trajectory and barely touched some of the Northern States. The movement of the air masses was more typical of early fall with Pacific maritime air moving into the United States from the west and tropical air from the Gulf of Mexico moving northward. It was the meeting of these two vastly different air masses that triggered weather occurrences in the Eastern United States.

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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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Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG ranged light to moderate in small grains throughout most of High Plains area of Texas; continued at threatening levels in west-central Oklahoma. (p. 47).

HORN FLY unusually heavy due to sustained warm weather in northern Florida Peninsula. (p. 48).

Special Reports

European Corn Borer. Selected References 1965-1968. (pp. 49-52).

Distribution of Cereal Leaf Beetle. Map. (p. 53).

NOTE: "The 1971 Global Mosquito and Mosquito-Borne Disease Situation" is available. This review of world literature is devoted exclusively to mosquitoes on an annual basis. Inquiries or requests should be addressed to Mrs. Helen Sollers-Riedel, P.O. Box 19009, Washington, D.C. 20036.

Reports in this issue are for the week ending February 1, unless otherwise indicated.

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WEATHER OF THE WEEK ENDING FEBRUARY 4

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

HIGHLIGHTS: The average temperature for the week was again above normal over most of the Nation. However, an influx of cold air from Canada at midweek moderated temperatures in the eastern Great Plains and northeastward. After a day of respite, severe weather, rain, and floods again plagued the Southeast. Snow fell from Montana eastward through the Great Lakes area. Heavy rains continued along the coast of Washington. The southern Great Plains and the Southwest spent a dry week.

PRECIPITATION: By midmorning Monday, a Low had moved eastward to southeastern Missouri with a cold front southward through southwestern Louisiana. A warm front extended eastward through Tennessee and became stationary through Virginia. During the night and early morning, a squall line moving east from the cold front triggered tornadoes. Single tornadoes were reported in Texas, Louisiana, and Arkansas but five twisters were reported in Mississippi. Severe weather continued and spread eastward during the rest of Monday and tornadoes were reported in Alabama and Tennessee. Thunderstorms were rife throughout the Southeast north of the Florida Peninsula. In the northern part of the country snow spread from Montana east through North Dakota. Late Monday, clear skies prevailed from the southern Great Plains westward through California. Tuesday, a Low had moved off the coast in the New York area and a troublesome front, considerably weakened, but still causing rain, was in Georgia and northwestern Florida. After a thorough drenching of the New England coast as the Low moved northeastward, off-shore fair weather prevailed over most of the Nation. The Northern States were the only exception with scattered snows. Wednesday, a mass of cold Canadian air began to move southward into the central U.S. A Low centered in southwestern North Dakota moved eastward and cold polar air plunged southward behind it. High winds marked plummeting cold air. Gusts topped 80 m.p.h. at Livingston, Montana. Light to moderate snow fell around the Low and along a fast-moving cold front. The Low moved rapidly eastward through the Great Lakes and into Canada on Thursday and cold air ended its southward journey in Arkansas. A blizzard swept across northern Michigan. Weather of the week continued on page 54.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Ranged up to 230 per 100 sweeps in overwintering sites along ridges and in canyons near Coalinga, Fresno County. Concentrations found on most favorable slopes. Eggs found in about 90 percent of all females. Little or no concentration found in most areas checked, including some flats, in Kettleman Hills, Quizarral Hills, and Coalinga area; counts ranged 1-5 per 10 sweeps in most of these areas. Treatment to begin this period at Coalinga. Some concentrations and few heavy counts noted in areas north of Coalinga. Populations at Cantua Creek and Big Panoche Canyons variable with little difference between flats and slopes. No treatments planned. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Light on oats in some south-central counties. No severe damage reported. Infestations seem to be decreasing at this time. (Cole).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 25-30 per linear foot on dryland wheat in Quay, Roosevelt, and Curry Counties. (N.M. Coop. Rpt.). TEXAS - Remained light in most Rolling Plains counties; well below economic levels. Populations of 1-25 per row foot observed in Wilbarger, Baylor, Archer, and Hardeman Counties. Very light populations also noted in Throckmorton, Haskell, and Knox Counties. Populations of lady beetles, nabids, and spiders observed in Haskell, Wilbarger, Hardeman, Archer, and Baylor Counties. Parasitic wasps heavy in several fields in Archer, Baylor, and Hardeman Counties. In some fields, wasps have parasitized at least half of S. graminum specimens. Small colonies of S. graminum noted in number of south-central fields; no economic damage observed. Populations still light to moderate throughout most High Plains areas. Small grains in Rolling and High Plains areas under stress due to dry conditions. (Boring, Cole). OKLAHOMA - Ranged 15-200 per linear foot in wheat in Kiowa County, 0-45 in Texas County. Averaged 100 per linear foot in Harmon County, 30 in Tillman and Jackson Counties, and 90 in Custer, Caddo, Beckham, and Washita Counties. (Okla. Coop. Sur.). KANSAS - Trace infestations noted in one of four wheat fields in Hamilton and Finney Counties; none found in fields in Gray, Ford, and Kearny Counties. (Bell). ARKANSAS - Survey negative in northwest area small grains. (Boyer).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Averaged 100 per linear foot in wheat in Custer, Caddo, Beckham, and Washita Counties. (Okla. Coop. Sur.).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 150-200 per linear foot in wheat checked in Custer, Caddo, Beckham, and Washita Counties. (Okla. Coop. Sur.). KANSAS - Trace infestations sometimes noted in wheat in Gray, Kearny, Hamilton, and Finney Counties. (Bell).

FORAGE LEGUMES

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County averaged 30 at Dome and 110 at Gila. None found at Tacna, Roll, or Wellton. Alfalfa treated on Yuma Mesa. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Average counts per 100 sweeps of alfalfa in Yuma County by area: Tacna 240, Roll 290, Wellton 210, Dome 180, Gila 390. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 5-10 per square foot in new alfalfa at Portales, Roosevelt County. (N.M. Coop. Rpt.).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County averaged as follows: Tacna 130, Roll 40, Wellton 60, Dome 90, Gila 60. (Ariz. Coop. Sur.).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Ranged 1-42+ per leaf in lemon groves on Yuma Mesa in Yuma County. (Ariz. Coop. Sur.).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - A single laboratory confirmed case reported in continental U.S. during period January 20-26 from Real County, Texas. Total of 49 cases confirmed from Mexico. Number of sterile flies released this period totaled 51,178,200; all in Texas. Total of 113,054,400 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 150 per beef animal at Gainesville, Alachua County, January 30; unusually heavy due to sustained warm weather. This population level usually not reached until late February. (Fla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 0.3 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). KANSAS - Averaged one per head (range 0-17) and 26 percent infested in sample of 50 feeder steers recently moved from Bourbon County to Kearny County. Herd sampled when brought into Kearny County feedlot. (Bell).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Cattle lice, mainly this species, moderate to heavy on cattle in Pawnee, Pittsburg, Pushmataha, and Le Flore Counties. (Okla. Coop. Sur.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Increased on cattle in Pittsburg, Le Flore, and Pushmataha Counties. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

FIRE ANTS (Solenopsis spp.) - ALABAMA - Alates and workers heavy in all mounds in 800-acre pasture in southern Cleburne County. Alates ranged 15-17 per mound. (Baker, Barwood). TEXAS - Populations of S. invicta (red imported fire ant) and S. geminata (fire ant) increased rapidly in Brazos, Harris, and Brazoria Counties. Increased mound building activity noted throughout these counties during warm weather. (Cole, Green).

EUROPEAN CORN BORER
Ostrinia nubilalis (Hübner)

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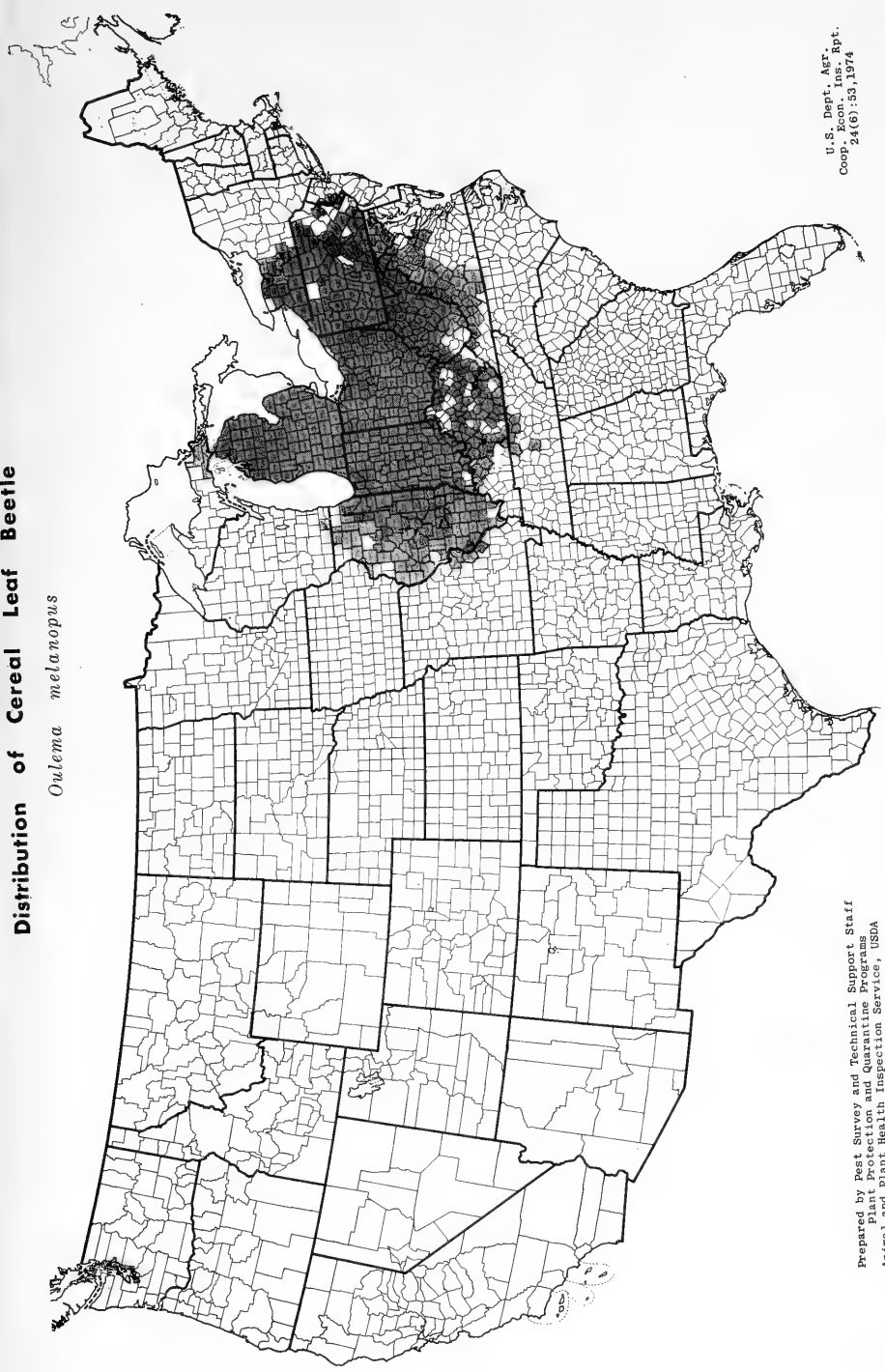
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Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(6):49-52, 1974

Distribution of Cereal Leaf Beetle

Oulema melanopus



U.S. Dept. Agr.
Econ. Ins. Rpt.
24(6) : 53, 1974

Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
February 8, 1974

Weather of the week continued from page 46.

Heavy snow fell on the back side of the cold front in western Montana. Another frontal system moved into the Northwest and heavy rain fell along the coasts of Washington and Oregon. Friday, fair and mild weather prevailed over most of the Nation again. However, snow fell around Lake Erie--Syracuse, New York, got 7 inches--and rain continued along the Pacific Northwest coast. A wave moving along the cold front on Saturday in the Ohio Valley caused snow to the north and east. Heavy snow warnings were issued for southern New York and southern New England. Sunday, the departing storm caused freezing drizzle and snow over the middle Atlantic States, while in New England the snowstorm eased. Snow was falling over the Great Lakes, southeast into the upper Ohio Valley and over the northern Appalachians into southwest New England. Sleet and freezing drizzle plagued the lower Hudson Valley south to the northern Chesapeake Bay and inland to the central Appalachians. Thunderstorms were aligned from the north-central gulf to the South Carolina coast and were scattered over northern Florida.

TEMPERATURE: The temperature of the Nation was marked by a drastic change at midweek. At the beginning of the week, the only below normal areas were the Plateau area of Colorado and Utah where a mass of cold air was trapped and the extreme northern border of the U.S. All the rest of the Nation had above normal temperatures. The air warmed to as much as 20 above normal along most of the east coast and new temperature highs were set as far north as Portland, Maine; 86 was reported at Mayport, Florida. Abnormally high temperatures continued until Wednesday, when a mass of cold polar air which had been pushing in and out of our Northern States was poised north of Montana. A ridge of high pressure building along the west coast caused the long delayed cold air to plunge southward with rapidity indicating that it was anxious to get where it was supposed to be in midwinter. The cold air had moved all the way south to Arkansas and east to the Great Lakes by Thursday morning. Blizzard conditions with subzero temperatures existed in the North Central States. Friday, colder air enveloped all of the area from the central Plains to the Midsouth and all of the Northeast. A contrast of air masses is dramatically depicted in thermometer readings. It was well below zero in northern Minnesota and above 80 in southern Texas. Another outbreak of cold air moved into the north-central U.S. on Sunday but without violence that marked the earlier one. Record warm temperatures were again occurring in south-central and southeastern States. A record high for this date was set at San Antonio, Texas, where 85 degrees was reported.

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Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG activity in small grains lighter in Panhandle or High Plains area of Texas due to recent cold weather. Infestations at threatening to severe levels on small grains in west-central Oklahoma, some controls applied in southwest area. Greenbug infestations found in small grains in west-central and southeast Kansas in December 1973 eliminated by cold weather. (p. 57).

ALFALFA WEEVIL larvae active in alfalfa in southwest, central, and west-central Oklahoma; some adult activity noted in southeast Kansas. (p. 58).

For first time since March 1973, no confirmed SCREWORM cases reported in continental U.S. (p. 59).

Detection

A WEEVIL reported as a new State record for Alabama. (p. 57).

For new county records see page 60.

Special Reports

State Survey Coordinators. (pp. 61-64).

Cooperative Survey Entomologists. (pp. 65-67).

Some First Occurrences of the Season

ARMYWORM larvae in North Carolina. ARMY CUTWORM larvae in Oklahoma. GREEN CLOVERWORM larvae and WHITE PEACH SCALE crawlers in Florida. A FALSE SPIDER MITE in Alabama.

Reports in this issue are for the week ending February 8 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING FEBRUARY 11

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

HIGHLIGHTS: Winter vented its fury this week dropping temperatures to 6 degrees to 15 degrees below seasonal norms over much of the Nation. Precipitation was generally light except in the Southeast where 8 inches or more fell over parts of Louisiana, Mississippi, Alabama, and Georgia.

PRECIPITATION: Most of the Nation received little or no precipitation. Texas and the desert Southwest received no moisture. Less than 0.10 inch fell over the northern Plains although some moisture fell almost every day as snow. The Southeast received some heavy precipitation on Wednesday and Thursday with 2 inches or more over parts of four States. Snow fell Monday from the northern Appalachians to the Dakotas during the day as the result of a Low in Montana and another off the New England coast. The rest of the Nation was essentially clear. Snow continued from the northern Rockies into portions of the Ohio Valley on Tuesday. From 4 to 11 inches fell over Wisconsin in 24 hours. The complex frontal system that stretched from the northern Rockies through Texas and then eastward to West Virginia triggered snow, rain, and thundershowers from Colorado to the Great Lakes and over the Mississippi Valley late Tuesday and early Wednesday. The storm moved eastward during the day spreading precipitation to the Atlantic coast. Snow persisted to the north. Milwaukee, Wisconsin, added 3 inches for a total of 21 inches on the ground. Snow also fell over Colorado, Montana, Kansas, and Iowa. Rain fell over the South with 3 inches or more in southeastern Alabama as severe thunderstorms developed over the area. Heavy snow moved into the Northeast on Thursday while rain continued to fall in the Southeast. Mobile, Alabama, received 3.1 inches of rain in 6 hours. Snowfall was reported from Texas to New England. In western New York, amounts of new snow averaged 4 to 6 inches with 6 to 8 inches over most of New England. A bank of snow persisted Friday from Kansas to the Nation's Capital. Along coastal sections of New Jersey it was the first significant snowfall since 10 inches fell in January 1970. Weather of the week continued on page 68.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Light, ranged 1-4 per 5 square feet, in alfalfa in Jackson, Tillman, Kiowa, and Harmon Counties. Occasional larvae also noted in Grady, Caddo, and Noble Counties and in wheat in Washita County. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - SOUTH CAROLINA - Infested some lawns and pastures in Allendale County February 4, 1974. Determined by C.A. Thomas. This is a new county record. (McCaskill).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Treatments applied to field of barley at Yuma, Yuma County. (Ariz. Coop. Sur.). TEXAS - Light on small grains in Brazos County. (Cole).

GREENBUG (Schizaphis graminum) - TEXAS - Activity noticeably lighter due to recent cold weather in Panhandle. Generally light activity noted in small grains throughout Rolling Plains; counts in Archer, Baylor, Knox, Haskell, Throckmorton, Hardeman, and Wilbarger Counties ranged 0-21 per row foot. (Boring, Daniels). OKLAHOMA - Ranged 25-200 per linear foot in wheat checked in Washita, Custer, Caddo, and Beckham Counties; light in Tillman County. Some fields treated in Comanche and Cotton Counties. (Okla. Coop. Sur.). KANSAS - Infestations found during mid-December since eliminated by cold weather in several wheat fields in Montgomery, Labette, Cherokee, Greeley, and Wichita Counties. No greenbug specimens noted in wheat surveyed in Elk, Scott, Logan, Wallace, Sherman, and Thomas Counties. (Bell). MISSOURI - Found in one of 8 fields of barley or wheat checked in southwest area; very few specimens noted in this field. (Munson). ARKANSAS - Survey negative in northwest area small grains. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Light, averaged 60 per 100 sweeps, in 2 alfalfa fields at Gainesville, Alachua County. (Fla. Coop. Sur.).

SMALL GRAINS

A WEEVIL (Anacetrinus blanditus) - ALABAMA - Single specimen collected from clump of wheat in Marengo County January 15, 1974, by R. Yates. Determined by R.E. Warner. This is a new State record. (McQueen).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 10-100 per linear foot in wheat checked in Washita, Custer, Caddo, and Beckham Counties. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, ranged 5-16 per linear row foot, in some small grain fields in Baylor and Archer Counties. Counts of 75-86 per row foot reported in isolated fields. Small grains suffering from lack of moisture. (Boring).

TURF, PASTURES, RANGELAND

CHANGA (Scapteriscus vicinus) - FLORIDA - Adults appeared at lights last week of January at Gainesville, Alachua County. Due to warm weather, dispersal flight starting earlier than usual. Mated females can be expected to dig into turf and cause damage after dispersal flights. (Fla. Coop. Sur.).

FORAGE LEGUMES

GREEN CLOVERWORM (Plathypena scabra) - FLORIDA - Larvae averaged 12 per 100 sweeps in 2 alfalfa fields (alfalfa up to 2 feet tall and some plants in bloom) at Gainesville, Alachua County. (Fla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Larvae infested 48 percent of alfalfa terminals checked in Harmon County, ranged 20-40 percent in Jackson, Tillman, Kiowa, and Greer Counties. Light larval activity noted in Grady and Caddo Counties. (Okla. Coop. Sur.). KANSAS - Some active adults (1 per 2 square feet) noted in field of 4-inch alfalfa stubble in Elk County. None observed in fields surveyed in Bourbon and Crawford Counties. No larvae observed. (Bell). ARKANSAS - Survey negative in northwest area alfalfa. (Boyer). KENTUCKY - Eggs averaged 14.4 per square foot January 22 and 21.5 per square foot January 25 in alfalfa in Fayette County. In Barren County, eggs averaged 24 per square foot in alfalfa January 18. (Barnett, Parr). FLORIDA - Total of 56 larvae collected in 100 sweeps in same alfalfa patch where first reported from State at Gainesville, Alachua County. Alfalfa up to 2 feet high and in partial bloom. Only 2 larvae per 100 sweeps taken in alfalfa about 0.5 mile from first location at Gainesville. (Fla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Counts per square foot in alfalfa ranged 10-20 near Roswell, Chaves County, and 50-75 near Carlsbad, Eddy County. Therioaphis maculata (spotted alfalfa aphid) averaged 20 per square foot at latter location. (N.M. Coop. Rpt.). FLORIDA - A. pisum averaged 300 per 100 sweeps in 2 alfalfa fields at Gainesville, Alachua County. (Fla. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - ALABAMA - Very heavy infestation on tomato observed January 11 in 5,000-square-foot Bibb County greenhouse. (McQueen).

DECIDUOUS FRUITS AND NUTS

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Eggs began to hatch, some crawlers present on peach trees in Gainesville area, Alachua County. This scale insect became more of a problem in northern area in 1973. (Fla. Coop. Sur.).

ORNAMENTALS

AN ARMORED SCALE (Pseudaonidia clavigera) - FLORIDA - Adults and nymphs infested stems of Camellia sp. and C. sasanqua at nursery in Orlando, Orange County, January 29. This is a new county record (Fla. Coop. Sur.).

A FALSE SPIDER MITE (Brevipalpus liliun) - ALABAMA - Populations developed to extreme levels on 20 large azalea plants at building in Auburn, Lee County. All leaves heavily bronzed; several hundred mites and eggs noted per leaf. (McQueen).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Currently, 60 counties containing about 7.8 million acres of pine lands affected by epidemic in State. Infestations most severe in Piedmont and mountains. Much loss occurred in many urban areas. As of December 14, 1973, about 18.9 million board feet of infested sawtimber and 2.6 million cubic feet of infested pulpwood salvaged from State, private, and Federal lands. (Forest Farmer, Nov.-Dec. 1973).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - No cases reported from continental U.S. during period January 27-February 2. Total of 15 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 57,867,000, all in Texas. Total of 114,395,400 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 0.6 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - H. lineatum (common cattle grub) ranged up to 53 per head in Comanche County cattle. Moderate in Pawnee County. (Okla. Coop. Sur.).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Cattle lice, mainly this species moderate to heavy on cattle in Pawnee, Craig, Nowata, Logan, and Comanche Counties. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Still heavy on caged laying hens in Oktibbeha County. Hundreds of mites (all stages) found near vent of nearly all hens in one house with 300 birds. (Robinson).

STORED PRODUCTS

BEAN WEEVIL (Acanthoscelides obtectus) - MARYLAND - Several heavy infestations in dried beans reported from Prince Georges, Montgomery, and Howard Counties during week ending February 1. Damage reported in each case. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

LADY BEETLES - KANSAS - Trace populations of Hippodamia convergens (convergent lady beetle) active adults observed February 5 in alfalfa stubble in Elk County field. (Bell). MISSISSIPPI - Thousands of Coleomegilla maculata adults readily found in trash at base of cottonwood trees around old cotton fields in Bolivar and Washington Counties. Some became active during warm weather last week of January but recent cold weather decreased activity. (Robinson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

FIRE ANTS (Solenopsis spp.) - SOUTH CAROLINA - S. invicta (red imported fire ant) collected in Greenville County January 23, 1974, by H.B. Jackson, W.B. Lott, and V.H. McCaskill. Determined by V.H. Owens. Confirmed by D.R. Smith. This is a new county record. Infestation (about 30 mounds) in localized area around one building. Eradication efforts planned, nearest infestation about 100 miles southeast of Greenville. (McCaskill). TEXAS - Heavy populations and mound building activity by S. geminata (fire ant) and S. xyloni (southern fire ant) reported on pasture land in De Witt County. Increased mound building activity by S. invicta reported in many other counties in this area. (Cole).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Evidence of light 1973 populations continued with only three larvae reported on lint cleaner glass from one gin near Knowles, Lea County. (N.M. Coop. Rpt.).

DETECTION

New State Record - A WEEVIL (Anacetrinus blanditus) - ALABAMA - Marengo County. (p. 57).

New County Records - AN ARMORED SCALE (Pseudaonidia clavigera) FLORIDA - Orange (p. 58). ARMYWORM (Pseudaletia unipuncta) NORTH CAROLINA - Allendale (p. 57). RED IMPORTED FIRE ANT (Solenopsis invicta) NORTH CAROLINA - Greenville (p. 60).

CORRECTIONS

CEIR 23(45-48):754 - A CICADA (Cacama valvata) - NEVADA - "...; Clarke County, July 3, 1973, ..." should read "...; Clark County July 9, 1973, ..."

CEIR 23(49-52):781 (CORRECTED COPY) BENEFICIAL INSECTS - LADY BEETLES "... Hypoderma convergens ..." should read "... Hippodamia convergens ..."

CEIR 23(49-52):786 (CORRECTED COPY) - Delete "(1000)" in heading "YIELD LOSS" under Nontreated Acres.

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Weather of the week continued from page 56.

Rain also continued in the southern Atlantic Coast States. Considerable cloudiness prevailed in the East but fair skies generally ruled from the Plains to the west coast. A fast moving weather system was triggering snow in the Dakotas. Snow along the Northern and Middle Atlantic States ended late Friday and early Saturday. Light snow lingered in the Midwest. Some light snow reached as far south as Tennessee and Arkansas. Saturday night was quiet and clear over most of the Nation. A Low and a frontal system moved rapidly southeastward from Canada during the night bringing wind and snow to the north-central U.S. Strong winds gusting 30 to 40 m.p.h. accompanied snow in parts of Iowa and Minnesota. Ottumwa, Iowa, recorded gusts of 72 m.p.h. early Sunday afternoon. The storm system moved rapidly into the New England area by evening, dropping 1 to 3 inches of new snow.

TEMPERATURE: Unusually cold temperatures of the past week continued and stretched the trend which started the previous week. This is a sharp switch from the unusually mild temperatures that persisted during the last two weeks of January. The greatest departures occurred over the Great Lakes, New England, and the southern Rockies. Temperatures averaged 6 to 15 degrees in these areas. The week began with subzero cold gripping the upper Midwest. Below zero temperatures prevailed through the eastern Dakotas and upper Mississippi Valley and through the northern sections of the Great Lakes into northern Maine. Grand Forks, North Dakota, dropped to 30 degrees, Bemidji, Minnesota, reached 34 degrees. Temperatures in single numbers reached into southern Iowa. Colder air moved into the East during the day. Skies were clear from the south Atlantic coast to California but temperatures were slow to warm. Tuesday morning, readings in the 30's extended as far south as northern Florida. Temperatures in the 40's extended as far south as Ft. Myers, Florida, and just south of San Antonio, Texas. Temperatures dropped well below zero in Michigan. The Nation's morning low was 25 degrees at Sault Ste. Marie, Michigan. Subzero temperatures stretched from central Minnesota across the northern Lakes into sections of inland New England on Wednesday. Cold air was pulled well down over the southern Plains. Temperatures in the area were only in the teens and low 20's over the Texas Panhandle after highs in the upper 50's and low 60's the day before. Extensive cloudiness over almost the entire Nation on Thursday kept afternoon temperatures rather chilly. The only real warmth seemed to be along the eastern gulf coast and south Atlantic coast. Temperature extremes ranged from 6 at Fargo, North Dakota, to 85 degrees at Vero Beach, Florida. Temperatures remained on the chilly side the rest of the week. Cold air moved into the Carolinas and Florida Friday night. Most of the area east of the Rockies continued to have below normal temperatures through the weekend.

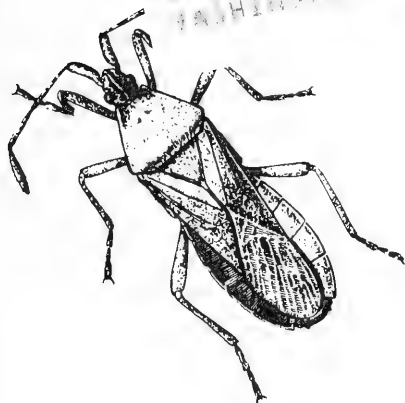
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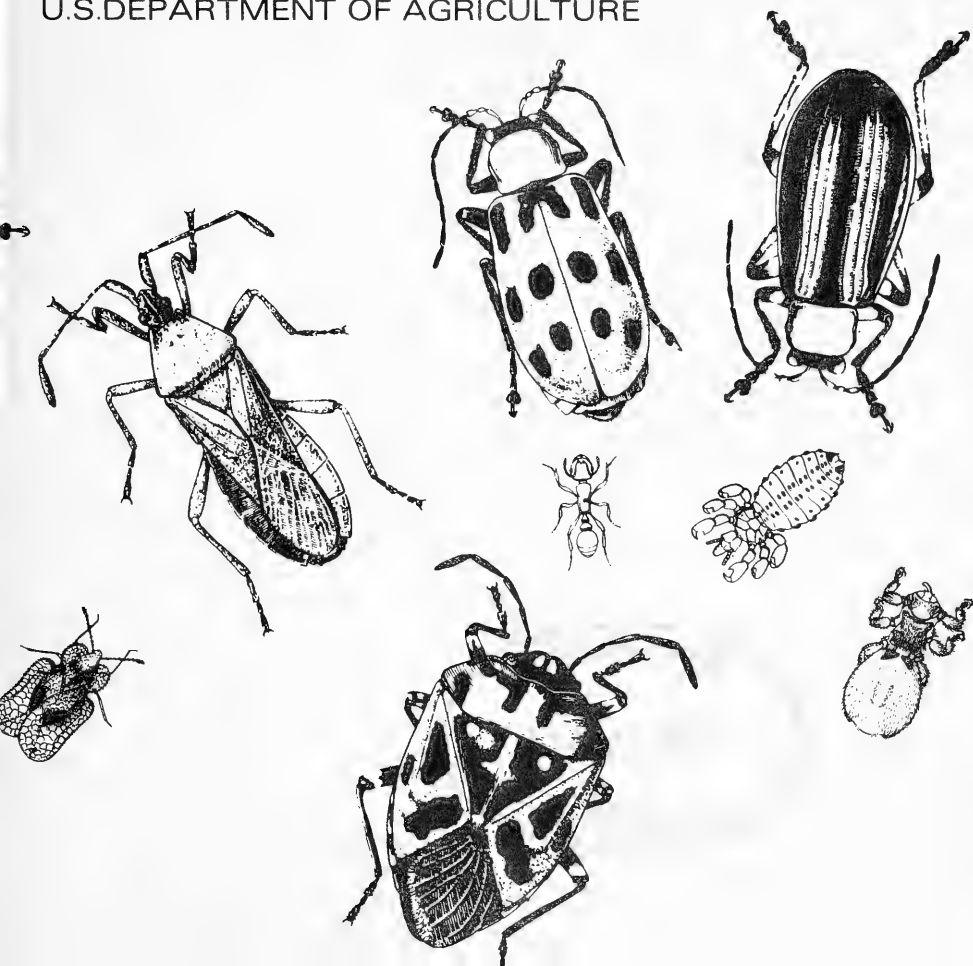
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Cooperative Economic Insect Report

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PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG infestations in wheat greatly reduced since mid-January in extreme southwestern Kansas, but at threatening level in some wheat in southwestern Oklahoma. (p. 71).

A BRACONID WASP heavily parasitized greenbug in wheat in west-central and southwestern Oklahoma. (p. 74).

Detection

For new county records see page 74.

Special Reports

European Corn Borer. Selected References 1971-1972. (pp. 75-78).

"Survey Methods for Some Economic Insects" to be revised.
(p. 79).

Some First Occurrences of the Season

SPRING CANKERWORM males in Kansas. MOSQUITO adults in California.
WESTERN SUBTERRANEAN TERMITE reproductives in Oregon.

Reports in this issue are for the week ending February 15 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING FEBRUARY 18

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

HIGHLIGHTS: Fair skies and mild temperatures dominated most of The Nation early in the week. Montana, southeastward through South Dakota, reported temperatures 12 degrees or more above normal with Havre, Montana, recording the highest variance of 19 degrees above normal. Typical February weather returned on Thursday and continued through the weekend when thundershowers and snow delivered 0.14 inch to over 4 inches of precipitation in sections of New England and the Gulf Coast States.

PRECIPITATION: While most of the Nation remained dry and mild, heavy precipitation pelted sections of the Southeast soaking the Mississippi Valley with over 2 inches of rain. Continuous rain dampened the Pacific Northwest throughout the week measuring twice the expected amount. A Low pressure system which produced rain over the Mississippi Valley finally drifted out over the Atlantic bringing snow to New England on Sunday.

Monday, scattered snow fell over the Great Lakes, parts of New England and the northern and central sections of the Appalachians. Boonville, New York, received 4 inches of precipitation in just three and one-half hours. In the Midwest, Akron, Ohio, measured 2 inches of new snow. Light precipitation fell along the shores of the eastern Great Lakes and the northern borders of New England on Tuesday. Buffalo, New York, received an inch of snow during the night for a total of 13 inches on the ground. Eastport, Maine, accumulated 6 inches of snow in only 6 hours. Wednesday, a cloud mass covering northern New England produced scattered rain and snow showers. Caribou, Maine, received 1 inch of snow during the day. Cloudy conditions over the Pacific Northwest brought rain to western Washington and Oregon. Quillayute, Washington, recorded 0.84 inch within only six hours. Heavy thunderstorms pelted Arkansas, northern sections of the central Gulf Coast States, and the western Carolinas on Thursday. Friday, thunderstorms and rain continued in Oklahoma and southern Texas through much of the lower Mississippi Valley and to southern portions of the central gulf

Weather of the week continued on page 80.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Usually none found in wheat surveyed in several southwest district counties but larvae (mostly second instars) averaged one per square foot in one Morton County field with damage readily noticeable. Trace infestations found in other fields surveyed in Morton County and in one field each in Clark and Meade Counties. None observed in wheat in Gray, Ford, Hamilton, Stanton, Stevens, and Seward Counties. (Bell). OKLAHOMA - Averaged about one per linear foot in wheat and alfalfa in Kiowa and Jackson Counties. Light in most wheat in Washita, Beckham, Custer, and Roger Mills Counties, but heavy in few scattered fields. Light in most wheat in Major, Blaine, and Kingfisher Counties; ranged up to one per linear foot in few scattered fields. Damage to fall-seeded alfalfa reported in Ellis County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - ARKANSAS - Occasional specimen found on wheat in northwest area. Averaged less than one per row foot; expected to increase if temperatures continue at or above normal. (Boyer). KANSAS - Since last surveys in mid-January, infestations in wheat in Stanton and Morton Counties greatly decreased or disappeared. Only 15 per row foot found in one Morton County field compared to about 500 in mid-January. None found in other fields in this county or in Stanton County where some seen in mid-January. No S. graminum found in fields surveyed in Gray, Meade, Clark, Ford, Hamilton, Stevens, and Seward Counties. (Bell). OKLAHOMA - Ranged up to 60 per linear foot in wheat in Jackson County and up to 40 per linear foot in Kiowa County. Parasitism moderate to heavy in these counties. Parasites reported holding greenbug at low levels in Tillman County. Greenbug counts per linear foot by county: Major 0-4, Blaine 0-13, Kingfisher 0-34, Texas 0-5. (Okla. Coop. Sur.).

TEXAS - S. graminum very light in small grains in Archer, Baylor, Knox, Haskell, Throckmorton, Hardeman, Childress, Wichita, Wilbarger, Foard, and Young Counties. Ranged 0-19 per row foot. Populations of 20-50 per row foot observed in some Wichita County fields. Parasitic wasps, lady beetles, nabids, and spiders continued to prey on greenbugs in most Rolling Plains counties. Parasitized S. graminum ranged 50-75 percent of those found in many fields. Greenbug also observed on oats and wheat throughout most south-central counties. In most areas, caused no economic damage. (Boring, Cole). NEW MEXICO - Ranged 8-12 per linear foot in barley in Roswell area, Chaves County. (N.M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - This species ranged 5-10 and Acyrtosiphon pisum (pea aphid) ranged 20-50 per square foot on alfalfa near Roswell, Chaves County. Populations heaviest on ungrazed pastures. (N.M. Coop. Rpt.).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Very light in small grains throughout Rolling Plains. Populations of 35-75 per row foot found in several fields in Archer and Baylor Counties. These populations generally considered light. Counts of 50-75 per row foot could cause damage in fields already under stress from lack of moisture. Benefits of treating at this time questionable as moisture in primary limiting factor. (Boring).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 20-75 per linear foot in wheat checked in Muskogee, Wagoner, and Okmulgee Counties. Very light (0-2 per linear foot) in Major, Blaine, and Kingfisher Counties, and light in west-central counties. (Okla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - KENTUCKY - Eggs averaged 20.6 per square foot in alfalfa at one Fayette County location. (Barnett, Parr). ARKANSAS - Survey still negative in northwest area. Alfalfa has made no growth to date. No egg hatch apparent in area; expected to begin in southern area soon if current warm weather continues. (Boyer). OKLAHOMA - Larvae present in 20-40 percent of alfalfa terminals checked in Jackson, Kiowa, and Cotton Counties. Moderate in Tillman County. Light in Pawnee and west-central counties. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Ranged 10-20 per linear foot in alfalfa in Jackson and Kiowa Counties. Light in west-central counties. (Okla. Coop. Sur.).

SUGAR BEETS

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Populations in sugar beets in Imperial County increased. In past years, infestations have built up rapidly during February. This species known to cause yield reductions when heavy populations untreated. (Cal. Coop. Rpt.).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Some adults in flight and egg laying on cole crops observed in Montgomery, Elmore, Macon, and Lee Counties. Larval feeding expected to increase on all cole crops. (McQueen).

SMALL FRUITS

GRAPE ROOT BORER (Vitacea polistriformis) - ALABAMA - Full-grown larvae collected from roots of recently killed grapevine in Elmore County. This is a new county record. (Bayles et al.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Pulpwood salvage efforts on State and Federal lands increased from 595 cords in November 1973 to 800 cords in December 1973. Timber salvage for December 1973 decreased about 500 board feet from November 1973 (USFS). TENNESSEE - Known to infest 609,000 acres in 10 counties in State. Heaviest on Tellico Ranger District of Cherokee National Forest, Great Smoky Mountain National Park, and Atomic Energy Commission lands near Oak Ridge. About 200,000 board feet of infested sawtimber and 10,000 cubic feet of infested pulpwood harvested in 1973. (USFS, Feb. 8).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - First moths of the season (males) observed flying at Manhattan, Riley County, February 12 and 13. Males also found under loose bark near bases of trunks of Siberian elms; no females seen. (Bell).

AN ARMORED SCALE (Phenacaspis heterophyllae) - FLORIDA - Infested longleaf pines (Pinus palustris) examined in Relay, Flagler County. Collected by R.C. Wilkinson and R.E. Waites, February 1, 1974. This is a new county record. (Fla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - One (1) case reported from continental U.S. during period February 3-9 in Yuma County, Arizona. This is first confirmed case in Arizona since December 26, 1973. Total of 65 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 53,329,200, all in Texas. Total of 115,018,200 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 0.3 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). MISSISSIPPI - Survey for H. lineatum (common cattle grub) negative in Monroe County. (Combe). OKLAHOMA - H. lineatum ranged 10-20 per head on cattle checked in Johnston County and 0-6 per head in Payne County. Moderate in Pawnee County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 17 per dairy animal and 45 per beef animal near Gainesville, Alachua County. Population decreased from above-normal level of 14 days ago due to recent cold period with temperatures near freezing. (Fla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - FLORIDA - Averaged one adult per two beef animals in herd near Gainesville, Alachua County. (Fla. Coop. Sur.).

MOSQUITOES - CALIFORNIA - Heavy adult populations swarming in many areas of State. Warm weather and rain increasing problem. (Cal. Coop. Rpt.).

CATTLE LICE - ALABAMA - Statewide infestations apparently lighter than in most years, but currently noticeable on cattle in Wilcox and Lauderdale Counties. (Farquhar, Halla).

CHICKEN BODY LOUSE (Menacanthus stramineus) - MISSISSIPPI - Moderate in Webster County on chickens in poultry house where laying hens housed on ground. Eggs, nymphs, and adults found, indicating life cycle continuing even though insecticides applied. (Hillhouse).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Continued heavy on untreated laying hens in Oktibbeha County. (Robinson).

HOUSEHOLDS AND STRUCTURES

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - OREGON - Alates noted in wood debris under Cedar Hills home, Washington County. (Lydell). These are first reproductives reported this season. (Penrose).

CASEMAKING CLOTHES MOTH (Tinea pellionella) - SOUTH CAROLINA - Specimens collected by M. Parnell from Florence County residence January 22, 1974. Determined by C.A. Thomas. This is a new county record. (McCaskill).

BENEFICIAL INSECTS

A BRACONID WASP (Lysiphlebus testaceipes) - OKLAHOMA - Heavy parasitism of Schizaphis graminum (greenbug) in wheat reported in Washita, Beckham, Custer, and Roger Mills Counties. Ranged up to 90 percent in some fields. Adults ranged 1-2 per linear foot and mummies averaged 2 per linear foot in Jackson and Kiowa Counties. Parasites are holding greenbug at low levels in Tillman County. Light parasitism noted in Major County field. (Okla. Coop. Sur.).

HONEY BEE (Apis mellifera) - ALABAMA - Much more active in southern and central areas past 8 weeks of mild winter. Bees may use more stores and many may die of starvation before reasonable food supply available from blossoms. Special efforts being made to encourage bee keepers to inspect and feed broods. Further loss of bees and their pollination ability will greatly affect production of fruits, clovers, and other crops. (Dennis, et al.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Egg survey in eastern Colfax and Union Counties showed light and scattered populations, with some local moderate infestations. (N.M. Coop. Rpt.).

DETECTION

New County Records - AN ARMORED SCALE (Phenacaspis heterophyllae) FLORIDA - Flagler (p. 73). CASEMAKING CLOTHES MOTH (Tinea pellionella) SOUTH CAROLINA - Florence (p. 73). GRAPE ROOT BORER (Vitacea polistiformis) ALABAMA - Elmore (p. 72).

CORRECTIONS

CEIR 23(49-52):786 - CORRECTED COPY - KANSAS - Under heading Nontreated Acres delete 28,000 for corn leaf aphid (CLA) and 16,600 for European Corn Borer (ECB).

CEIR 24(7):60 - DETECTION - New County Records - "ARMYWORM ... NORTH CAROLINA ... RED IMPORTED FIRE ANT ... NORTH CAROLINA ..." should read "ARMYWORM ... SOUTH CAROLINA ... RED IMPORTED FIRE ANT ... SOUTH CAROLINA."

EUROPEAN CORN BORER
Ostrinia nubilalis (Hubner)

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Prepared by Pest Survey and
Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(8):75-78, 1974

SURVEY METHODS

Survey Methods For Some Economic Insects, ARS 81-31, May 1969, is scheduled for revision. We are soliciting survey methods for economic snails, slugs, mites, and ticks as well as insects. We wish to include methods that involve the use of pheromones, attractants, male or female live specimens, sweeping with nets, soil samples, plant counts, traps, and any other devices in common or occasional use. We urge authors to submit black and white glossy prints or line drawings of survey equipment, host injury, forms used to record data, or any other illustrations pertinent to the survey method. Although not mandatory, we are suggesting that the following format be used to write up the survey account:

- Survey Methods for _____
- | | |
|----------------------------|---------------------------------|
| (1) <u>Scientific name</u> | (2) <u>Approved common name</u> |
|----------------------------|---------------------------------|
- (3) Author or authors and location.
 - (4) Type of survey.
 - (5) Name of crop or host - scientific and common name.
 - (6) Where used - State, county, et al.
 - (7) Explanation of survey methods and survey form if applicable.
 - (8) Definition of economic threshold of damage to host.
 - (9) If available, mathematical manipulation of survey data to determine losses to host.
 - (10) Literature citation of previously published.

We are not only interested in methods that are quantified and have wide professional acceptance but also methods that are original and involve less well known pests.

Survey methods should be addressed to:

Cooperative Economic Insect Report
 Plant Protection and Quarantine Programs
 APHIS, USDA, Federal Building
 Hyattsville, Maryland 20782

Examples of pests for which we want survey methods not already covered in the 1969 issue are:

<u>Achatina fulica</u> Bowdich	giant African snail
<u>Anastrepha suspensa</u> (Loew)	Caribbean fruit fly
<u>Blattella germanica</u> (L.)	German cockroach
<u>Brachyrhinus sulcatus</u> (F.)	black vine weevil
<u>Coptotermes formosanus</u> Shiraki	Formosan subterranean termite
<u>Megastigmus pistaceae</u> Walker	pistachio seed chalcid
<u>Orgyia pseudotsugata</u> (McD.)	Douglas fir tussock moth
<u>Periplaneta americana</u> (L.)	American cockroach
<u>Reticulitermes flavipes</u> (Kollar)	eastern subterranean termite
<u>Theba pisana</u> (Müller)	white garden snail
<u>Tipula paludosa</u> Meigen	European crane fly

*Riotte, J.C.E. 1973. Entomologische Zietschrift 83, Nr. 14, pp. 153-159.

U.S. Dept. Agr., Coop. Econ. Ins. Rpt., 24(8):79, 1974.

coast. Thunderstorms dumped 1.50 inches at Baton Rouge, Louisiana, 1.40 inches at Meridian, Mississippi, and 0.82 inch on Jackson, Mississippi. Saturday, a cloud cover blanketed the Pacific coast and produced rain from western Washington to northern California. Cape Blanco, Oregon, received 1.33 inches of rain in a 6-hour period and more than 3 inches in 24 hours. Sault St. Marie, Michigan, received over 3 inches of snow during a 6-hour period. An intense winter storm brought locally heavy snow to sections of southern New England on Sunday. In a 6-hour period, 4 inches fell on Providence, Rhode Island, with 2 inches in Boston, Massachusetts. Heavy snow squalls left 4 inches around Logan, Utah, and some snow fell in the northern Rockies with rain along the Washington coast.

TEMPERATURE: Mild and warm weather characterized the weather pattern compared to previous weeks of bitter cold temperatures. While most of the Nation averaged normal or above normal temperatures, the upper Great Lakes region and New England along with the west coast averaged 3 degrees below normal. Large areas in the Midwest recorded temperatures 5 to 12 degrees above normal. Monday a cold wave invaded the upper Great Lakes area sending temperatures dipping below 10 degrees in Minnesota, Wisconsin, and northeast Iowa. Gunnison, Colorado, recorded the Nation's lowest temperature that morning of 28 degrees below zero. Sioux City, Iowa, set a new record high at 60 degrees while Palm Beach, Florida, reported a record-breaking low temperature of 38 degrees. Tuesday, unseasonably warm weather sent temperatures soaring 20 degrees above normal into the 60's as far north as Kansas and southern Iowa. By mid-afternoon, temperatures ranged from 79 degrees at McAllen, Texas, to 7 degrees at Minot, North Dakota. A cold front moved southward Tuesday night causing Wednesday morning temperatures to dip below zero in sections of North Dakota and Minnesota. Ahead of the front Mississippi Valley temperatures remained in the 30's and 40's. Temperatures climbed into the 70's from South Carolina to the Texas Panhandle while Devils Lake, North Dakota, reported a high of 5 degrees below zero. Thursday, cold winter air invaded the Nation from Maine southwest through the Ohio Valley and into the central Plains. Harrisburg, Pennsylvania, recorded a record-breaking high of 57 degrees. Temperatures remained below 10 degrees along the northern border of the United States and in the 30's from Kansas to western Maryland. Friday morning, temperatures fell below the freezing mark across the northern half of the Nation from the Rockies eastward. The upper Mississippi Valley and east across the upper Great Lakes and into northern New England averaged below zero readings. Southern sections of Florida, reached 80 degrees. The gulf coast and southern California reached into the 70's. By 2:00 p.m. Saturday, temperatures ranged from 15 degrees at Thief River Falls, Minnesota, to 80 degrees at West Palm Beach, Florida. Clear skies dominated the Nation from Arizona to Texas through the Plains and upper Great Lakes area. Temperatures reached the 50's and 60's over much of the Plains and Mississippi Valley. Sunday, mild winter readings dominated most of the Nation. A High pressure zone in the central United States influenced mild temperatures, the 60's as far north as Iowa and Nebraska, while a 50-degree mark was reached in Illinois and South Dakota.

U.S. DEPARTMENT OF AGRICULTURE
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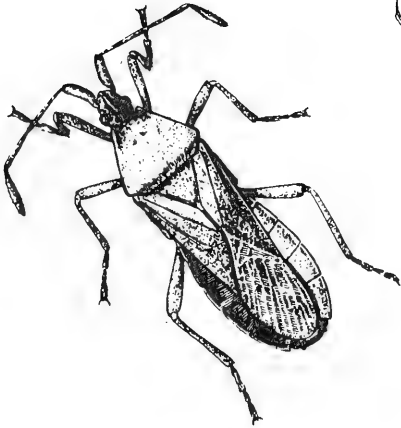
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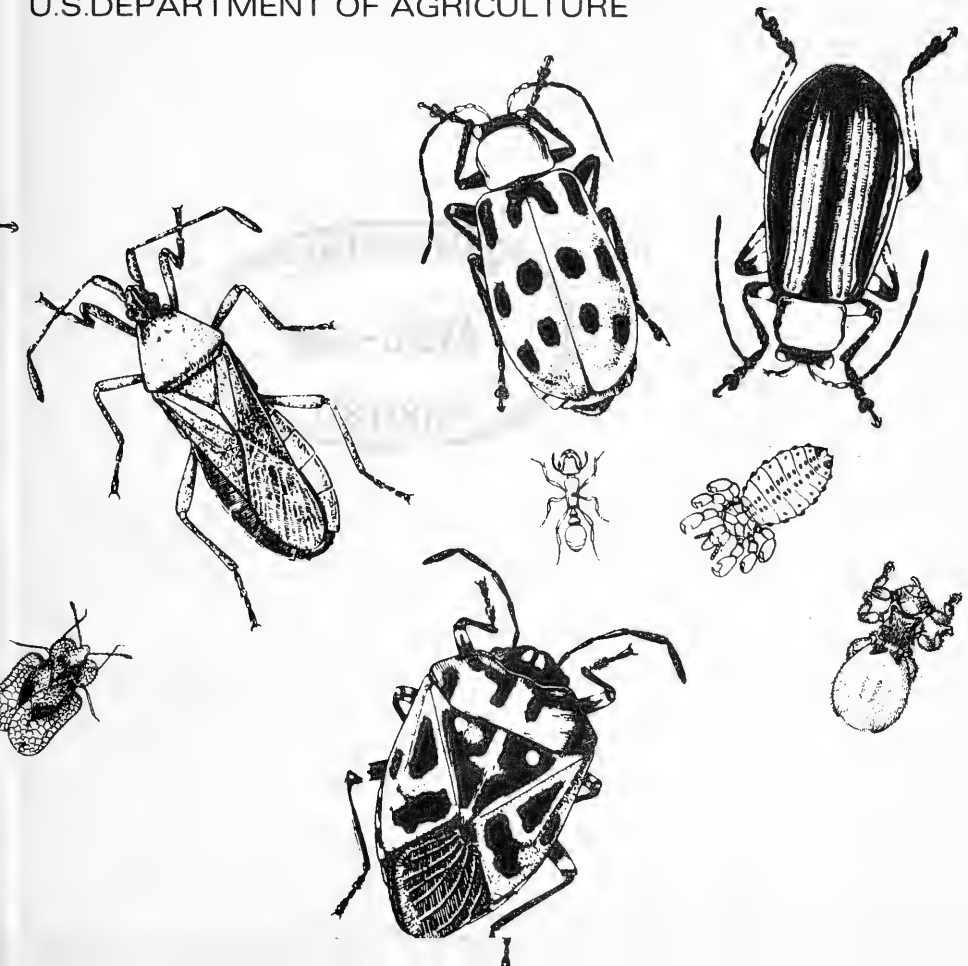
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Cooperative Economic Insect Report

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



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

CEIR

Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMY CUTWORM damaged wheat and some alfalfa in southwest Oklahoma. GREENBUG ranged up to very severe on wheat in same area of Oklahoma, but noneconomic to light in small grains in Rolling Plains of Texas. (p. 83).

Larvae of a CHALCID WASP infested seeds of white pine in North Carolina. This is first record of a chalcid infesting pine seed in eastern North America. (p. 85).

A BRACONID WASP heavily parasitized greenbug in west-central Oklahoma. (p. 86).

Prediction

SAN JOSE SCALE will require controls in apple orchards in western Maryland. (p. 84).

Detection

New State records include a CHALCID WASP in North Carolina (p. 85), a DIASPIDID SCALE in Alabama (p. 84), and a NOCTUID MOTH (p. 85) and an OLETHREUTID MOTH (p. 86) in West Virginia.

For new county records see page 86.

Some First Occurrences of the Season

CORN ROOTWORM adult activity in Texas. ALFALFA WEEVIL adult activity in Florida and larvae in North Carolina. PEAR PSYLLA eggs in Oregon. SPRING CANKERWORM females in Kansas. CATTLE GRUB adult activity in Oklahoma.

Reports in this issue are for the week ending February 22 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MARCH 1974

The National Weather Service's 30 day outlook for March is for temperatures to average above seasonal normals over the western half of the Nation except for near to below normal in the Pacific Northwest. Near normal temperatures are indicated over the eastern half except for below normal in the Southeast and above normal in the upper Mississippi Valley. Precipitation is expected to exceed the median amount in the Northwest, the Southeast, and portions of the upper and middle Mississippi Valley. Elsewhere totals are expected to be less than the median.

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

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Ranged up to 9 per linear foot in wheat in Washita, Beckham, Custer, and Caddo Counties. Many fields heavily damaged and treated. Reported damaging alfalfa and wheat in Jackson County. Ranged up to 3 per linear foot in wheat. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged up to 400 per linear foot in wheat in Washita, Beckham, Custer, and Caddo Counties. Younger fields damaged and some treated. Damage also reported in late-planted, slow-growing fields in Comanche County. Ranged 90-100 per linear foot in scattered Texas County fields. Some fields treated but damage caused more by dry weather than by greenbug. (Okla. Coop. Sur.). TEXAS - Ranged 2-10 per row foot in small grains in Wilbarger, Wichita, Archer, Baylor, and Hardeman Counties. None reported in Knox, Haskell, and Throckmorton Counties. Very light in Rolling Plains due to activity of beneficial insects. Parasitic wasps, lady beetles, nabids, and spiders continued to prey heavily on S. graminum. Parasitic wasps parasitized 50 percent or more of greenbugs in many fields. (Boring). ARKANSAS - Survey still negative in northwest area. (Boyer). TENNESSEE - This species and Rhopalosiphum padi (an aphid) ranged 0-12 (average 4) per whorl in small grains checked week ending February 15. (Gordon, Bruer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Colonies of 12-15 young aphids observed in alfalfa near Hatch and Las Cruces, Dona Ana County. Hippodamia convergens (convergent lady beetle) populations near 20 per square yard in these fields. (N.M. Coop. Rpt.).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - TEXAS - Inspections of soil samples from large number of counties in south-central area revealed no activity to date. Egg laying not yet begun. Adult activity reported on warmer days. (Cole).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 50-200 per row foot in small grains in Archer and Baylor Counties. Populations of less than 5 per row foot also observed in fields in Wichita and Foard Counties. P. major damaged wheat in some fields in Archer and Baylor Counties; need for chemical treatments questionable as moisture is primary limiting factor in these fields. (Boring).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Infested terminals averaged 30 percent in alfalfa in Greer County. Ranged up to 3 larvae per terminal in Canadian County. (Okla. Coop. Sur.). KANSAS - Adults active in Haskell County alfalfa field; unconfirmed report of some egg hatch in same county. Adult collected at lights at Clay Center, Clay County, February 20. (Bell). MISSOURI - Adults active in alfalfa in all areas sampled early this period when weather warm. Eggs averaged 217 per square foot in Barton County during February. (Munson). KENTUCKY - Eggs averaged 11 per square

foot February 12 in Warren County. (Barnett, Parr). NORTH CAROLINA - Spot checks in Wake County alfalfa field indicated larvae (mostly first and second instar) active on 50 percent of 100 tips examined. (Hunt). FLORIDA - One adult, 10 large larvae, 16 medium larvae, and 12 small larvae taken in 100 sweeps of alfalfa at Gainesville, Alachua County, February 19. This is first adult occurrence of season in State. (Fla. Coop. Sur.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Infestations ranged 500-600 per 100 sweeps in 4 Yuma County alfalfa fields; treatments applied. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Ranged light to moderate in alfalfa in Canadian County. Also reported in Greer County. (Okla. Coop. Sur.). FLORIDA - Averaged 20 per 10 sweeps in alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - OREGON - Dormant spray treatments just underway in Hood River pear orchards, Hood River County. Overwintering adult populations slightly heavier than average. Sampling of psylla for egg development revealed no mature eggs February 1, but 28 percent had mature eggs February 5 and 35 percent February 8. First eggs noted in field February 11 at experiment station. (Fields, Zwick).

SAN JOSE SCALE (Quadraspidotus perniciosus) - MARYLAND - Heavily infested 400 acres of apple orchards in Washington County near Hancock and Hagerstown. Controls will be required this year. (U. Md., Ent. Dept.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Oviposition 90 percent complete in sampled peach orchard at Gainesville, Alachua County; peak oviposition passed. Egg hatch began 14 days ago; one-third of eggs hatched. Number of unhatched eggs has declined since February 14. Crawlers currently heavy, will continue so next 7 days. (Fla. Coop. Sur.).

ORNAMENTALS

TEA SCALE (Fiorinia theae) - ALABAMA - Heavy and damaging on camellia and holly at such southern locations as Atmore, Escambia County, and Monroeville, Monroe County. (Lemons). Lighter populations observed on numerous sasanqua plants at Dothan, Houston County. (Stephenson). MISSISSIPPI - Very heavy on camellia leaves in Washington and Bolivar Counties. (Robinson).

A DIASPIDID SCALE (Gymnaspis aechmeae) - ALABAMA - Heavy infestation occurred on bromeliad plants in greenhouse at Auburn, Lee County. Collected February 1, 1974, by T.B. Hagler. Determined by M.L. Williams. This is a new State record. (McQueen).

PERIODICAL CICADA (Magicicada septendecim) - TENNESSEE - Damaged tender growth on several ornamental species in Shelby County during 1973 growing season. Damage first noted week ending February 15, 1974. Oviposition punctures caused one-year growth to die in many cases. (Gordon, Bruer).

FOREST AND SHADE TREES

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Moderate male population reported flying to lights at Clay Center, Clay County, February 20; females reported active at Manhattan, Riley County. (Bell).

A NOCTUID MOTH (Acronicta funeralis) - WEST VIRGINIA - Collected from pin oak in Ohio County September 6, 1973, by G. Gibson. Determined by A.E. Cole. This is a new State record. (Hacker).

A CHALCID WASP (Megastigmus atedius) - NORTH CAROLINA - Larvae infested seeds of eastern white pine (Pinus strobus) during fall 1972 in Transylvania County; 35 larvae collected from 600 seeds. Seeds collected during September 1972 by C.F. Speers. M. atedius reared adults determined by B.D. Burks. This is a new State record and first record of a chalcid infesting pine seed in eastern North America. (Speers).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 11 confirmed cases reported from continental U.S. during period February 10-16, all in Texas. Total of 139 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 38,905,800, all in Texas. Total of 125,058,600 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 0.7 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - H. lineatum (common cattle grub) moderate to heavy on cattle in Comanche County and moderate in Pawnee County. First adult activity of season noted in Payne County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Survey for overwintering adults negative in Monroe County. (Robinson).

CATTLE LICE - OKLAHOMA - Mainly Haematopinus eurysternus (short-nosed cattle louse) moderate to heavy on cattle in Comanche County, moderate in Pawnee County. (Okla. Coop. Sur.). ARKANSAS - Linognathus vituli (longnosed cattle louse) and Solenopotes capillatus (a wrinkled sucking louse) very heavy on herd of 95 head of cattle in Benton County. Treatments applied. Caused loss of much hair on many animals. (Simco).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Populations increased in infested chicken flocks in northwest area. (Simco). VIRGINIA - Heavy to severe on chickens in Montgomery County. (Surles).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Heavy on horses in McCurtain County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

BLACK CARPENTER ANT (Camponotus pennsylvanicus) - SOUTH CAROLINA - Noted nesting in old railroad ties used in landscaping around Pickens County residence February 21, 1974. Determined by V.H. McCaskill. This is a new county record. (McCaskill).

MISCELLANEOUS WILD PLANTS

AN OLETHREUTID MOTH (Episimus argutanus) - WEST VIRGINIA - Collected from witch-hazel in Pendleton County by H.R. Wilson August 3, 1973. Determined by A.R. Miller. This is a new State record. (Hacker).

BENEFICIAL INSECTS

A BRACONID WASP (Lysiphlebus testaceipes) - OKLAHOMA - Heavily parasitized Schizaphis graminum (greenbug) in wheat in some west-central county areas. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - NEW MEXICO - Overwintering species averaged less than one per square yard in range grasses in Colfax and Union Counties. (N.M. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - MARYLAND - Egg masses collected at 20 locations in Cecil County and one location in Harford County by D. Walter during January. (U. Md., Ent. Dept.).

KHAPRA BEETLE (Trogoderma granarium) - NEW MEXICO - All surveys to date negative. No significant stored grain pests collected in Dona Ana County. (N.M. Coop. Rpt.). CALIFORNIA - Survey in upper San Joaquin Valley counties negative for all forms. Winter survey continues with many specimens of other storage pests recorded. (Cal. Coop. Rpt.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - S. invicta and S. geminata (fire ant) reported throughout south-central area. S. invicta collected from Victoria and De Witt Counties. S. geminata activity increased significantly last few days. (Cole).

DETECTION

New State Records - A CHALCID WASP (Megastigmus atedius) - NORTH CAROLINA - Transylvania County. (p. 85). A DIASPIDID SCALE (Gymnaspis aechmeae) - ALABAMA - Lee County. (p. 84). A NOCTUID MOTH (Acronicta funeralis) - WEST VIRGINIA - Ohio County. (p. 85). AN OLETHREUTID MOTH (Episimus argutanus) - WEST VIRGINIA - Pendleton County. (p. 86).

New County Record - BLACK CARPENTER ANT (Camponotus pennsylvanicus) SOUTH CAROLINA - Pickens (p. 85).

CORRECTIONS

CEIR 24(7):55 - HIGHLIGHTS - Some first occurrences of the Season Change "ARMYWORM larvae in North Carolina" to ARMYWORM larvae in South Carolina.

WEATHER OF THE WEEK ENDING FEBRUARY 25

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

HIGHLIGHTS: Heavy precipitation fell over much of the eastern United States. Over 2 inches drenched Missouri, southern Illinois, northeast Oklahoma, and part of Arkansas and New England. Tropical winter rains dropped another 2-4 inches of rain along the upper Pacific coast. Above normal temperatures dominated most of the Nation from the Rockies eastward, while the Southwest was much colder than usual. Frontal activity sparked numerous thunderstorms and tornadoes throughout the Southeast, causing considerable personal injury and property damage.

PRECIPITATION: The western half of the Nation received only light precipitation except for the Pacific Northwest coastal areas where 2-4 inches of rain fell. Considerable precipitation fell on the Eastern United States with the heaviest amounts concentrated in Oklahoma, Missouri, and Illinois. St. Louis, Missouri, totaled 3.41 inches for the week; Tulsa, Oklahoma, 3.75 inches. Only traces or less were measured along the Mexico border from southern Texas to the Pacific coast. Snow blanketed parts of Utah, Arizona, New Mexico, Colorado, and Wyoming on Monday. Six inches of new snow in 6 hours accumulated at Lander, Wyoming, while Denver and Colorado Springs reported 2 and 3 inches, respectively. A Low over Oklahoma produced heavy thundershower activity dropping one inch or more of rain from Tulsa, Oklahoma, to Springfield, Illinois. Rain spread eastward on Tuesday as a cold front moving through the Southeast triggered widespread thunderstorms and tornadoes. A car, mobile home, and ten thousand chickens were destroyed in Bullock County, Alabama. Heavy rains drenched parts of the Southeast with 1.24 inches falling over Albany, Georgia, in only six hours. Snow fell along the stationary front reaching from North Dakota to a Low in northeast New Mexico capping the Colorado Mountains with 6-14 inches of snow. Locally heavy snows were reported in northern New England. Newport, Vermont, received 6 inches and Rumford, Maine got 5 inches. Thunderstorms dumped heavy rains measuring over 2 inches on the Shreveport, Louisiana, area accompanied by hail and wind gusts up to 40 m.p.h. on Thursday. Newspapers reported that the tornado injured 13 persons, uprooted trees, overturned house trailers, and knocked out the power along a 2-mile stretch near Monticello, Mississippi. Moderate to heavy rains soaked Missouri and west-central Illinois with some local flooding reported. A Low over southern Lake Michigan produced snow from Missouri and eastern Iowa to northern Michigan and strong northerly winds gusting up to 50 m.p.h. brought 3-foot snowdrifts to Chicago, Illinois. Snow blanketed Nebraska and Kansas stretching toward eastern Montana, as the result of a Low in Kansas. Over 2 inches of snow covered northeast Nebraska and heavy snow squalls dumped 9 inches of new snow over Utica, New York, in only eight hours. Sunday, a winter storm brought 4 inches of new snow to Chicago, Illinois; 6 inches to Indianapolis, Indiana; and 3 inches to Dayton, Ohio.

TEMPERATURE: Most of the Nation experienced mild temperatures this week. Temperature averages for the week of 9 degrees above normal were reported through eastern Montana and western North Dakota, while much of the Appalachian area up through New England recorded temperatures 6-8 degrees above normal. Mild temperatures settled

over many parts of the country, particularly in the Plains States. Early morning temperatures hovered near the 50-degree mark as far north as Kansas and Missouri. Mild temperatures hitting the 50's reached north into parts of Montana and South Dakota, the mid-Atlantic coast, and along the Pacific coast to the southern Oregon border. Early afternoon temperatures topped the 50-degree mark on Wednesday from southeast Nebraska through Missouri to Virginia, while Oklahoma reported 60 degrees. The warmest spot was Cotulla, Texas, with a high of 90 degrees. Temperatures at 2:00 p.m. Thursday ranged from 84 degrees at Fort Myers, Florida, to 15 degrees at Grand Forks, North Dakota. At Baltimore, Maryland the mercury rose to a record-breaking 62 degrees on Friday, replacing the old record of 53 degrees for this date. Saturday, early afternoon temperatures fell below 10 degrees from North Dakota through northern Michigan. Gila Bend, Arizona, recorded the highest temperature in the Nation--82 degrees. As the week ended Sunday a High pressure centered over the Dakotas pushed cold Canadian air into the Plains and Mississippi Valley. Temperatures were below zero from the Dakotas to northern Michigan.

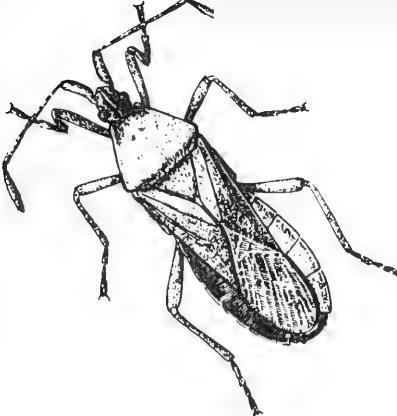
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VOL. 24 NO. 10

March 8, 1974

Cooperative Economic Insect Report

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



**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF**

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

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG heavy in some wheat in west-central and southwest Oklahoma. Parasitism also heavy in these areas with some decline of greenbug infestations noted. Parasitism and predation by beneficial species also heavy in Rolling Plains area of Texas. Greenbug continued problem in small grains in eastern New Mexico; controls applied. (p. 91).

ALFALFA WEEVIL larvae active in Kansas and Oklahoma alfalfa. (p. 92).

VEGETABLE WEEVIL damaged all commercial tobacco seed beds in Quincy area of Florida; controls required. (p. 92).

Detection

BLACK THREAD SCALE new to Oklahoma. (p. 93). DODDER GALL WEEVIL and two related species reported for first time in Nevada. (p. 94).

For new county records see page 95.

Some First Occurrences of the Season

ALFALFA WEEVIL egg hatch and larvae in southwest Kansas. Full-grown EASTERN TENT CATERPILLAR larvae in Florida. SUBTERRANEAN TERMITE reproductive swarms and HONEY BEE adult activity in Oklahoma.

Reports in this issue are for the week ending March 1 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING MARCH 4

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

HIGHLIGHTS: Springlike weather blossomed across the Nation last week. Temperatures were much warmer than usual, 15 to 18 degrees above normal over the central Plains. Subnormal temperatures were restricted to Georgia, Florida, and the west coast and sections of Nevada and Utah. Early in the week a mild storm system covered the northeastern countryside with light snow. Cold air pushed southward bringing near-record low temperatures throughout the Gulf Coast States. At midweek, a slow-moving storm front dumped moderate to heavy rain along the Pacific coast and gradually inched across Idaho, Montana, North Dakota, and Minnesota. Meanwhile, a record-breaking dry spell continued to plague the Texas southern Plains where Lubbock, Texas, received only 6.98 inches of precipitation during the last ten months.

PRECIPITATION: Last week was very dry and most of the Nation received little or no precipitation. Occasional flurries fell over the northeastern section of the country dumping nearly a foot of snow on Englishtown, New Jersey, before drifting off the Atlantic coast Monday night. Fair weather spread over most of the Nation. Tuesday and Wednesday afternoon a weather system centered in Montana moved eastward triggering snow in sections of the northern and central Rockies and extreme northwest North Dakota. Strong winds over 40 m.p.h. accompanied the storm during the day thrashing across parts of the Dakotas, Nebraska, Montana, and Wyoming. Thursday an intense winter storm, bringing heavy rain and high winds, settled over the Pacific Northwest. Showers drifted southward during the day but only after soaking many points from Astoria, Oregon, to the Golden Gate with 1 to 2 inches of rain. Torrential rains continued Friday coupled with high winds up to 70 m.p.h. Highways were blocked and power lines were downed along the northern and central California coast. Rainfall measured 7.70 inches at Venado, California, before the storm finally moved out across the Rockies. A second storm lashed portions of the Pacific coast Friday night with gale force winds and heavy rain. Both San Francisco International Airport and Newport, Oregon, recorded more than 1 inch of rain from the storm. Weather of the week continued on page 96.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Larvae (up to third instar) averaged 3 per square foot in seedling alfalfa in Finney County. Larvae fed primarily on triticale planted in alfalfa as nurse crop; little damage caused to alfalfa. (Bell). OKLAHOMA - Very heavy, 8-10 per linear foot in some fields, in wheat in Custer, Washita, and Beckham Counties. Many fields treated. Averaged one per square foot in Harmon County and in margins of some fields in Beaver County. Light in Caddo and Grady Counties. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Heavy, up to 400 per linear foot, in wheat in Custer County; damage heavy in some younger fields. Declining in Washita County due to heavy parasitism. Parasitism also heavy in Jackson County. Averaged 120 and 200 per linear foot in two fields checked in Grady County; parasitism moderate in these fields. Greenbug moderate to heavy in Comanche County, light in Caddo County, and scattered infestations reported in Texas County. Ranged 0-1 per linear foot in few fields checked in Bryan, Marshall, Love, and Jefferson Counties. (Okla. Coop. Sur.). TEXAS - Ranged 0-10 per row foot in small grains checked in Wilbarger, Knox, Haskell, Throckmorton, Baylor, Archer, and Wichita Counties in Rolling Plains. Beneficial insects and spiders active in fields throughout area. Parasitic wasps, lady beetles, big-eyed bugs, nabids, and spiders preying heavily on greenbug and mite populations in wheat. S. graminum light to moderate in wheat near Yorktown, De Witt County. Some late-planted fields damaged. (Boring et al.). NEW MEXICO - Continued to cause concern throughout eastern area. Ranged from 200 per linear foot on barley to 2,000+ in adjoining trial plantings of wheat near Artesia, Eddy County. Control efforts continued in Curry, Quay, Harding, and Union Counties. It is suspected potential parasite populations substantially reduced in some areas; no specimens recovered to date. (N.M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - This species and Acyrtosiphon pisum (pea aphid) ranged 20-70 per square foot on alfalfa in Dona Ana, Chaves, Eddy, and Lea Counties. Many fields, particularly those newly planted, being treated. (N.M. Coop. Rpt.).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ALABAMA - Overwintered larvae heavy in corn stubble in 2-acre field surveyed in Cullman County. About 33 percent of stalks girdled late in 1973. Most stalks now contain maturing larvae. Surveys of suspicious 2-acre field in noninfested Chambers County negative. (Baker et al.). MISSOURI - Total of 1,000 infested corn plants checked in 4 fields in the southwest area. Live larvae found in 8.5 percent of girdled stalks. (Munson).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ALABAMA - Live overwintered larvae ranged 1-5 per stalk in old cornstalks in 2-acre field examined in Cullman County. About 33 percent of stalks infested. (Cain, Wilkins).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - TEXAS - Adult activity in corn increased past few days in most south-central counties. Increased activity expected as temperature warms throughout area. (Cole).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Generally light, 0-20 per row foot of small grains in Throckmorton, Haskell, Knox, and Baylor Counties in Rolling Plains. Ranged 150-250 per row foot in few fields in Archer and Baylor Counties. (Boring).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Ranged 0-5 per linear foot in wheat in Bryan and Marshall Counties. (Okla. Coop. Sur.).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Average counts per linear foot in wheat by county: Grady 35, Love 2, and Bryan one. (Okla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - KENTUCKY - Eggs averaged 14.4 per square foot in Fayette County samples taken during period February 18-21. (Barnett, Parr). MISSOURI - For February, eggs per square foot in alfalfa in southwest area averaged as follows by county: Lawrence 71.5, Dallas 76, Cedar 110. (Munson). ARKANSAS - Survey negative in alfalfa in Washington County. Larvae active in the Red River Valley in Lafayette County. About 60 percent of plants begun new growth and all plants infested with larvae. (Benefield). KANSAS - First egg hatch of season noted in alfalfa in Greenwood, Elk, and Montgomery Counties. Percent larval infested terminals by county as follows (one field per county): Greenwood 7, Montgomery 20, Elk 40. Alfalfa ranged from 1.5 inches high in Greenwood to 2.5 inches high in Elk Counties. Larvae mostly first instar except occasional second instar in Elk County (up to 3 larvae per terminal in this county). First report of season from same area made during third week of March. (Bell). OKLAHOMA - Percent infested terminals in alfalfa by county: Bryan 80-100 (1-7 larvae per terminal), Harmon and Jackson 15-20, Muskogee and Wagoner 10-44, and up to 20 in Caddo, Custer, Beckham, and Washita Counties; averaged 88 percent (1-6 larvae per terminal) in Grady County. Some fields treated in Bryan County. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - ARKANSAS - Survey negative in alfalfa and vetch in Washington County. Also negative in crimson clover in Pope County. Subfreezing temperatures likely influential in preventing buildup. (Boyer). OKLAHOMA - Scattered heavy infestations reported in alfalfa in Caddo, Custer, Beckham, and Washita Counties; ranged up to 200 per sweep in some Jackson County fields. Light to moderate in Bryan and Grady Counties; light in Muskogee and Wagoner Counties. (Okla. Coop. Sur.). TEXAS - Light on alfalfa near Plainview, Hale County. Alfalfa in area showed about one inch vegetative growth. (Latham).

TOBACCO

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Widespread and damaged all commercial tobacco seed beds in Quincy area, Gadsden County; controls required. One seed bed had 80 percent of plants killed. (Fla. Coop. Sur.).

MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy infestations in safflower controlled by buildup of Hippodamia convergens (convergent lady beetle) at experiment station in Yuma County. (Ariz. Coop. Sur.).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Counts ranged 0.04-50 mites per leaf on lemon at Yuma, Yuma County, due to warm weather. Treatments applied. (Ariz. Coop. Sur.).

A BLACK SCALE (Saissetia neglecta) - FLORIDA - All stages moderate on stems of 70 percent of 100+ grapefruit trees (Citrus paradisi) at Dunedin, Pinellas County, January 10. (Fla. Coop. Sur.).

ORNAMENTALS

SPRUCE APHID (Elatobium abietinum) - NORTH CAROLINA - Damage observed on yard-planted spruce February 18, 1974, by H.E. McCall in Waynesville, Haywood County. Determined by C.F. Smith. This is second report of occurrence in Eastern U.S. and is a new county record. First observation of damage made by G.F. Fedde during December 1967 on ornamental white spruce (Picea glauca). (Hunt). See CEIR 20(9):103 for first report in North Carolina and Eastern U.S.

BLACK THREAD SCALE (Ischnaspis longirostris) - OKLAHOMA - Moderate on Philodendron pertusum in retail outlet in Oklahoma City, Oklahoma County, February 20, 1974. Collected by J.L. Igleheart. Determined by D.C. Arnold and D.E. Howell. This is a new State record. (Okla. Coop. Sur.).

FOREST AND SHADE TREES

PINE SAWFLIES (Neodiprion spp.) - KENTUCKY - Preliminary data from egg surveys indicate light N. pratti pratti and N. taedae linearis populations can be expected this spring. (Barnett, Matuszewski).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Larvae full grown in many of tents and seeking pupation sites at Gainesville, Alachua County. (Fla. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Male moths reported flying in Garden City, Finney County, as early as February 21; reported flying for past 10+ days in Great Bend, Barton County. (Bell).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 6 cases reported from continental U.S. during period February 17-23, all from Texas. Total of 74 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 41,964,000, all in Texas. Total of 124,353,000 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KANSAS - Averaged 2.3 per head with 54 percent infestation in sample of 50 mixed steers in feedlot in Wichita County. Steers recently purchased out of State. Some grubs had already dropped from these animals and from some cattle in Riley County. (Bell). KENTUCKY - H. lineatum (common cattle grub) larvae averaged 0.5 per animal on backs of Holstein dairy cows of various ages and ranged 0-60 (average 30) on mixed breed steers in Fayette County. (Barnett, Knapp). OKLAHOMA - H. lineatum ranged moderate to heavy on cattle in Adair County, light in Pawnee and Hughes Counties. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 65 per beef animal in herds near Gainesville, Alachua County. (Fla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), ranged moderate to heavy on cattle checked in Pawnee, Adair, Hughes, and Comanche Counties. Linognathus vituli (longnosed cattle louse) ranged up to 4 per hair part on cattle checked in Logan County. (Okla. Coop. Sur.).

BLACKLEGGED TICK (Ixodes scapularis) - WISCONSIN - Taken from dogs in Taylor County during October 1973 by O.J. Rongstad. Determined by C.F.W. Muesebeck. This is a new county record. (Wis. Ins. Sur.).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - OKLAHOMA - Winged reproductives swarmed at location in Payne County. (Okla. Coop. Sur.).

MISCELLANEOUS WILD PLANTS

GALL WEEVILS (Smicronyx spp.) - NEVADA - Larvae of S. interruptus collected from galls on dodder plants at Lovelock, Pershing County, August 30, 1972, and reared to adults September 6, 1972, by H. Willcox. S. sculpticollis (dodder gall weevil) collected from alfalfa at Lovelock June 14, 1971, by L.L. Stitt. S. sordidus collected from Helianthus annuus (sunflower) July 24, 1956, at Yerrington, Lyon County, by H.E. Gallaway. All determined by D.M. Anderson. These are new State records. S. sordidus collected at Logandale, Clark County, September 1, 1959, by F.D. Parker, and at Panaca, Lincoln County, August 10, 1971, by G.M. Nishida and D.F. Zoller. Determined by D.M. Anderson. These are new county records. (Bechtel).

STORED PRODUCTS

BROADHORNED FLOUR BEETLE (Gnathocerus cornutus) - VIRGINIA - Collected from home in Chesterfield County February 14, 1974, by M. Jones. Determined by W.H. Robinson. This is a new county record. (Allen, Surlis).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - NEW MEXICO - Lady beetles, mostly this species, increased in alfalfa; 1-10 larvae per square foot very common. (N.M. Coop. Rpt.).

A BRACONID WASP (Lysiphlebus testaceipes) - OKLAHOMA - Heavy parasitism (up to 90 percent) caused a decline of Schizaphis graminum (greenbug) in wheat in Washita County; adults ranged up to 10 per linear foot in some wheat in Jackson County. Moderate parasitism of greenbug noted in Grady County, light parasitism noted in Bryan County. (Okla. Coop. Sur.).

HONEY BEE (Apis mellifera) - OKLAHOMA - First adult activity of season noted on early blooming flowers in Payne County. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Limited surveys during February in Beaver, Ellis, and Harper Counties showed average of one viable egg pod per square foot of sod examined. Parasite and predator damage light. (Okla. Coop. Sur.).

DETECTION

New State Records - BLACK THREAD SCALE (Ischnaspis longirostris) - OKLAHOMA - Oklahoma County. (p. 93). GALL WEEVILS (Smicronyx spp.) NEVADA - S. interruptus - Pershing County; S. sculpticollis - Pershing County; S. sordidus - Lyon County. (p. 94).

New County Records - BLACKLEGGED TICK (Ixodes scapularis) WISCONSIN - Taylor (p. 94). BROADHORNED FLOUR BEETLE (Gnathocerus cornutus) VIRGINIA - Chesterfield (p. 94). A GALL WEEVIL (Smicronyx sordidus) NEVADA - Clark, Lincoln (p. 94). SPRUCE APHID (Elatobium abietinum) NORTH CAROLINA - Haywood (p. 93).

Weather of the week continued from page 90.

A Low pressure system produced high winds throughout the Great Lakes region averaging speeds of 25 to 45 m.p.h. Sunday. During the warm and windy weekend, power companies reported damage and power outages in 150,000 homes from north-central Allegan County northward into eastern Ottawa and western Kent Counties, Michigan.

TEMPERATURE: Temperatures were generally warmer than average over the Nation's midsection last week and unusually chilly over the Gulf Coast States. Behind a rapidly traveling storm front, cold air flowed southward Monday, toppling temperatures to the low 50's in north Florida and 30's in north Georgia. Brisk southerly winds and sunny skies accompanied considerably warmer temperatures in the Midwest setting the pattern for the week's weather. Elsewhere, unusually cool temperatures prevailed in the southeastern part of the country with highs only in the 40's from the Carolinas to northern Florida, while Garden City, Kansas, topped 75 degrees. In fact, warmer temperatures prevailed across the Plains than in normally summerlike Florida. Even Key West, Florida, only reached 58 degrees Tuesday. By midweek, a large High pressure system over southern Georgia pulled cool air south to the gulf coast and Florida. Thursday, Baton Rouge, Louisiana, plunged to 29 degrees, an alltime record low for the date. Record-breaking warmth continued across the central U.S. throughout the weekend. Saturday afternoon was just plain hot with temperatures in parts of the middle Mississippi and Ohio Valleys 25 degrees warmer than Friday. Ahead of the storm centered over the Rockies and the northern Plains, temperatures hit the 70's north into South Dakota and Iowa Saturday, while Fort Wayne, Indiana, reached 64 degrees and Indianapolis, Indiana, climbed to 71 degrees.

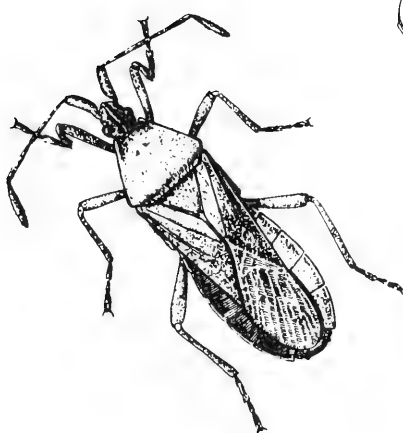
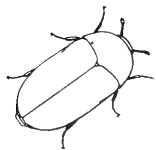
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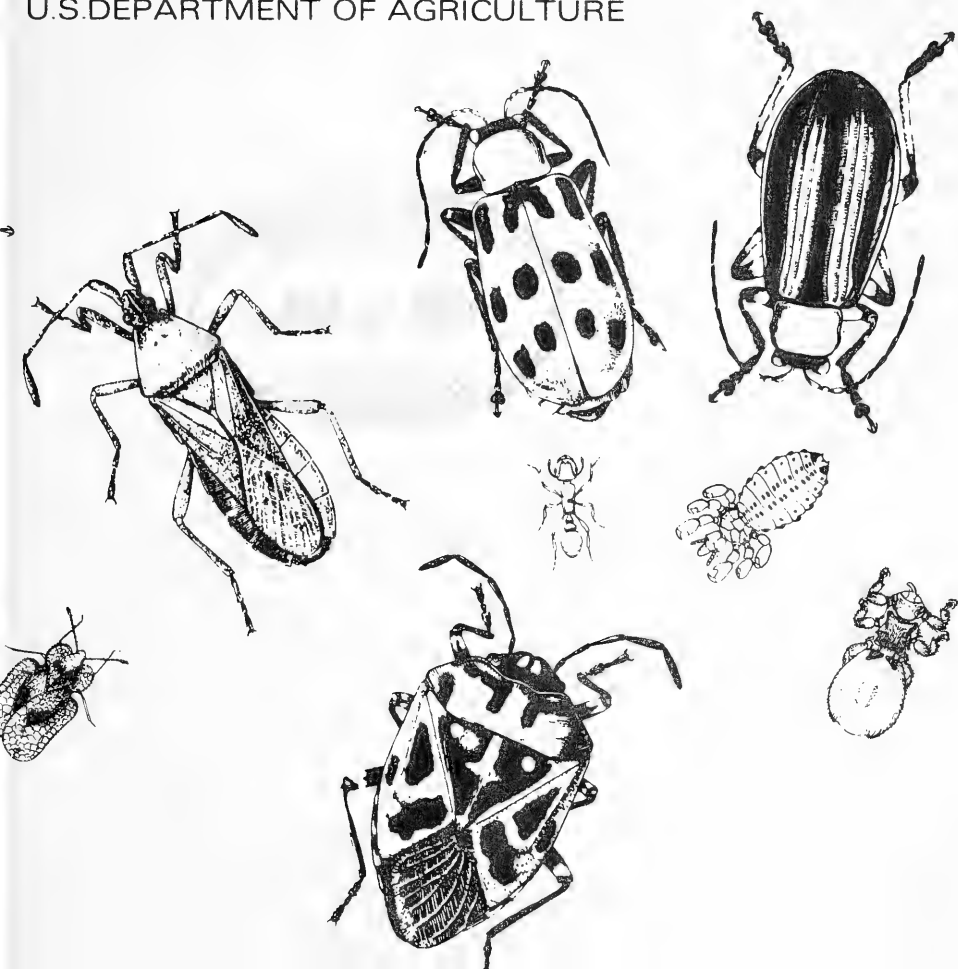
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Cooperative Economic Insect Report

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ANIMAL AND PLANT HEALTH INSPECTIC SERVICE
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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

BEEF LEAFHOPPER much lighter than for several years in Imperial Valley of California. (p. 99).

ARMY CUTWORM still heavy in some wheat in west-central Oklahoma, damaging in southwest counties; some threatening or damaging infestations found in wheat and/or alfalfa in west-central and south-central Kansas. (p. 100).

ALFALFA WEEVIL larvae observed in alfalfa in Texas, Oklahoma, Kansas, Missouri, and Illinois; controls applied in southern Oklahoma. PEA APHID very heavy on alfalfa in west-central Oklahoma. (pp. 101, 102).

Predictions

BEEF LEAFHOPPER spring movement from southern breeding grounds to cultivated districts of Arizona, southeastern California, southern Nevada, western Colorado, and Utah expected to be light to moderate. (p. 99).

ALFALFA WEEVIL potentially very serious in Illinois alfalfa this season. Economic damage expected in most of Piedmont area of North Carolina prior to April 1. (pp. 101, 102).

JAPANESE BEETLE infestations expected to be moderate to heavy in central and southern Maryland. (p. 106).

Detection

Three PLANT BUGS that infest spruce, larch, and fir reported from Pennsylvania are new United States records. There are no reports of damage to their respective hosts in Europe, Siberia, northern Africa, or Asia. (p. 103).

A SOFT TICK reported for first time in Oklahoma is a new State record. (p. 105).

For new county records see page 106.

Special Reports

Beet Leafhopper Surveys in Spring Breeding areas of Lower Colorado River Desert Area - 1973. (p. 99).

Summary of Insect Conditions in the United States - 1973

Introduction. (p. 107).

Special Insects of Regional Significance. (pp. 107-123).

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WEATHER OF THE WEEK ENDING MARCH 11

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

HIGHLIGHTS: Nearly the entire Nation was warmer than expected as a record winter heat wave lingered across the Atlantic coast to the middle Mississippi Valley last week with temperatures across Ohio, Indiana, Missouri, and Kentucky averaging nearly 20 degrees above normal. A narrow band of the Far Western States reported temperatures below normal for this time of year. A cold front stretching from eastern Canada to Texas collided with a flow of tropical air surging upward from the Gulf of Mexico generating thunderstorms, heavy rains, high winds, and hail to many areas of the county's midsection during the week. Finally, a vigorous storm drenched sections of California and Arizona with over 2 inches of precipitation over the weekend before drifting eastward.

PRECIPITATION: Last week, most of the west-central and southeast sections of the Nation remained dry. However, a weak storm system dropped nearly 0.80 inch of precipitation across the Corn Belt, Kentucky, Kansas, Oklahoma, and the Texas Panhandle. It was the first significant rainfall in portions of the Texas Panhandle in four months. A band of wet weather stretching from Canada to Mexico produced rain and thunderstorms from Nebraska to Pennsylvania on Monday. During the storm, golf-ball size hail struck the town of McLean, Illinois, and strong winds damaged a supermarket, a roof, trees, and power lines north of Champaign, Illinois. Monday night, a cold front trailing from a Low in the eastern Great Lakes triggered thunderstorms in a section of the middle and lower Mississippi Valley and lower Ohio Valley. Tuesday, a strong arctic front with gusty winds dumped 5 inches of snow at West Yellowstone, Montana. Tuesday evening, a storm front generated showers and thundershowers along a stationary front from the mid-Atlantic coast through the Tennessee Valley into eastern Oklahoma. A new Pacific storm front dumped rain and snow showers across the northern half of the Pacific to the Rockies on Wednesday. Burns, Oregon, got 1 inch of precipitation. Meanwhile, a warm front over the Southeast pushed thunderstorm activity deep into the Middle Atlantic States of Kentucky and Tennessee. Weather of the week continued on page 124.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Beet Leafhopper Surveys in Spring Breeding Areas of Lower Colorado River Desert Area - 1973

Surveys were conducted for beet leafhopper (Circulifer tenellus) in the spring breeding areas of the lower Colorado River desert area during February 1973. Data indicate that spring movement from this area to cultivated districts of Arizona, southeastern California, southern Nevada, western Colorado, and Utah is expected to be light to moderate. An estimated 29.4 percent of the 50,000 square-mile area surveyed had annual host plant cover suitable for a buildup of leafhopper populations during the survey. Fall rains were scant or lacking in many areas, and winter rains were late in most parts of the low desert. Annual plants were just beginning to germinate in some areas, particularly south of the 34th parallel. Weed hosts were in good condition for leafhopper propagation where widespread plant cover was present; additional rains could prolong the growth period and could cause additional plant germination. Some late germination of desert annuals was found on the west side of the Imperial Valley in California, but only intermittent plant development was found in most areas of the State surveyed, and in Nevada west of Las Vegas. Principal areas with plant growth suitable for leafhopper propagation were found in Arizona and in some adjacent areas of Nevada and Utah.

The average number of C. tenellus observed during the survey was 0.016 per square foot where weed hosts were sufficient to allow leafhopper buildup. It is estimated that about 4.5 billion overwintering beet leafhoppers were present in the area during the February survey. (PPQ West. Reg.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Host plants, mainly plantago, found on east side and west side breeding grounds of Imperial Valley. Plants on west side near Mt. Signal and north, larger and lush compared to east side. Counts very light; much lighter than during past several years. No leafhoppers found at several localities on east side during warm, calm weather. Monitoring will continue next few weeks. Due to dry winter and no annual hosts germinating until mid-January, large percentage of overwintering females may have died without laying eggs. Area may not need treatment. Vegetation on Kettleman Hills, Fresno County, very heavy on upper slopes; may not favor hatch. Vegetation on lower, west side slopes still favorable; adults ranged 2-10 per sweep. To date, no nymphs found in Kettleman Hills. Some nymphs found in Dodge Hill area of Coalinga; mostly first instars, some second and third instars found. Controls apparently well timed in Coalinga area. Survey conducted between Lost Hills and Corcoran to check valley breeding areas. No beet leafhoppers found in most favorable locations. Counts in Antelope Valley, Los Angeles County, averaged one per 10 sweeps at most favorable locations. Counts 8 miles west of Lancaster averaged 6 per 10 sweeps during cool, windy weather; could be heavier on more favorable days. Females checked contained 1-7 eggs. (Cal. Coop. Rpt.).

ARMY CUTWORM (*Euxoa auxiliaris*) - OKLAHOMA - Still heavy (up to 10 per linear foot) in scattered wheat fields in Washita, Beckham, and Custer Counties and damaging in southwest counties. Ranged 0-0.7 per linear foot in 10 wheat fields in Kingfisher and Blaine Counties but heavy damage reported in some fields in Hitchcock area, Blaine County. Ranged 0-1 per linear foot in wheat checked in Major, Alfalfa, Woods, Woodward, and Beaver Counties. Light in wheat in Garfield County. Ranged 0-5 per square foot in alfalfa in Alfalfa and Woods Counties. Still damaging alfalfa in southwest counties. (Okla. Coop. Sur.). KANSAS - Average larval counts (up to third instar) per square foot in wheat (fields per county in parentheses) by county: Hamilton' zero to trace (4), Gray 0-1 (3), Ford trace to one (4), Clark trace to 2 (5), Greeley 0-1 (5). In alfalfa, averaged 3 per square foot in one Gray County field, none found in 2 Ford County fields, and trace infestation in one Clark County field. Some threatening or damaging infestations found in wheat and/or alfalfa in Pratt, Edwards, Clark, Lane, and Wichita Counties. (Bell).

GREENBUG (*Schizaphis graminum*) - TEXAS - Light activity reported in small grains from Rolling and High Plains. Light populations noted in Archer, Baylor, Hardeman, Wilbarger, and Wichita Counties. (Boring). OKLAHOMA - Ranged 0-14 per linear foot in 23 wheat fields in Kingfisher, Blaine, Major, Alfalfa, Woods, and Woodward Counties. Lady beetles, damsel bugs, and parasites active in most fields in these counties. Greenbug ranged 10-15 per linear foot in wheat in McCurtain County with parasites keeping populations low. Parasites also keeping *S. graminum* under control in Comanche, Washita, Beckham, and Custer Counties. Scattered damaging greenbug populations (up to 150 per linear foot still present in Texas County, but parasite activity observed in some fields. (Okla. Coop. Sur.). KANSAS - None observed in wheat surveyed in Greeley, Gray, Ford, Clark, and Hamilton Counties except for trace infestation in one Hamilton County field. (Bell).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Moderate and increasing in alfalfa checked in Washita, Beckham, and Custer Counties. (Okla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

BEE T ARMYWORM (*Spodoptera exigua*) - FLORIDA - Caused heavy damage to young corn plants at Homestead, Dade County, by March 1. (Fla. Coop. Sur.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - ILLINOIS - Overwintering survival in Adams County 73 percent compared to 12-year average survival rate of 75 percent. (Ill. Ins. Rpt.).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - WISCONSIN - Taken from corn in Barron and Eau Claire Counties August 21 and 24, 1973, respectively. Determined by R.E. White. These are new county records. (Wis. Ins. Sur.).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged up to 100 per linear foot in scattered wheat fields in Washita, Beckham, and Custer Counties. Very light (up to 4 per linear foot) in Kingfisher, Blaine, and Woods Counties. (Okla. Coop. Sur.). TEXAS - Light activity observed in small grains in Archer, Baylor, Knox, Haskell, Throckmorton, Wichita, and Wilbarger Counties. Heavier populations in Archer County reduced by rainfall. Population of 118 per row foot reported from one Archer County field. P. major caused very little economic damage to small grains at this time. (Boring).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 2-20 per linear foot in wheat in Wagoner and Muskogee Counties. Scattered light infestations (up to 2 per linear foot) present in Kingfisher, Blaine, Major, and Woods Counties. Light in Washita, Beckham, and Custer Counties. (Okla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Larvae observed in alfalfa in Wilbarger and Foard Counties. Larvae damaged 5-10 percent of terminals in some fields in these counties. (Boring). OKLAHOMA - Infested terminal counts in alfalfa ranged as follows: Tillman, Jackson, and Greer Counties 15-52 percent; Washita, Beckham, and Custer Counties up to 75 percent; McCurtain County 20-80 percent; Coal County 30-80 percent; Wagoner County 20-60 percent; Muskogee County 40-100 percent; Garvin County heavy; Bryan County moderate, Payne County heavy; Alfalfa County 64 percent; and Woods County 52 percent. Fields treated over most of southern half of State. First cocoon of season found in Stephens County March 1. (Okla. Coop. Sur.).

KANSAS - Recent surveys for H. postica in 1 to 3-inch alfalfa showed egg hatch underway as far north as Doniphan County in northeast district and Lincoln County in central district. Average percent larval infested terminals by county (one field per county): Riley 20, Doniphan 32, Jackson 16, Jefferson 28, Wabaunsee 30, Morris 10, Chase none, Marion 10, Lincoln 20, and Ellsworth none. Some hatch reported in Clark County, but none in fields checked in Ford or Gray Counties. In all areas larvae mostly first instars with occasional second instar found. Infested terminals usually contained single larva; however 2-8 per terminal noted in Lincoln County. (Bell). MISSOURI - Eggs hatching throughout southern areas. Larvae per 100 alfalfa stems ranged 13-21 in southeast area and 3-12 in central area. All larvae first and second instars. Oviposition observed in all fields checked. (Munson).

ILLINOIS - No tip feeding by H. postica or egg hatch observed on alfalfa in Madison or Effingham Counties. Tip feeding in three Johnson County fields averaged 11 percent. All larvae first instar. Tip feeding in two Massac County fields ranged 50-75 percent. Most larvae first and second instars, but some third instars observed. Alfalfa ranged from 2 inches tall in Madison County to 6 inches in Massac County. H. postica potentially very serious problem in 1974 due to unseasonable warm weather (30 degrees above normal) resulting in early egg hatch. (Ill. Ins. Rpt.). KENTUCKY - Eggs averaged 22.6, 0.6, 6.8, and 6.2 per square

foot in various Fayette County fields. Samples taken February 18-21. Larvae averaged 0.42 per alfalfa leaf tip in Barren County and 0.65 per tip in Hart County. (Barnett, Parr). NORTH CAROLINA Hypera postica larvae damaged alfalfa in Randolph, Chatham, and Wake Counties. Of 150 tips examined, 50 percent infested with 1-3 larvae. Economic damage expected in most Piedmont area alfalfa prior to general treatment date of April 1 if warm temperatures continue. (Hunt). TENNESSEE - Surveys week ending March 1 indicated egg hatch underway in alfalfa. Number of tips infested per 50 tips examined in 4 Franklin County fields was 10, 11, 2, and 5, respectively. Number of larvae per 50 tips examined in these fields averaged 21, 17, 2, and 5. (Cagle, Gordon). No live larvae found in 2 alfalfa fields checked during same period in Davidson County; all probably killed as result of ice forming on plants February 24. During period ending March 8, number of tips infested per 50 tips examined in 2 Madison County fields was zero and 25; larvae per 50 tips were zero and 40. In one field each in Tipton, Fayette, and Henry Counties, number of infested tips of 50 examined was 2, 45, and 40; number of larvae per 50 tips were 3, 60, and 45. (Gordon).

ALFALFA WEEVIL COMPLEX (Hypera spp.) - CALIFORNIA - Adults and larvae active in alfalfa. Many fields ready for first cutting. Some treatments applied. Populations in 1973 were heaviest ever recorded and continued until midsummer when adults damaged such crops as ripening cherries, apricots, strawberries, and green beans. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Light feeding noted on red clover in Madison County. Averaged 8 per square foot (Ill. Ins. Rpt.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Very heavy (up to 2,000 per plant) in alfalfa in Washita, Beckham, and Custer Counties. Moderate in Garvin County and light in Tillman, Jackson Greer, Alfalfa, Woods, Muskogee, Wagoner, Coal, and McCurtain Counties. (Okla. Coop. Sur.). TEXAS - Moderate on alfalfa in Wilbarger and Foard Counties. Deposits of honeydew left in several fields. Some growers applied controls. (Boring). NEW MEXICO - Ranged 10-20 per square foot in untreated alfalfa near Roswell, Chaves County. (N.M. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

WOOLLY APPLE APHID (Eriosoma lanigerum) - OKLAHOMA - Infested lower trunk and roots (just below soil surface) of young apple trees in Jackson County; ranged 150-200 per tree. (Okla. Coop. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Infested walnut orchard at Buellton, Santa Barbara County. Infestations increased in past three years. (Cal. Coop. Rpt.).

ORNAMENTALS

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Crawlers light on euonymus in Payne County last 14 days of February. Currently heavy and active. (Okla. Coop. Sur.).

AZALEA LACE BUG (Stephanitis pyrioides) - FLORIDA - Adults severe on leaves of 51 azalea plants examined at Orlovista, Orange County, March 1, and on leaves on 90 percent of 200 azalea plants in nursery at Lake Cane, Orange County, March 4. (Fla. Coop. Sur.).

SOUTHERN RED MITE (Oligonychus ilicis) - FLORIDA - All stages general on leaves of 12,000 holly plants growing in 4-acre area in Baker County. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

A PLANT BUG (Plagiognathus vitellinus (Scholtz)) - PENNSYLVANIA - Adults and nymphs common on ornamental spruces, European larch, and Douglas-fir in 17 counties during 1972 and 1973. Determined by Thomas J. Henry. This is a new United States record. This species occurs throughout Europe and in Siberia and Algeria. In Europe it is known to breed on spruces and larch, but no damage to these hosts has been reported. In Pennsylvania, eggs hatched in early May; adults first appeared in late May. A paper by T.J. Henry and A.G. Wheeler, Jr., presenting biological observations and figures of the adult, last instar nymph, and male genitalia appeared in Proc. Ent. Soc. Wash. 75(4):480-485. 1973. (Henry, Wheeler).

A PLANT BUG (Orthops rubricatus (Fallen)) - PENNSYLVANIA - A single specimen was taken August 16, 1973, in a Wayne County nursery on white spruce (Picea glauca). Determined by T.J. Henry. This is a new United States record. This species is widely distributed in Europe and Great Britain and is found in northern Africa and Asia. It breeds on spruce and less commonly on pine and fir. There are no reports of damage by this mirid. An account of this species will appear in a future issue of Proc. Ent. Soc. Wash. (Henry, Wheeler).

A PLANT BUG (Sthenarus dissimilis Reuter) - PENNSYLVANIA - Adults and nymphs collected on ornamental firs in Chester, Cumberland, Dauphin, Montgomery, and York Counties during May and June 1973. Determined by T.J. Henry. This is a new United States record. This species previously was known only from central Europe where it apparently is restricted to breeding on silver fir (Abies alba). It has not been reported to injure fir. Details of our observations will appear in a future issue of Proc. Ent. Soc. Wash. with those of O. rubricatus. (Henry, Wheeler).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Adult emergence occurred from tips of 2-year-old pines on 40 acres near Repton, Conecuh County. Only light infestations occur over area. This is first report of season and emergence may be somewhat early due to 8-10 weeks of above normal temperatures. (Lemons).

ORANGEHUMPED MAPLEWORM (Symmerista leucitys) - WEST VIRGINIA - Taken from sugar maple in Pocahontas County. Collected and determined by J.D. Hacker September 5, 1973. This is a new county record. (Cole, Hacker).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NORTH CAROLINA - First observation of larvae and small webs observed in wild cherry trees near Asheboro, Randolph County; Pittsboro, Chatham County;

and Benson, Johnston County, March 6 and 7. This is 7 days earlier than first 1973 report of Malacosoma americanum from this area. (Hunt). KENTUCKY - Eggs hatched in south-central area; partial hatch reported in central area. (Barnett, Nordin).

A ZANOLID MOTH (Apatelodes angelica) - WEST VIRGINIA - Collected from white ash in Preston County by G. Gibson. Determined by A.E. Cole September 3, 1973. This is a new county record. (Cole, Hacker).

ELM LEAF BEETLE (Pyrrhalta luteola) - SOUTH DAKOTA - Adults observed at Alexandria, Hanson County, and at Olivet, Hutchinson County. Overwintering adults observed February 17-23 at Lake Andes, Charles Mix County, and at Hotsprings, Fall River County. (Kantack).

IMPORTED WILLOW LEAF BEETLE (Plagioderma versicolora) - WEST VIRGINIA - Collected on black willow in Calhoun County May 14, 1973, by J.M. Atkins. Determined by A.R. Miller. This is a new county record. (Cole, Hacker).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 4 cases reported from continental U.S. during period February 24-March 2, all from Texas. Total of 2 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 46,361,000, all in Texas. Total of 123,364,800 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - FLORIDA - Averaged 2.7 grubs per beef animal at Basinger, Okeechobee County. (Fla. Coop. Sur.). KENTUCKY - Larvae averaged 2.9 per animal on backs of Holstein dairy cows of various ages in Fayette County; ranged 1-20 on 3 to 9-year-old cows in Caldwell County. About 17 percent of herd (120 animals) infested. (Barnett, Knapp). OKLAHOMA - Moderate on cattle in McCurtain County and light in Pawnee County. Much adult activity reported in Comanche and Payne Counties. (Okla. Coop. Sur.). TEXAS - Adults caused cattle to gad on one Wilbarger County farm. (Boring).

HORN FLY (Haematobia irritans) - FLORIDA - Average counts per head and one side ranged 55-222 on 5 beef herds checked at Basinger, Okeechobee County, March 6. (Fla. Coop. Sur.). MISSISSIPPI - No adults observed in Oktibbeha, Monroe, or Chickasaw Counties. If warm weather prevails, adults should emerge in 10-15 days. (Robinson). OKLAHOMA - Light populations active on cattle in Payne County. First of the season. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Adults present in small to large numbers on sides of white, unheated buildings in Chickasaw and Monroe Counties. Adults ranged 10-50 on outside of some buildings; up to 2,000+ noted on other buildings. No flies observed on cattle in pastures. (Robinson).

STABLE FLY (Stomoxys calcitrans) - MISSISSIPPI - Some adults active in Oktibbeha, Monroe, and Chickasaw Counties. Most found resting on sides of buildings but some noted on cattle confined near barns. (Robinson).

CATTLE LICE - OKLAHOMA - Mainly Haematopinus eurysternus (short-nosed cattle louse), ranged 0.5-2 per hair part on cattle in Payne County. Moderate to heavy in Comanche County, moderate in Garvin and McCurtain Counties, and light in Pawnee County. (Okla. Coop. Sur.). ALABAMA - Louse infested cattle more noticeable in scattered herds in Dallas and Wilcox Counties. Cattle backlicking and rubbing down scrub brush and small trees to relieve irritations. Several cattlemen applied controls in Bullock County last week of February. (Alsobrook et al.). FLORIDA - Linognathus vituli (longnosed cattle louse) moderate on calves at Basinger, Okeechobee County. (Fla. Coop. Sur.).

MOSQUITOES - CALIFORNIA - Extremely heavy during week ending March 1 due to few days of warm spring weather. Complaints received from all areas including core areas of cities. Recent rains caused many areas of standing water. Breeding in standing water occurring because of an open winter. Many city dooryards contributing to problem. Nuisance problem increased week ending March 8 after three days of rain. Low areas of standing water reactivated and enlarged. Many of these already populated with mosquito larvae. (Cal. Coop. Rpt.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Infestations remained moderate to heavy on caged layers in one chickenhouse in Oktibbeha County for past three months. (Robinson, March 1).

A SOFT TICK (Ornithodoros talaje) - OKLAHOMA - Two adults and one nymph collected under rock on creek bank near Wapanucka, Johnston County, February 26, 1974, by D.C. Arnold. Determined by D.C. Arnold and D.E. Howell. This is a new State record. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MISSOURI - Winged reproductives reported swarming at two southeast area locations. (Munson). MARYLAND - First R. flavipes (eastern subterranean termite) swarms of season reported in Prince Georges and Montgomery Counties during period February 24-March 8. Peak activity not expected for another 14 days. (U. Md., Ent. Dept.).

STORED PRODUCTS

CASEMAKING CLOTHES MOTH (Tinea pellionella) - SOUTH CAROLINA - Collected from Sumter County residence March 4, 1974, by E. Watson. Determined by C.A. Thomas. This is a new county record. (McCaskill).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Eggs numerous in wheat in the west-central counties and many larvae hatching. Adults ranged light to moderate in Muskogee County wheat and light (less than 1 per linear foot) in most fields checked in Kingfisher, Blaine, Major, Alfalfa, Woods, and Woodward Counties. (Okla. Coop. Sur.). NEW MEXICO - Mainly this species, ranged 2-6 per square foot in alfalfa near Roswell, Chaves County. Adults and larvae very active. Aphid populations observed on alfalfa. No lady beetle activity observed in treated fields. (N.M. Coop. Rpt.).

A BRACONID WASP (Lysiphlebus testaceipes) - OKLAHOMA - Populations sufficient to keep S. graminum (greenbug) under control in wheat in Comanche, Washita, Beckham, Custer, and McCurtain Counties. Light populations present in many wheat fields in Kingfisher, Blaine, Major, Woodward, and Texas Counties. (Okla. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Light, less than 1 per linear foot, in most wheat checked in Kingfisher, Blaine, Major, Alfalfa, Woods and Woodward Counties. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Heaviest late-winter grub counts ranged 6-9 per square foot in 200 acres of sod turf in Montgomery and Howard Counties. Moderate to heavy infestations expected to occur during 1974 in central and southern areas due to mild winter. (U. Md., Ent. Dept.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - ALABAMA - All stages heavy in sweetpotatoes stored near Florala, Covington County. Additional heavy infestations detected in sweetpotatoes in storage bins at New Brockton, Coffee County. (Johnson).

DETECTION

New United States Records - PLANT BUGS - PENNSYLVANIA - Sthenarus dissimilis - Chester, Cumberland, Dauphin, Montgomery, York Counties. Orthops rubricatus - Wayne County. Plagiognathus vitellinus - Found in 17 counties. (p. 103).

New State Record - A SOFT TICK (Ornithodoros talaje) - OKLAHOMA - Johnston County. (p. 105).

New County Records - CERCROPIA MOTH (Platysamia cercropia) FLORIDA - Pupa collected December 11, 1973, 5-10 miles north of Lake Alfred, Polk County, was reared and adult emerged March 4, 1974. This is southernmost record of species in State. (Fla. Coop. Sur.).

STINK BUGS - VIRGINIA - BROWN STINK BUG (Euschistus servus) and GREEN STINK BUG (Acrosternum hilare) collected from blacklight trap in Accomack County July 20, 1972, by R.N. Hofmaster. Determined by J.L. Herring. (Allen, Surles).

CASEMAKING CLOTHES MOTH (Tinea pellionella) SOUTH CAROLINA - Sumter (p. 105). IMPORTED WILLOW LEAF BEETLE (Plagiodes versicolora) WEST VIRGINIA - Calhoun (p. 104). NORTHERN CORN ROOTWORM (Diabrotica longicornis) WISCONSIN - Barron, Eau Claire (p. 100). ORANGEHUMPED MAPLEWORM (Symmerista leucitys) WEST VIRGINIA - Pocahontas (p. 103). A ZANOLID MOTH (Apatelodes angelica) WEST VIRGINIA - Preston (p. 104).

CORRECTIONS

CEIR 24(5):33 - CATTLE LICE - MISSISSIPPI - ... Solenoptes capillatus ... should read ... Solenopotes capillatus ...

CEIR 24(8):72 - SMALL FRUITS - GRAPE ROOT BORER (Vitacea polistriformis) should read (Vitacea polistiformis).

INTRODUCTION

The summary of insect conditions, beginning in this issue, will be continued in several succeeding issues of the Cooperative Economic Insect Report. This summary was compiled by the Pest Survey and Technical Support Staff from annual summaries submitted by various State and Federal cooperators. A list of the individuals who assisted in assembling data will appear after the last section of this summary is published. The Pest Survey and Technical Support Staff appreciates the assistance of all individuals who have participated in the preparation of material for the 1973 summary.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCEHighlights:

ARMYWORM was well below normal in Maryland small grains for the third consecutive year and the highest in several years on small grains in Missouri, but severely damaged several thousand acres of fescue seed in the latter State. ASTER LEAFHOPPER was at the lowest levels in 20 years in Minnesota and lighter than normal in Wisconsin, but necessitated controls in Michigan. CORN EARWORM was heavy on sweet corn in several areas and required much treatment. It damaged soybeans in South Carolina, several crops in Alabama, and caused heavier losses to field corn in Nebraska than in 1972. CORN LEAF APHID was lighter than usual on sorghum in Arkansas, Kansas, and Nebraska. Populations on corn in Illinois were the heaviest in 6 years, but declined generally on southern Indiana corn. GREENBUG infestations on small grains in Oklahoma were the lightest in 18 years. This aphid was less of a problem on sorghum in Kansas, Nebraska, and South Dakota. POTATO LEAFHOPPER required controls on alfalfa and red clover in Maryland, was widespread on peanuts in Virginia, and seriously damaged alfalfa in West Virginia. It was the heaviest in recent years on untreated vegetables in Ohio, and was more serious on alfalfa in Indiana than alfalfa weevil. SPOTTED ALFALFA APHID required more treatments than usual in California and caused much damage to alfalfa in New Mexico. TOBACCO BUDWORM was the heaviest in 4 years on tobacco in southern Maryland, and was a problem on tobacco in North Carolina. BUDWORMS were the most important pests of tobacco in Virginia and HORNWORMS damaged tobacco in Kentucky, North Carolina, Virginia, and Maryland.

ARMYWORM (*Pseudaletia unipuncta*) larval populations were of minor significance in grass or corn in MAINE. Population levels were very light compared to 1972. Armyworm was a sporadic local pest in haylands in central and eastern areas of NEW HAMPSHIRE in 1973. Infestations were not widespread nor were moths numerous in light trap collections. Armyworm moths averaged 2-3 per night in DELAWARE blacklight trap collections from mid-April to late May and early June. Some larvae could be found feeding in field corn and wheat in Sussex County. By late June, moth counts averaged about 300 per night and larvae were heavy in some corn, pea, and potato fields in Kent and Sussex Counties. Armyworm infestations in small grain were well below normal statewide for the third year in MARYLAND.

However, moderate populations in several areas in Talbot, Queen Annes, Dorchester, and Wicomico Counties required controls on about 4,000 acres. Armyworm damage to small grain and conventional planted corn in central Maryland was minor, but infestations in no-till corn were more troublesome. Spotty, moderate infestations in no-till corn in Washington, Frederick, Baltimore, Montgomery, and Carroll Counties ranged 10-25 percent. Here controls were applied to about 16,000 acres in early June.

In VIRGINIA, a single armyworm moth was taken in the blacklight trap in Blacksburg, Montgomery County, the week ending May 25. In Culpeper County, larvae ranged up to three-fourths inch May 25 and four fields totaling about 140 acres were treated as larvae averaged one per foot of row. In Carroll, Pulaski, and Wythe Counties, corn was planted late and many fields had not emerged by May 25. By June 1, damage was just beginning in Wythe, Montgomery, Roanoke, and Pulaski Counties with a few fields needing treatment. In Franklin County, damage in some fields was light even though a high percent of plants were infested. Living larvae were small in field corn up to 6 inches tall. Numerous dead third-instar larvae were detected, suggesting reinfestations following treatment. Spraying had begun in Lancaster County and 70 acres of small grains in Page County had been sprayed by June 5. An estimated 100 acres had been sprayed in Amelia County by the same date. By June 14, third-instar larvae were abundant in low spots of many fields in Montgomery and Pulaski Counties. Corn up to 12 inches high was badly damaged in some spots and 50+ percent of the no-till corn examined needed treatment. By June 21, larvae were scarce in most Piedmont counties, and damage was light due to the lateness of the season. In the mountains and mountain valleys damage was still spotty. Larvae were heavy in at least one field in Pulaski County October 12, with damage up to 50 percent.

Armyworm larval damage to corn in NORTH CAROLINA was centered again in the Rowan, Iredell, and Davie County area. Stand loss was very severe in no-till fields and chemical controls were necessary in fields throughout the area. Armyworm larvae caused minor damage throughout KENTUCKY with heavier damage observed more often in no-till fields. In regular tillage fields, infestations were heaviest in late-planted corn. Damage was heaviest in Hardin, Ballard, Daviess, Union, Hickman, and McCracken Counties. Larval damage to wheat, oats, and barley in Kentucky was much less in 1973 than in 1971 or 1972. The first 1973 infestations were detected May 25 in Muhlenberg and Metcalfe Counties.

Armyworm moths were first collected in blacklight traps in OHIO April 21 at Wooster, Wayne County, 2 days later than the average over the last 6 years. During the period May 4-10, about 10 percent as many adults were caught versus a comparable period in 1972. In 4 monitored Licking County cornfields, damage averaged 20, 38, 65, and 75 percent, respectively, by June 4. As is normal in MICHIGAN, first-generation armyworm infestations were scattered. An unusual second-generation population occurred in late August and damaged late-planted corn in St. Clair and Macomb Counties.

First armyworm larvae of the season in ILLINOIS averaged 16 per 100 sweeps May 15 in roadside Kentucky bluegrass in Jackson County. Populations on wheat averaged less than one per 10 linear row feet in Madison and Greene Counties May 16. Small larvae were

observed in roadside grasses as far north as Champaign County by May 25, although this pest was apparently absent in wheat in this area. P. unipuncta averaged one per 10 row feet in St. Clair County and 2.3 per 10 row feet in Monroe County. Overall populations in wheat were light, although 13,000 acres were treated. Armyworm ranged light to moderate in occasional fields of no-till corn in southern Illinois during June and July. One field of 18-inch corn in St. Clair County showed 10 percent whorl feeding, and larvae averaged 6 per plant July 18 in one field in Christian County. About 20,000 acres of corn were treated in Illinois.

Armyworm moths began appearing in WISCONSIN by the end of April but not in sufficient numbers to cause concern. Heavier than normal larval populations in corn were noted in Barron, Ozaukee, Washington, Taylor, Wood, Chippewa, Sheboygan, Marinette, Jackson, Wood, and Lincoln Counties. About 4,000 acres were affected with larvae ranging from 25 per square foot to 50 per square yard. Late corn and oats were damaged. By the time growers began treatments, larvae were already heavily parasitized and little benefit was realized. Armyworm larvae were present in small grains in all crop areas of MINNESOTA but mainly at noneconomic levels. A localized but sizable outbreak did occur in eastern Becker County. Some growers had appreciable damage with some losses, particularly in oats, when infestation reached 50 percent. About 4,000 acres in Becker County were treated. Results were often questionable as many larvae were large and treatment was not always successful.

Armyworm infestations reached 10 larvae per square foot in late-seeded barley and wheat in Walsh and Pembina Counties, NORTH DAKOTA, by the end of July. Treatments were applied. Armyworm was economically important in some SOUTH DAKOTA cornfields. In mid-July, heavy infestations were found in 2 Union County fields of 90 acres and 160 acres, but lighter infestations were noted in three other fields in this area. Larvae were observed near Mt. Vernon, Davison County, in late July. Treatments were applied to heavily infested fields. Armyworm larvae damaged a field of oats in northern Union County in mid-July. Damage was curtailed by an earlier than normal swathing in preparation for combining.

Armyworm larvae were initially reported feeding on corn in north-east and east-central IOWA during the week ending July 13. Infestations ranged up to 4-6 larvae per plant with heavy damage observed. Damage increased across the State during the following 7 days with severe damage reported in Polk and Worth Counties. Damage increased during the week ending July 27 with fields heavily damaged in Dallas and Hancock Counties. Parasites were present in fields during the second week of July when 42 percent of armyworm larvae were parasitized. One-third of this parasitism was due to Apanteles militaris (a braconid wasp). Generally, armyworm was an increased problem throughout Iowa in 1973 with many urban dwellers concerned over their lawns and gardens. Light armyworm larval populations were reported from small grains in the southern and central areas of MISSOURI. There were very few reports of economic damage, indicating the lowest populations in small grain for the past several years. Heavy populations were found during late June in fescue and orchard grass in the south-central and southwest areas of Missouri. Counts ranged from 2 up

to 20 larvae per square foot. Several thousand acres of fescue seed were severely damaged in the south-central area. Light populations were found in other areas of the State.

First armyworm moth flights of the season in KANSAS were detected April 23 in a blacklight trap at Manhattan, Riley County. The first larval infestations were noneconomic on wheat and barley in Labette County and on wheat in Montgomery County during the week ending May 21. During late May, damaging infestations on wheat and barley were reported from Cowley County, and on wheat in Sedgwick and Harvey Counties. The most serious infestations were restricted to Cowley County. Head clipping was heavy, particularly in barley, with much wheat and barley treated during the first week of June. Surveys conducted throughout much of the remainder of the State during the first three weeks of June revealed no other serious infestations. Parasitism by braconid wasps was often high when armyworm infestations were found. About 11,370 acres of wheat and 6,100 acres of barley were treated, with nearly all acreage being restricted to Cowley County. Minor populations of *P. unipuncta* fed on corn foliage in southwest Kansas from early to mid-August. No armyworm infestations were found in bromegrass pastures surveyed in late May and early June in eastern Kansas.

Armyworm appeared in wheat in Cotton County, OKLAHOMA, the second week of May. Scattered, heavy infestations were reported in many west-central, southwest, north-central, and south-central counties from late May to mid-June. Many fields were treated but head clipping appeared to be light in most areas. A survey for armyworm in small grains was made in eastern ARKANSAS the week of April 23. Excessive rains and flooding prevented entry into many fields, but no infestations were found at that time and none developed later. Economic infestations of armyworm in orchard grass and fescue in Benton and Carroll Counties in extreme northwest Arkansas were observed in late May. Infestations occurred in only a few isolated fields. Control results were good where chemical treatments were made. One Carroll County field was all but destroyed before the infestation was discovered. Armyworm and *Spodoptera frugiperda* (fall armyworm) larvae infested the whorls of 80-100 percent of 3,500 acres of late-planted grain sorghum in Yazoo County, MISSISSIPPI, by late August. In Noxubee County, 5-20 percent of heads sampled were infested with late-instar larvae as were 30-60 percent of heads in Yazoo County. In Hinds County, various larval instars infested 100 percent of heads of mature grain sorghum during mid-September. Estimated losses to grain sorghum by these pests were 10 percent in Mississippi.

Armyworm was light during the season in NEW MEXICO with less than one per square yard observed on barley in Curry and Roosevelt Counties. Armyworm was heavy and caused heavy defoliation of Sudan grass in areas of CALIFORNIA.

Early reports of ASTER LEAFHOPPER (*Macrosteles fascifrons*) in MINNESOTA grain fields during 1973 indicated populations were at their lowest levels in 20 years. However, there was an unusual upsurge of populations the second week in June. Counts increased rapidly from 30-40 per 100 sweeps to 300-400 in central and southwest district grain fields. Warnings were issued to Twin City area growers in time to prevent serious aster yellows infections.

This increase subsided as rapidly as it had occurred, and aster leafhopper populations remained light for the remainder of the season. Aster leafhopper began to appear May 18 in WISCONSIN and increased only slightly until mid-June when counts went up to 6 per sweep. These populations were still lighter than normal. Also, the status of migrants was confused by the apparent appearance of local populations by that time. The overall population decreased rapidly in early July, but adults were common in alfalfa and grain in late fall. Infectivity studies showed a low incidence of disease which was corroborated by observations of susceptible crops. Heavy migrating populations of aster leafhopper on storm fronts were continuously observed in MICHIGAN. Constant application of controls with an apparent light percentage of disease infectivity kept losses in celery, lettuce, and carrots minimal.

The first few CORN EARWORM (*Heliothis zea*) moths in MAINE were collected in blacklight traps the third week of August in Oxford, Cumberland, Somerset, and Penobscot Counties. Larvae were heavy in only very late corn in York, Oxford, and Franklin Counties. Two fields of very late corn in Oxford County had 2-7 larvae per plant at tasseling time. The stage of corn development may have been a significant factor in these erratic infestations. Five percent of the ears were infested with larvae in many late fields of sweet corn, resulting in an estimated \$10,500 loss for commercial gardeners in Maine. The first moth in NEW YORK was caught in a blacklight trap at Highland, Ulster County, August 10. At the same location, two adults were taken September 4, and a check plot of corn was 8 percent infested with larvae on the same date. Heavy feeding was reported August 27 in Nassau County corn-fields.

Significant corn earworm adult flights (10-23 moths per night in blacklight traps) and egg laying (7 percent infested silk counts) began about July 10 in Dorchester, Caroline, Wicomico, Somerset, and Worcester Counties, MARYLAND. Activity started 10 days later west of Baltimore County, but infestations were well below normal and about one-third that level on the lower Eastern Shore. Spray programs in sweet corn for processing were started by July 15 in 75 percent of the 15,000+ acres planted on the Eastern Shore. Ear damage ranged 3-40 percent in unsprayed sweet corn and 4-10 percent in field corn during late July and early August on the Eastern Shore. In central Maryland, damage levels in field corn varied 0-8 percent during the same period. Infestations in corn declined rapidly in late August on the Eastern Shore when egg laying shifted to alternate hosts such as lima beans, snap beans, and soybeans. Infestations in soybeans were light, perhaps due to the increased control for *Epilachna varivestis* (Mexican bean beetle) during this period in Dorchester, Caroline, Queen Annes, Wicomico, Somerset, and Worcester Counties. Growers of snap and lima beans for processing made 3-7 spray applications during August and September to maintain clean stands. About 400 acres of the 6,000 one-acre units sprayed by growers in 1973 were considered too heavily infested for processing. Corn earworm moths were heavy in DELAWARE blacklight trap collections during late July and again in late August when counts ranged up to 700 per night. Larval infestations in late-planted sweet corn were very heavy but little injury was noted to soybeans, lima beans, or peppers.

The first corn earworm damage in VIRGINIA occurred June 22 when 10 percent of the whorls were infested in a 2-acre cornfield in Greensville County. Larvae were severe in a field in Warren County July 3. By July 18, field corn in Southampton, Nansemond, and Sussex Counties averaged 45 percent of the ears infested, with most larvae in the first three instars. By July 27, infestation in 39 Tidewater region fields of field corn averaged 35.8 percent of all ears infested. South of the James River, 41.3 percent of the ears were infested, about 2.5 times that of 1972. In the Middle Peninsula, 39.4 percent of the corn was infested compared to 24.5 percent in 1972. Ear infestations in the Northern Neck averaged 18.7 percent compared to 2 percent in 1971. Moths had decreased in blacklight traps at Painter and Warsaw the week prior to July 27, but fourth and fifth-instar larvae were present immediately south of these stations. Moth collections had increased rather abruptly by August 27. This was the usual pattern of populations peaking near late August or early September. Larvae were prevalent in the fields and damage was serious to late sweet corn, peppers, and beans during the week of August 22. Larvae fed in the lower fruits of apple trees in a single orchard in Albemarle County, Virginia, September 27, an unusual occurrence on this host in the State. Infestations were light throughout most of the season on the Eastern Shore of Virginia but some rather extensive late-season injury occurred to beans and tomatoes.

Larvae were light in soybean fields in Virginia Beach, Westmoreland, and Southampton Counties, Virginia, by August 19. Light trap catches at Warsaw, Richmond County, indicated a heavy moth flight August 19, and moths were readily observed in fields in the Virginia Beach area. By August 30, larvae were appearing from the city of Virginia Beach to Westmoreland County. In 16 fields in southeastern Virginia counts averaged 8 young larvae per 30 row feet, but no fields were at treatment levels. By September 7, larvae were damaging from the city of Virginia Beach to Westmoreland County, but by September 14, counts were declining and damage was lighter in the city of Virginia Beach. Counts averaged 0.9 larva per 30 row feet in 14 southeastern Virginia fields. Larvae were scarce with very light damage in the city of Virginia Beach. By September 26, counts in 10 sample fields in Southampton, James City, Caroline, and Sussex Counties, and the Independent City of Chesapeake averaged 0.1 larva per 30 row feet. The September 28 populations were scarce with no significant damage. In 16 southeastern Virginia fields larvae averaged 0.25 per 30 row feet, and 0.10 at Virginia Beach. Very severe damage was reported in 2 fields in Greensville County this year. Populations had built up in peanuts then moved to soybeans where pods were damaged and foliage stripped.

Corn earworm larvae began to appear July 20 in soybeans in the southern and eastern Coastal Plain of NORTH CAROLINA. Infestations of economic importance were observed in fields with closed and open canopy. A survey was conducted August 20-28 in 37 Coastal Plain counties to determine the percent of fields at the damage threshold level per canopy type. Canopy type for this survey was determined August 6-15 to coincide with peak egg laying. Of 36 fields sampled in 36 counties, 2 percent of the closed canopy fields had populations at the threshold level and of 36 fields with open canopy and prebloom, 27 percent were at or above threshold. Of 104 open canopy, peak bloom fields in 37 counties, 25

percent were at or above threshold level during the period of this survey. Heavy infestations were not restricted to any geographic area of the Coastal Plain. During 1972, about 50 percent of open canopied fields in the southern Coastal Plain were at or above the threshold level of one large larva per 3 row feet. Had this conservative threshold been the standard for 1973 about 75 percent of the open canopied fields surveyed would have had infestations of economic importance.

Also in North Carolina, corn earworm larvae were recorded in usual numbers on trellised tomatoes in the mountains and on tomatoes for processing in the Sandhills area. Damage to sweet-potato roots occurred where field exposure prior to pickup resulted. Minor damage to sweet corn tips was reported even though several control applications were made. Foliage damage by corn earworm larvae was very widespread in the northern Coastal Plain peanut-growing counties of North Carolina during August and September. Peanut fields in upper Chowan County were generally infested. Counts in scattered fields in Martin, Edgecombe, Washington, and Chowan Counties ranged 1-3 larvae per row foot. Damaged foliage was observed also in Northampton, Gates, and Hertford Counties.

Corn earworm larvae damaged corn that was forming ears during July and the first half of August in TENNESSEE. Some fields had 100 percent of ears infested with 1-12 larvae per ear. Overall damage was light. Corn earworm larvae began to appear on soybeans in the lower part of SOUTH CAROLINA in late July. Economic infestations were present in 75 percent of soybean fields from mid-State to the coast by the third week in August and were approaching economic thresholds in the Piedmont. Larvae continued to damage soybeans statewide well into September. Larvae caused some damage to field corn throughout South Carolina, especially in late-planted fields. Heavy infestations also damaged sweet corn in Lexington County in June.

Corn earworm was generally destructive in ears of sweet corn grown in the Everglades area of FLORIDA. Sprays were required throughout the year. At times of maximum pressure, growers were required to treat silks daily to produce a marketable crop. There was little population reduction during the winter, as temperatures were mild and there was no frost. Corn earworm was of less economic importance on soybeans in ALABAMA than for the past 3-5 years. Of the 860,000 acres for harvest, only about 180,000 acres in the extreme southwest area received controls. Larvae were widespread and damaged pretassel corn, sorghum, and ear corn in the milk and dough stages in Alabama. First-generation larvae occurred in March and April on crimson clover, vetch, and other winter legumes. Corn and grain sorghum supported generations which in turn caused later generations to be serious pests of peanuts, soybeans, cotton, tomatoes, and other crops. Tomato fruitworm was the more important pest of tomatoes throughout the season in home gardens and in commercial plantings in Alabama. This pest became about the same problem this season as usual on the 10,000 commercial acres in the State, along with home gardens, and all fields received 15-30 applications of insecticides per acre in control efforts.

Corn earworm along with Spodoptera frugiperda (fall armyworm) and S. ornithogalli (yellowstriped armyworm) were the major insect pests limiting production on the 160,000 acres of corn in MISSISSIPPI. In late June and early July these pests were feeding as budworms and infestations of 80-90 percent were common. As corn ears began to appear, H. zea infested about 80-85 percent of the ears in fields throughout the State. Ostrinia nubilalis (European corn borer) and Diatraea grandiosella (southwestern corn borer) were also limiting factors of corn production in some areas.

In corn grown for grain in INDIANA, the average percent of plants infested (4.32) and the percent loss (0.134) due to corn earworm and Spodoptera frugiperda (fall armyworm) increased slightly over 1972, probably because corn was planted later in 1973. The percent loss was substantially less in only the southeast and south-southcentral districts. At the time of the 1973 fall survey, 66 of 77 larvae observed still in the ear were H. zea. Corn earworm and fall armyworm infested sweet corn in addition to the already heavy Ostrinia nubilalis (European corn borer) infestations, and controls were generally essential on a weekly basis or oftener, where marketable corn was required. S. frugiperda also damaged corn in whorls and occasionally infested wheat in southwest Indiana in October.

The first corn earworm moth of the season in MICHIGAN was collected on June 13. This was about 30 days earlier than usual. Some sweet corn was damaged. A 25-acre field of eggplant in Van Buren County was heavily infested and much loss occurred. This is the first record of corn earworm causing economic damage to eggplant in Michigan. Second-generation corn earworm larvae caused occasional damage in field corn in the southern third of ILLINOIS during August. Of the fields surveyed in this area, 90+ percent had a 5-percent infestation with one St. Clair County field showing 90 percent infestation with an average of 1.4 larvae per ear. Four Macoupin County fields averaged 30+ percent infestation. There were no reports of field corn having been treated for corn earworm in Illinois.

Corn earworm adults first began appearing in WISCONSIN the latter part of July and were concentrated in the northwest and through the Fox River Valley area. Late sweet corn was seriously affected and in some instances ear infestation was close to 100 percent. Larvae appeared September 11, earlier than expected in Marinette County and proved difficult to control. Corn earworm damage to ears of field corn in IOWA decreased statewide from 1.7 percent in 1972 to 1.4 percent of all corn in 1973. Heaviest damage was noted in Davis, Des Moines, Henry, Jefferson, Lee, Van Buren, and Wapello Counties in southwestern Iowa, where 10.1 percent of all ears showed damage. Corn earworm infestations remain unusually light during 1973 in field and sweet corn in NEBRASKA. Moth counts in light traps remained low over the State throughout the season.

Heavy corn earworm infestations in whorls of late-planted corn and sorghum were much more prevalent during 1973 than 1972 in KANSAS. Estimates indicated that about 7,550 acres of sorghum and 32,650 acres of corn including Spodoptera frugiperda (fall armyworm) infestations in corn were treated for whorl infestations during the 1972 growing season. Results of a statewide survey conducted

during 1973 to determine the loss due to kernel feeding by H. zea (including S. frugiperda and Loxagrotis albicosta (western bean cutworm)) in field corn showed losses to be much heavier than in 1972 in most crop reporting districts. Part of the increase was attributable to greater than usual incidences of S. frugiperda ear infestations in many fields over much of the State in 1973. The greatest kernel loss (4.5 percent) occurred in the south-central district and the least (0.5 percent) in the northwest district. Losses were generally heavier in 1973, with districts showing greatest and least losses following the same pattern as in the 1972 survey. About 24,000 acres of field corn were treated for ear infestations of H. zea and S. frugiperda in 1973. Most treating was done in the northwest district (21,000 acres). H. zea feeding in heads of sorghum or on pods of soybeans was of minor importance in 1973 as in 1972. Only an estimated 5,500 acres of sorghum were treated for head infestations in 1973, of which 5,000 were in Labette County. A total of 2,000 acres of soybeans were treated in Cherokee County. Infestations were usually heavy, up to 72 per 100 sweeps in Woodson County, in eastern Kansas during September and early October, but damage was not significant.

Corn earworm was heavy in field corn in southern MISSOURI during 1973. Observations during late August and early September showed 20-100 percent of the ears infested with 17-61 larvae per 100 ears in the southwest area and 23-91 percent of the ears infested with 8-73 larvae per 100 ears in the southeast area. Corn earworm was the third most important insect pest requiring treatment in sorghum in ARKANSAS, with economic infestations on less than 5 percent of the crop. In some cases, Spodoptera frugiperda (fall armyworm) was also present feeding in the heads of sorghum. Excellent control was obtained with chemical treatment. The loss to sorghum in Arkansas was estimated at \$360,000 excluding control costs. This was due to lack of control in a few isolated cases rather than ineffective control. H. zea ranged absent to very light on soybeans in Arkansas. Controls were used in only one area where an unusually heavy moth flight occurred. Overall controls were at the lowest level since 1960, and no loss occurred.

Corn earworm larvae were present in alfalfa from mid-May through October in OKLAHOMA, but counts seldom averaged over 10 per 10 sweeps except in the west-central area during early and mid-October. Heavy populations damaged corn in most areas in late June and July, and moderate to heavy infestations of 1-5 larvae per head were present in sorghum in the eastern half of the State and scattered southwest and west-central counties from early August to mid-September. This pest was one of the more damaging insects attacking grain sorghum and corn in scattered areas of TEXAS.

Heavy damage by corn earworm appeared throughout the season on sweet and field corn as well as sorghum in NEW MEXICO. On July 20, two of every 5 sorghum plants were severely flagged in Quay County. In August, 1-3 larvae were collected per 10 heads of sorghum near Rodeo, Hidalgo County. During October, 3-5 larvae per stalk per cornfield were collected from what appeared to be severe damage by Diatraea grandiosella (southwestern corn borer). Late numbers of lodged stalks were associated with this infestation

in northeastern New Mexico. Corn earworm damage to corn was generally light to moderate in northern and central UTAH. Infestations were more damaging in some Millard and Washington County fields. In commercial cornfields of Canyon, Ada, Owyhee, Gem, and Washington Counties, IDAHO, corn earworm activity was spotted. Seed fields in Canyon and Twin Falls Counties were 100 percent infested at harvest. The determination of H. zea infestations was complicated by the presence of Loxagrotis albicosta (western bean cutworm) in Twin Falls County. Side ear entrance losses to corn seed production averaged about 10 percent

CORN LEAF APHID (Rhopalosiphum maidis) infested most corn and sorghum in the eastern and northeastern portions of NEW MEXICO during 1973. Counts of 700 per whorl on young plants caused much damage in Quay County during July, and moderate infestations were reported from Roosevelt and Curry Counties during this period with controls being applied. Corn leaf aphid infested sorghum in most areas of OKLAHOMA from mid-June to early September. There were only scattered reports of heavy infestations. Populations ranged 100-300 per plant in some areas and up to 600 per plant in Kay County in early August. Corn leaf aphid infestations on sorghum were lighter than normal in ARKANSAS. This pest seldom, if ever, needs treating in the State, although needless treatments are made.

Corn leaf aphid infestations were lighter than usual in whorls of sorghum throughout KANSAS during most of the growing season. Scattered heavy infestations appeared in some Stevens County fields in early July and in some northeast and east-central district fields by mid-July. Scattered heavy infestations in sorghum were reported also in the southwest district in mid-July, particularly in Hamilton, Grant, and Stanton Counties. By late July, R. maidis infestations in sorghum were generally declining over most of the State. By then most fields were in the boot stage and beyond and the aphids were more exposed to controlling actions of predators and unfavorable weather. There were no reports of heavy infestations in sorghum after late July. According to estimates, about 70,800 acres of sorghum and 25,300 acres of corn were treated in Kansas during 1973.

Trace numbers of corn leaf aphid were first observed in whorls of grain sorghum in Clay County, NEBRASKA, the first week of June. The population peaked about mid-July with an average of 51.2 R. maidis per plant. Significant damage was not observed. In late August, fungus and mold growing on accumulated honeydew on corn in Madison County caused concern among area farmers, but no significant damage was observed. Corn leaf aphid populations had peaked at 50 per head on barley by late July in Pembina County, NORTH DAKOTA. Treatments were applied.

Corn leaf aphid populations on corn in ILLINOIS during 1973 were the heaviest in six years. Yield losses occurred in localized areas, primarily in the northern part of the State where there was a moisture shortage. The situation was especially critical in De Kalb and Ogle Counties. Peak corn leaf aphid populations, which usually appear in late July, did not occur until mid-August. By that time, most corn was far enough advanced to be out of danger. About 137,300 acres were treated for control of R. maidis in Illinois returning a \$961,000 profit over and above treatment costs. There was a general decline in corn leaf aphid activity on

corn grown for grain in the southern half of INDIANA. Coupled with a less consistent increase of activity in the northern half of the State, this resulted in a slight decrease of infestation from 34.4 percent in 1972 to 33 percent in 1973. Heavy infestations increased in the northern half of the State over those present in 1972. Light infestations were more numerous overall in 1973. As infestations were generally later with reference to the maturity of corn, damage was light.

Corn leaf aphid was first noted on corn in MAINE the second week of July. Populations increased slowly until August 5, and by August 12 many tassels were completely covered. By August 28, the population had decreased by 80 percent. This was about 1-2 weeks earlier than in 1972. Although the need for control was indicated, early mortality of aphids due to fungus disease made spraying unnecessary. Corn leaf aphid populations over the past 4 years have been very light on corn in MARYLAND, with only an occasional moderate outbreak. Some activity was found in all counties this season, but infestations reached moderate levels of 30-40 percent on about 1,000 acres in Kent and Queen Annes Counties. Some growers applied controls to about 100 acres in Kent County. These infestations declined rapidly by late August due to natural factors. Corn leaf aphid was very heavy throughout the 610,000 acres of corn grown in ALABAMA. Maize dwarf mosaic was again general in parts of the northern portion of the central area, especially in Shelby County. This disease was less damaging statewide than for the past 3 to 5 years. R. maidis is the suspected vector.

GREENBUG (Schizaphis graminum) populations ranged 2-8 per linear foot in wheat in Curry and Roosevelt Counties, NEW MEXICO, during February with some buildup observed through March. By May 4 controls were being applied. Fall seedling wheat was treated from mid-September on and in many cases treatment appeared ineffective. Up to 300 per linear foot were reported by mid-October. Lack of treatment on corn during midsummer appeared to create a readily available reservoir for movement of greenbug to emerging wheat. Early planting to facilitate fall grazing also added to the complexity of buildups and controls. Populations of up to 1,000 per whorl on sorghum in Harding County, New Mexico, and up to 200 on outer leaves were recorded by mid-July. These populations were reflective of wheat fields located within short distances where populations were also heavy. Controls were regularly applied though not always successful.

Greenbug populations on wheat remained below economic levels throughout the Panhandle, Rolling Plains, and north-central areas of TEXAS during mid-January due to extremely cold weather. During February, populations in the Rolling Plains ranged only 1-20 per linear row foot in most fields. Somewhat heavier infestations were noted in the Panhandle in early March. Isolated fields in Motley County averaged 2,000 aphids per row foot. By mid-April, infestations in Castro County ranged to 3,000 per row foot and in the Rolling Plains up to 800. Some controls were initiated early in the season. Late in the year, heavy populations in isolated areas of the Panhandle and Rolling Plains required treatment after infestations began to build up in mid-October. Light infestations of greenbug were detected on grain sorghum in south-central Texas

during the week ending April 27. By June, infestations were light in most south-central and central counties. Infestations appeared on grain sorghum in the Blacklands, Rolling Plains, Trans-Pecos, and San Angelo areas during this same period. By mid-June, light infestations were noted in the South Plains. During the week ending July 14, heavy infestations of S. graminum damaged grain sorghum in the Panhandle. Counts averaged 2,000 per plant in isolated fields. By August 15, populations decreased to low levels in the Rolling, South, and High Plains due to beneficial insect activity.

Survey for greenbug on small grains was negative during January and February in ARKANSAS. The first specimens were found in the northwest area March 8. Hymenopterous parasites were present in small grains throughout spring and no doubt played a part in holding S. graminum populations to low levels. No treatments were applied to small grains in the State and no losses occurred. Greenbug was very light on corn and sorghum in Arkansas. This pest was found for the first time in St. Francis, Prairie, and White Counties during 1973. Greenbug was light to moderate on sorghum in the southwest, west-central, and northwest areas of MISSOURI during late July and early August. By mid to late August, populations were heavy in the southwest area. Predators checked these populations and the only damage observed was in drought areas or in very weedy fields.

Greenbug infestations in small grains during the spring growing season in OKLAHOMA were the lightest recorded in 18 years. Populations reached 5 per linear foot in some fields in the west-central area during mid-March. Cold, wet weather was probably mostly responsible for low counts. The first fall infestations were found in a number of west-central, central, and south-central counties the first week of October. During late October and November, greenbug ranged 100-600 per linear foot in scattered fields of wheat in Texas, Cimarron, Roger Mills, Caddo, Washita, and Ottawa Counties. Some fields were treated in most of these counties. Infestations were first found in seedling sorghum in mid-May. Much damage occurred from mid-May to mid-June in scattered fields in several north-central, west-central, central, southwest, and south-central counties. Some fields were treated and some were replanted. After mid-June, greenbug was noneconomic in all except the Panhandle and west-central areas. A number of fields were treated in Texas and Cimarron Counties in late July and early August and heavy populations were present in several west-central counties of Oklahoma from mid-August to early September.

Greenbug was generally less of a problem in sorghum throughout most of KANSAS during 1973, especially in seedling sorghum. This was mostly due to the controlling pressure of frequent beating rains that occurred over most of the State early in the season. The most widespread damaging populations occurred in late July and early August in the more northern counties of the north-central district, the northeastern counties of the northwest district, and in several counties of the southwest district. Lysiphlebus testaceipes (a braconid wasp) was very effective in controlling S. graminum during July and August over most of the remainder of the State and in many fields in the more heavily infested areas. This parasite gave some control much earlier in

the season than usual in some fields in Marion and Ottawa Counties during the second week of June. A substantial acreage of sorghum received soil treatment at planting for the first time this year. About 214,000 acres were so treated in 1973, most of which was done in the eastern two-thirds of Kansas and was most concentrated in the northeast (46,000 acres) and north-central (73,000 acres) districts. Damaging seedling infestations of greenbug were noted in these districts in 1971 and 1972, and prompted the substantial use of soil applied systemic treatments for seedling protection against S. graminum. Much of this was wasted as damaging seedling infestations were much less common in 1973. About 135,000 acres of seedling sorghum received a foliar insecticide application in 1973. This treated acreage was most concentrated in the north-central (48,000 acres) and southeast (25,000 acres) districts. Greenbug infestations in wheat were minimal during spring and fall of 1973. It is estimated that 17,000 acres of wheat were treated through late October. All treating was confined to the western districts. From mid-November through mid-December, S. graminum increased in wheat particularly in southwest Kansas due to unseasonably warm weather. In mid-December, damaging infestations were common in wheat in Morton and Stanton Counties and much treating was being done when daytime temperatures permitted.

Greenbug had not been observed on wheat in Gage, Johnson, and Otoe Counties, NEBRASKA, by April 18. On May 23, light numbers, 9 per 100 sweeps, were found in wheat in Johnson and Lancaster Counties. On sorghum, trace numbers appeared the first week of June in Clay County. Populations increased slowly with light damage to a few late-planted fields in Jefferson County. In Butler County, one field of replanted sorghum was 70 percent destroyed by S. graminum. Adequate moisture and good growing conditions reduced the possibility of seeding damage to most sorghum in the State. Populations peaked the first week of August in the south-central district, averaging 210 per plant in Clay County. About 20 percent of the sorghum acreage in Clay County received post-emergence treatment. Increased parasitism by Lysiphlebus sp. was mainly responsible for the decline in populations which decreased to an average of 1.2 per plant by August 16 in Clay County. In the west-central area, the greenbug population peaked about mid-August and then rapidly declined due to parasitism by Lysiphlebus sp. S. graminum activity on winter wheat in Nebraska was light. Counts averaged one per plant in Polk County during October, with wheat in the 3-leaf stage. Some damage to wheat was reported in Dawson and Knox Counties, Nebraska, in early November.

Due to the damage to winter wheat in SOUTH DAKOTA by greenbug in 1972, thousands of acres had to be reseeded in spring 1973. A 5-county area including Jones, Lyman, Mellette, Stanley, and Tripp Counties, had 35 percent or 81,750 acres of winter wheat reseeded. Most damage occurred where treatments were not made or applied too late. In late June, greenbug and Macrosiphum avenae (English grain aphid) began to build up in central area spring wheat. Winds of 75-80 m.p.h. July 1 decreased the population by at least 70 percent. No further aphid problems occurred. Greenbug began to increase in volunteer winter wheat in central Lyman County in late August. Surveys in September and October showed no infestations in newly seeded winter wheat or barley. During fall

surveys only one field was found infested. This field, near Kimball, Brule County, had an average count of 72 S. graminum per linear row foot. Trace populations were observed during mid-October in eastern Pennington and southern Meade Counties. About 170,000 acres of winter wheat were treated at planting in fall 1973, primarily in Jones and Lyman Counties. Greenbug did not pose a problem on sorghum in South Dakota. Very light populations of 1-2 colonies per plant were noted in mid-July on grain sorghum in Charles Mix, Davison, Hanson, and Douglas Counties. During early August, slightly heavier populations were noted on untreated sorghum in northern Moody County and in Aurora County.

Although greenbug was not as serious a problem in WASHINGTON in 1973 as in the previous two years, it caused some damage to irrigated wheat in late spring and early summer in Benton County. S. graminum and Rhopalosiphum padi (an aphid) were damaging on several thousand acres of wheat, barley, and oats in Klickitat and Benton Counties in September and October when many fields were treated. Greenbug infested practically all cereals in CALIFORNIA, but only local infestations required treatment. However, this aphid was particularly serious on milo in most areas of the State and required much treatment.

PICKLEWORM (Diaphania nitidalis) was heavy (5-10 per plant) and fed on leaves and fruit of squash during spring and fall at Bradenton, FLORIDA. Infestations were moderate (1-5 per plant) on cucumber during spring and heavy during fall on honeydew melon at Bradenton. Infestations were moderately heavy in late fall on squash at Sanford, affecting several commercial farms. Unusually heavy populations of pickleworm and Melittia cucurbitae (squash vine borer) were observed in late August and in September throughout SOUTH CAROLINA, and were extremely severe on late-planted cucurbits. Pickleworm was destructive in commercial cucumber, canteloupe, and squash plantings of the eastern and southern Coastal Plain areas of NORTH CAROLINA. Damage occurred in spring cucumber plantings in late June. The occurrence of pickleworm in North Carolina was early and heavy.

The first POTATO LEAFHOPPER (Empoasca fabae) activity in alfalfa and red clover was detected the last week of June in MARYLAND. Counts in the central and northern Eastern Shore areas increased rapidly from 1-10 per 20 sweeps July 6 to 60-160 per 20 sweeps July 20. About 13,000+ acres required controls in July and August. August counts in unsprayed fields reached 200-350 per 20 sweeps in areas of Frederick, Carroll, Washington, Kent, and Cecil Counties. Most damage was restricted to central Maryland east of Baltimore County, with 10,000 out of 13,000 acres sprayed. Counts declined in late August and September to 8-50 per 20 sweeps. Populations in snap and lima beans failed to reach economic levels in Maryland due to good chemical control practices. Potato leafhopper was moderately heavy and widespread over the VIRGINIA peanut belt. Controls were applied one or two times to 90 percent of the peanuts in the State. Late-instar nymphs were very light on soybeans in Hanover, Westmoreland, Richmond, Essex, King William, and King and Queen Counties by June 10 but caused no economic damage. Potato leafhopper caused serious damage to the second and third cuttings of alfalfa in WEST VIRGINIA in Mason, Putnam, Jackson, Wood, Preston, Monongalia, and Ohio Counties. Losses ranged 20-70 percent reduction in yield. Infestation levels ranged 50-90 percent in alfalfa.

potato leafhopper ranged up to one per 5 sweeps statewide by May 30 in OHIO alfalfa. One month later, 4-7 per sweep were recorded in the southwest area. Warm, dry weather during that period contributed to outbreaks, and by July 12 yellowing and stunting of alfalfa were apparent throughout the State. New alfalfa seedings were especially damaged and red clover hosted 1+ leafhoppers per sweep. In Mercer and Darke Counties, "hopperburn" ranged 45-50 percent on alfalfa and averaged 85 percent on potato plants examined August 3. Adults and nymphs ranged up to 24 per plant in Darke County. Populations were the heaviest noted on untreated vegetables in Ohio in recent years. Potato leafhopper damaged second-cutting alfalfa in many fields in south-central MICHIGAN during July and August. Populations reached the highest levels of the past several years, and damage to potatoes was, in many cases, more serious than by any other insect.

Potato leafhopper, and possibly other leafhoppers, rivaled Hypera postica (alfalfa weevil) as economic pests of alfalfa in INDIANA during 1973. Controls were warranted on all alfalfa planted on light soils through the State, and on all fall 1972 and spring 1973 sown alfalfa regardless of soil type. It damaged second and third cuttings in the southern districts late in June and in July, and the third cutting in the rest of the State in August. Potato leafhopper caused yellowing, stunting, and stand reduction, and generally reduced the vigor of unprotected plants. Leafhoppers also caused widespread "hopperburn" in potatoes and garden beans, and reduced the quality of lettuce. They were numerous enough to cause minor damage to apple and pear leaves.

In ILLINOIS, potato leafhopper was heavy and caused some economic damage, especially on second-growth alfalfa. By May 10, populations averaged 4 per 100 sweeps in Champaign County and had reached 400 per 100 sweeps by May 24. One Clinton County field averaged 12 per sweep June 13. Populations ranged 7-20 per sweep June 21 in Washington County and 4-5 per sweep in Champaign County. Treatment was needed on 4,300+ acres. Potato leafhopper adults were first noted May 25 and nymphs June 22 in WISCONSIN. Populations were variable on alfalfa and ranged 1-60 per sweep at their peak. Some yellowing was noticeable by mid-July and new seedings were being affected the first week of August. In general, overall populations were lighter than normal.

SPOTTED ALFALFA APHID (Therioaphis maculata) was general in alfalfa and required more treatment than previous years in CALIFORNIA. In NEVADA, populations were at very low levels during 1973 except on seed alfalfa in areas of Churchill and Pershing Counties where treatments were required. The first specimens were noted near mid-June in these areas with counts of 30 per sweep and honeydew present in mid-August. Spotted alfalfa aphid infestations were generally light on alfalfa in UTAH, with losses estimated at \$40,000. Fields of alfalfa in Chaves and Eddy Counties, NEW MEXICO, showed much damage by spotted alfalfa aphid during early May, with controls necessary. Elsewhere and during most of the season, predator activity appeared to maintain reasonable control in the State.

Spotted alfalfa aphid was very light in all areas of OKLAHOMA most of the year. Scattered, heavy infestations were reported in some alfalfa in Canadian, Caddo, and Washita Counties in mid-August. Spotted alfalfa aphid caused little damage to KANSAS alfalfa. About 14,080 acres were treated. This treated acreage was confined to Linn (10,000 acres), Atchison (2,000 acres), Cheyenne (2,000 acres), and Haskell (80 acres) Counties. Spotted alfalfa aphid populations began to increase noticeably on alfalfa the first week of July in WISCONSIN, with counts averaging 5 per sweep. By July 20, populations ranged 100-400 per sweep in sandy soiled areas in Iowa, Sauk, Dane, Columbia, and Trempealeau Counties. Yellowing and wilting were noticeable in some fields. Counts then began to decrease and alfalfa again entered the winter with light populations. Spotted alfalfa aphid is usually very light in MICHIGAN. However, some alfalfa in Ingham and Eaton Counties was threatened during the hot weather of late August 1973. The population decreased with the return of more seasonable weather and no damage occurred.

TOBACCO BUDWORM (Heliothis virescens) infestations on tobacco in southern MARYLAND were the heaviest of the past 4 years. By mid-July, damage in several areas of Charles, Prince Georges, and Calvert Counties ranged 60-80 percent. Growers reported inadequate control results with most registered insecticides. However, Bacillus thuringiensis (a fungus) appeared to give better control of this pest during the July outbreak. It is estimated that more than half of the 27,000 acres of tobacco in Maryland received 1-2 sprays for tobacco budworm and hornworm control.

BUDWORMS (Heliothis spp.) were the most important pests of flue-cured and dark fire-cured tobaccos in VIRGINIA during 1973. These insects were more numerous than for many years. Budworms, mainly H. virescens, were unusually abundant in late June and early July on more advanced tobacco. Damage to 60-100 percent of the plants in a field was common. The insects persisted over a longer period of time, and less parasitism was noted. H. zea was common late in the season on mature tobacco, suckers, and seed heads. Many tobacco growers reported poor control during the early growing season with the recommended insecticides applied with power sprayers. The heaviest tobacco budworm damage to tobacco in KENTUCKY was observed in the western and south-central areas early in the season. Heavier damage occurred during August in Ohio, McLean, and Nelson Counties.

Surveys conducted in 847 tobacco fields in Columbus, Bladen, Wayne, Wilson, Lenoir, and Cumberland Counties, NORTH CAROLINA, from May 27 to June 2 revealed that damage by tobacco budworm was at threshold levels in 40 percent of these fields. The percent of fields at these levels for individual counties ranged from 64 percent in Bladen County to 21.4 percent in Wayne and Wilson Counties. During this period of the 1972 season, 28.6 percent of the fields checked in Columbus and Bladen Counties were at the threshold level. Infestations remained very heavy this season during the period June 3-9 in the 1,457 fields surveyed throughout the Coastal Plain, with the percent of fields at the threshold level averaging 40.3 percent. Of the 1,998 fields surveyed the week of June 10-16, the average percent at threshold in the Coastal Plain decreased to 21.5 percent. The percent of fields in the Coastal Plain at threshold remained near or below this level until the second-generation infestation on late tobacco which

peaked at 37.3 percent the week of July 1-7 when 1,489 fields were surveyed. Heavy infestations were not restricted to the Coastal Plain area of the State in 1973. The percent of fields at damage threshold level in Surry County peaked June 24-30 at 31.3 percent. This is about 6 times heavier than 1972 levels.

Tobacco budworm infestations were light early in the season on shade-grown tobacco in FLORIDA and were slightly heavier in late season than in 1972. The tobacco-growing season was delayed about 14 days due to heavy rains in late March and early April, which may have accounted for the late increase in most fields. Good control kept damage to a minimum. Because of light infestations throughout the season, the number of control applications was low for the second successive year. *H. virescens* problems on flue-cured tobacco in Florida appeared 7 days later than in 1972, then increased in late season to slightly higher levels than in 1972. This was the most important pest of field tobacco in Florida, with most damage occurring about midseason and decreasing after topping and suckering in mid-June. Tobacco budworm was light on tomatoes at Immokalee, Florida, during fall 1973. *H. virescens* and *H. zea* occurred in mixed populations as the most serious pests on the 530 acres of tobacco grown in ALABAMA. Very active control efforts by growers kept these pests under control.

TOBACCO HORNWORM (*Manduca sexta*) early instar larvae were first observed damaging tobacco in Marshall County, KENTUCKY, July 6. Heavier damage was sustained in the western area than in the central area. A great variation in the amount of damage was noted in eastern Kentucky, the heaviest probably occurring in Fleming, Bath, and Montgomery Counties. In NORTH CAROLINA, surveys in Columbus, Bladen, Wilson, Wayne, Jones, Lenoir, Nash, Edgecombe, and Surry Counties revealed that the percent of tobacco fields at the tobacco hornworm damage threshold level was heaviest in Columbus and Bladen Counties. Similar surveys conducted in 1972 indicated that this area was more susceptible to damage by this pest than other areas of the State. The population peaked August 12-18 with 40.8 percent of the 152 Columbus County fields surveyed and 36.9 percent of the Bladen County fields surveyed at or above the threshold level. Infestation levels were about 3 times heavier in 1973 than in 1972 in Columbus County but about equal to 1972 levels in Bladen County. Infestation in Cumberland County peaked at 30.6 percent of the 49 fields surveyed at threshold level. This county was not surveyed in 1972.

HORNWORMS (*Manduca* spp.), particularly the first generation, were more abundant on tobacco in VIRGINIA than in 1972; however, only light economic damage was attributable to these pests in 1973. Infestations of hornworms were light to moderate on tobacco in Prince Georges, Calvert, Charles, Anne Arundel, and St. Marys Counties, MARYLAND. Counts in most fields averaged less than one larva per 50 plants throughout the season. Counts were light this season, mainly due to the increased number of fields sprayed for budworm control. About 10,000 acres of tobacco had an average of more than 3 larvae per 50 plants. Sprays for hornworms and budworms were applied to 21,000 acres of tobacco in southern Maryland.

Weather of the week continued from page 98.

Thunderstorms developed Thursday morning just south of the front in Missouri while snow fell behind the front in South Dakota and the central upper Rockies. A tornado was reported south of Topeka Kansas, and 70 m.p.h. winds whipped northern Kansas City early Friday morning. Friday evening, thunderstorms soaked Lipscomb, Texas, with 2.67 inches of precipitation. A late winter storm developed in southern California and moved slowly eastward Friday capping Mount Wilson with 18 inches of snow and typical March weather returned on Saturday as thunderstorms developed and spread rapidly through Missouri, southern Kansas, northern Oklahoma, and Colorado. Golf-ball size hail fell at many points in northwestern Texas and tornadoes were sighted near Amarillo and Lubbock. Sunday rain with occasional heavy thunderstorms spread over much of Missouri, Arkansas, and Oklahoma into central Texas and drifted east through southern Illinois and western portions of Kentucky and Tennessee. Springfield, Missouri, received 3.50 inches of rain Sunday night.

TEMPERATURE: Weather more typical of late April than mid-March prevailed during much of the week as above-normal temperatures were recorded over much of the Nation's midsection and the East. Ahead of the cold front stretching from eastern Canada to Texas, temperatures remained mild over the eastern two-thirds of the country at the beginning of the week. The mercury reached the 60's as far north as the Carolinas. However, temperatures were much cooler behind the front with St. Louis, Missouri, reaching a new record of 79 at 5:00 p.m. on Monday only to dip to 55 in less than two hours as a frontal system passed. Wednesday seemed like a day in May instead of March with above-normal temperatures and record highs across much of the Nation. Sioux City, Iowa, recorded 73 and Dubuque, Iowa, 64. Thursday morning, warm temperatures stretched from New Mexico and Texas reaching north into the central Great Lakes and northwestern New York and to Virginia along the Atlantic coast. Cut Bank, Montana, was the coldest place in the Nation Thursday with a low of 11 below and a high of 12 above. A record late winter heat wave continued Friday from the southern Atlantic coast to the middle Mississippi Valley. Record temperatures ranged from 84 at Richmond, Virginia, to 75 at Goodland, Kansas, for this date. During the weekend, south of a stationary front extending from the mid-Atlantic coast through the Ohio Valley into southeast Wyoming, record high temperatures reached well into a summerlike 70 and 80-degree range. However, sharply contrasting temperatures prevailed across the cold front that extended over the Plains from Canada to Mexico, with readings in the 30's behind it and 60's ahead of the front.

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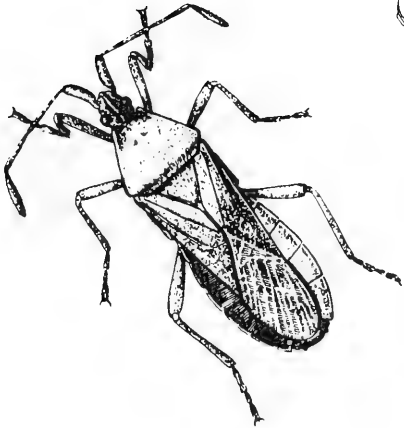
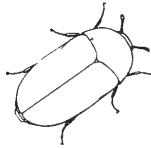
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Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
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**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMY CUTWORM continued heavy in some wheat and SPOTTED ALFALFA APHID ranged moderate to heavy on alfalfa in areas of Oklahoma. (p. 127).

CHINCH BUG winter hibernation survey in Kansas indicates populations in bunch grass are generally heavier than since 1966. (p. 128).

ALFALFA WEEVIL larvae active in alfalfa with tip damage evident in several States; adults active in Nevada. PEA APHID heavy in alfalfa in Arizona and Oklahoma; decreased in New Mexico, but increased in central Arkansas. (pp. 128-130).

GRANULATE CUTWORM damaged tobacco and pepper plant beds in south-central North Carolina. (p. 130).

Predictions

First generation of EUROPEAN CORN BORER expected to be generally light to moderate in Minnesota, locally heavy in southeast South Dakota. (p. 137). In Maryland, European corn borer damage expected to be above normal on the Eastern Shore if winter normal or milder than normal (p. 140); may be of concern in Maine (p. 141).

CORN ROOTWORMS potentially damaging in Illinois (p. 146), will be heavy in South Dakota and damaging in Minnesota (p. 147). NORTHERN CORN ROOTWORM expected to increase slightly in central and Eastern Shore areas of Maryland. (p. 148).

Losses due to a SOD WEBWORM expected to be in excess of record levels of 1973 in Maryland if winter is mild. (p. 157).

Detection

New State records include an APHID in Vermont (p. 132), a BRACONID WASP in South Carolina (p. 133), CITRUS FLAT MITE in New Mexico (p. 130), 3 PTEROMALID WASPS in South Carolina (p. 133), and a STINK BUG in Oklahoma (p. 128).

For new county records see page 134.

Special Reports

Summary of Insect Conditions in the United States - 1973

Corn, Sorghum, Sugarcane. (pp. 135-153).

Small Grains. (pp. 153-155).

Turf, Pastures, Rangeland. (pp. 156-158).

Distribution maps for European Corn Borer (p. 139), Southwestern Corn Borer (p. 142), and Western Corn Rootworm (p. 149).

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Reports in this issue are for week ending March 15 unless otherwise indicated.

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-MARCH TO MID-APRIL 1974

The National Weather Service's 30-day outlook for mid-March to mid-April is for temperatures to average above seasonal normals from the Continental Divide to the Mississippi River as well as in the Great Lakes and east gulf coast regions and most of the central and southern Plateau region. Below normal averages are indicated for the northern half of California and the Pacific Northwest. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed the median value in the South Atlantic Coast States, the Midwest, and west of the Continental Divide except for the southern Plateau. In unspecified areas less than the median amount is indicated.

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

For Weather of the week see page 159.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Continued heavy, 4-6 per linear foot, in spots in some wheat fields in Beckham, Washita, Caddo, Roger Mills, and Custer Counties. Averaged 2 per square foot in wheat checked in Grant County. (Okla. Coop. Sur.).

ASTER LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - Five females collected in 100 sweeps of 12 to 14-inch tall oats at Gainesville, Alachua County. This species can transmit mycoplasma of aster yellows. (Fla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - ARIZONA - Required treatment in field of lettuce at Yuma, Yuma County. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Light on barley at Safford Valley, Graham County. Hippodamia convergens (convergent lady beetle) and Chrysopa spp. (green lacewings) larvae and adults keeping R. maidis populations at low levels. Distribution of R. maidis colonies general on barley in area with buildup underway. Some barley plots at experiment station treated. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Reported declining, with parasites numerous, in Payne County wheat. Light in Pawnee and Cimarron Counties. (Okla. Coop. Sur.). ARKANSAS - Very light in wheat and oats in Lonoke and Prairie Counties week ending March 8. Populations expected to increase if dry weather continues. Currently absent to very light in wheat in northwest area. (Boyer). MISSOURI - Light in 7 of 10 wheat fields checked in southwest area; ranged 1-16 per row foot. (Munson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Ranged moderate to heavy on susceptible alfalfa varieties checked in Beckham, Washita, Caddo, Roger Mills, and Custer Counties. (Okla. Coop. Sur.). FLORIDA - T. maculata and Acyrtosiphon pisum (pea aphid) very light on alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ILLINOIS - Random survey in southernmost counties showed pest infested 13 percent of stalks examined. Most larvae found were dead, but 2 live larvae found in Massac County and one live larva found in Alexander County. Pest not known to overwinter in State. (Ill. Ins. Sur.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - FLORIDA - Population scattered but nymphs and adults locally heavy on individual seed heads of triticale at Belle Glade, Palm Beach County. Nymphs (54) and adults collected in 12 to 14-inch tall oats at Gainesville, Alachua County. (Fla. Coop. Sur.). ARKANSAS - Light in wheat and oats in Lonoke and Prairie Counties week ending March 8. (Boyer).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 2-10 per linear foot in wheat in Wagoner and Muskogee Counties. (Okla. Coop. Sur.)

CHINCH BUG (Blissus leucopterus leucopterus) - ALABAMA - Adults ranged 1-6 with no nymph observed per clump of rye in test plots at Auburn, Lee County. No infestations occurred in nearby wheat and oats. (Teem et al.).

LEAFHOPPERS - FLORIDA - Seventy adults and some nymphs of Graminella nigrifrons (blackfaced leafhopper) and 20 adults of Deltocephalus sonors collected in 100 sweeps of 12 to 14-inch tall oats at Gainesville, Alachua County. These species capable of transmitting corn stunt disease organism. (Fla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - ALABAMA - Overwintered pupae observed for first time this season in 3 varieties of wheat in test plots at Auburn, Lee County. Heaviest infestations of 1-6 pupae per stem occurred in variety that was most susceptible in 1973. Further surveys to be made. (Teem).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 4-10 per linear foot in McCurtain County wheat. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Light, 5 per plan in wheat in Texas and Cimarron Counties. First of season. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Winter survey conducted last 3 weeks of February 1974, indicates hibernating specimens generally heavier in bunch grass than since 1966. Severe infestations of 1,000-2,000 per square foot noted in individual samples taken in southeast Nemaha and south-central Marion Counties. Moderate infestations of 500-1,000 per square foot noted in east-central Marshall, southeast Jackson, north-central Labette, and north-central Harvey Counties. Total of 64 counties surveyed involving most of eastern two-thirds of State. (Bell).

A STINK BUG (Sciocoris microphthalmus) - OKLAHOMA - Overwintering specimen collected from clump of little bluestem at Marietta, Love County, January 7, 1959, by H. Van Cleave. Determined by D.C. Arnold. Confirmed by J.L. Herring. This is a new State record. (Okla. Coop. Sur.).

GREEN JUNE BEETLE (Cotinis nitida) - MISSOURI - Larvae active under bales in fescue pastures in south-central area. (Munson).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Eggs hatched in southern Piedmont area. Mild winter should make damage heavier than usual due to reduced winter mortality and earlier egg laying. (Allen). KENTUCKY - Larvae per alfalfa tip by county averaged as follows: Barren 0.54, Simpson 0.1, Hart 1.4, Warren 1, Nelson 1.14, and Caldwell 0.16; mostly first and second instars. In various Fayette County fields eggs averaged 21.8, 88, and 5.4 per square foot. In Barren and Scott Counties, eggs averaged 81.8 and 21 per square foot, respectively. (Barnett, Parr). TENNESSEE - Number of alfalfa tips infested per 50 tips examined in 19 fields

checked in 10 counties ranged from one in one Sumner County field to 45 in one Franklin County field. Number of Hypera postica larvae per 50 tips examined in these 10 counties ranged from 2 in one Tipton County field to 78 in one Franklin County field. (Gordon et al.). FLORIDA - Eight larvae collected in 50 sweeps of 10-inch alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

ILLINOIS - Cool weather past 7 days slowed development after abnormally warm temperatures previous period resulted in early egg hatch. Tip feeding averaged up to 52 percent in Pope and Massac Counties and found as far north as Washington County (average 11 percent). Alfalfa in these counties 6-8 inches tall. Most larvae first and second instars, but numerous third instars found in Massac County. Percent tip feeding by county: Effingham zero, Washington 11, Pulaski 30, Johnson 32, Pope 52, and Massac 52. (Ill. Ins. Sur.). MISSOURI - Larvae feeding on alfalfa throughout southern areas. Field in Wright County showed feeding on 100 percent of terminals with 1-9 larvae per stem. (Huggans). Surveys in southwest area showed feeding on 28-55 percent of plants; larvae ranged 1-6 per stem. (Munson). ARKANSAS - Larvae light in Washington County alfalfa week ending March 8. Larvae currently present in alfalfa in all areas of State. Buildup slowed by cold weather, but expected to increase as temperatures rise. (Boyer).

KANSAS - Larvae increased in alfalfa in southeast district, up to 80 percent of terminals infested in Cowley and Montgomery Counties. Mostly first and second instars present but some third instars noted. Terminal feeding damage becoming noticeable. Larvae up to 8 per terminal in Cowley County. Percent infested terminals 48 in Saline County and 50 in Ottawa County (first and second instars). About 4 percent of terminals infested by first-instar larvae in Republic and Cloud Counties. Plants ranged from 1.5 in Republic County to 6 inches tall in Montgomery County. (Bell). OKLAHOMA - Percent terminal infestation ranged 15-50 in Jackson, Harmon, Greer, Kiowa, and Tillman Counties; 50-100 in Beckham, Washita, Caddo, Roger Mills, and Custer Counties; 60-90 in Wagoner and Muskogee Counties; and 40-70 in Coal County. Larvae per square foot averaged 350 in Stephens County 2 weeks ago, 327 in Payne County and 233 in Muskogee County one week ago, and currently 5 in Cimarron and Texas Counties. Larvae heavy in alfalfa in Garvin, Bryan, and Comanche Counties, moderate in Noble and Cleveland Counties, and light in Pawnee County. (Okla. Coop. Sur.). NEVADA - Adults active in Fallon area, Churchill County; small number of eggs present. (Hilbig).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Treatment made to several alfalfa fields at Yuma, Yuma County, but most fields not treated. Counts averaged 150 per 100 sweeps. (Ariz. Coop. Sur.).

SUGARCANE BEETLE (Euethoela rugiceps) - ALABAMA - Light numbers of adults, first of season, emerged March 11 from crimson clover in Houston County. (Stephenson).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Ranged from 2,300 per 100 sweeps to one teacupful per 10 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 0-25 per square foot in forage legumes. Populations declined from previous

period. Acyrtosiphon pisum counts of 0-5 observed in treated fields, but no predators observed, near Roswell, Chaves County. Ranged 0-10 per square foot in central Dona Ana County. (N.M. Coop. Rpt.). OKLAHOMA - A. pisum very heavy in alfalfa in Beckham, Washita, Caddo, Roger Mills, and Custer Counties; moderate in Cleveland County; and light in Pawnee and Garvin Counties. (Okla. Coop. Sur.). ARKANSAS - Increased rapidly in central area forage crops. Heavy in crimson clover along Interstate Highway 40 in western area, light in northwest area. (Boyer)

TOBACCO

GRANULATE CUTWORM (Feltia subterranea) - NORTH CAROLINA - Severe damage to tobacco plant beds reported in Sampson County. Frequent checks advised due to very mild weather. (Westerbeek).

POTATOES, TOMATOES, PEPPERS

PEPPER WEEVIL (Anthonomus eugenii) - FLORIDA - Larvae and pupae heavily infested 75 percent of pepper pods in fields that had received insecticide treatments until 3 weeks ago at Delray Beach, Palm Beach County. (Fla. Coop. Sur., March 8).

GRANULATE CUTWORM (Feltia subterranea) - NORTH CAROLINA - Larvae damaged pepper plant beds in Sampson County. About 6,000 square yards of plant beds infested. Frequent checks advised in view of very mild weather. (Westerbeek).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - Adults collected at Fennville, Allegan County, dissected March 11 to determine egg development. Temperatures in 50's to 60's could initiate egg deposition next 7 days. This would be much ahead of schedule. (Howitt). WASHINGTON - Adults observed on pear trees March 6 at Vancouver, Clark County; eggs abundant. (Shanks).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Small larvae noted on plum in Atoka County and crab apple in Mayes County. First of season. (Okla. Coop. Sur.).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Infestations required treatments in lemon groves on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Treatments applied to many citrus groves at Yuma, Yuma County. (Ariz. Coop. Sur.).

SMALL FRUITS

CITRUS FLAT MITE (Brevipalpus lewisi) - NEW MEXICO - Collected from backyard grape planting in Las Cruces, Dona Ana County, July 17, 1973, by G.L. Nielsen. Caused severe stem streaking. Determined by E.W. Baker. This is a new State record. (Nielsen).

ORNAMENTALS

AN ARMORED SCALE (Hemiberlesia lataniae) - ALABAMA - Damaged numerous Ilex vomitoria at location in Montgomery, Montgomery County, and infested Ilex crenata at nursery in Limestone County. Determined by M.L. Williams. These are new county records. (McQueen).

TEA SCALE (Fiorinia theae) - ALABAMA - Damaging populations of all ages observed on camellia and Burford holly in Chambers and Clay Counties. (Barker, Stewart).

FOREST AND SHADE TREES

DOUGLAS FIR TUSSOCK MOTH (Orgyia* pseudotsugata) - OREGON - Egg viability and larval virus levels determined from laboratory rearing of egg masses collected in northeastern area forest in fall 1973. Percent of virus infection for each section varied from zero to 68 percent. In most sections in which virus found, percent infection not sufficiently high to exclude section from treatment, as nontreatment virus level is 30 percent. Egg viability lower than in 1973, but it appears this reduction will be much more significant in reducing number of acres to be treated than will virus infection. (Cline).

SPRING CANKERWORM (Paleacrita vernata) - WISCONSIN - Male moths observed at lights March 14 at Middleton, Dane County. (Wis. Ins. Sur.).

FALL CANKERWORM (Alsophila pometaria) - MICHIGAN - Females observed laying eggs on building at location in East Lansing, Ingham County, March 6. (Ravlin).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NORTH CAROLINA - Small larvae observed in wild cherry along U.S. Interstate Highway 40 in Burke County March 11. This observation and previous collections in Piedmont area indicate egg hatch underway over entire Piedmont and Coastal Plain areas. Hatching in mountains usually occurs about 10 days later than in Piedmont. (Lott, Hunt).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - One case reported from continental U.S. in Webb County, Texas, during period March 3-9. Total of 108 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 50,262,000, all in Texas. Total of 173,724,000 sterile flies released in Mexico. (Anim Health).

*Riotte, J.C.E. 1973. Entomologische Zeitschrift 83, Nr. 14, pp. 153-159.

CATTLE GRUBS (Hypoderma spp.) - NEW MEXICO - Larvae ranged 10-40 per back on all cattle checked near Estancia, Torrance County. (N.M. Coop. Rpt.). OKLAHOMA - H. lineatum (common cattle grub) declined to 0-4 (average 0.5) per head on Payne County cattle. Light in Pawnee County. (Okla. Coop. Sur.). KENTUCKY - H. lineatum averaged one larva per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 400 per head on bull checked in Garvin County. Light in Payne and Comanche Counties. (Okla. Coop. Sur.).

CATTLE LICE - UTAH - Linognathus vituli (longnosed cattle louse), Haematopinus eurysternus (shortnosed cattle louse), and Solenopotes capillatus (a wrinkled sucking louse) heavy on some bulls and other cattle in Logan area of Cache County. Determined by W.J. Hanson. (Thomas, Hanson). NEW MEXICO - Colonies of 200-400 S. capillatus per head noted on 100 percent of cattle checked near Estancia, Torrance County. This pest appears well established on range cattle and delimiting surveys are needed to establish distribution. L. vituli ranged 30-50 per head on same animals. (N.M. Coop. Rpt.). OKLAHOMA - Mainly H. eurysternus reported heavy on cattle in McCurtain County, moderate to heavy in Comanche County, and light in Pawnee County. (Okla. Coop. Sur.). IOWA - Mainly Bovicola bovis (cattle biting louse), moderate to heavy on two untreated herds of feeder cattle in Fremont County; ranged 0-10 (average 3) per square inch on neck, sides, and back where checked. (Iowa Ins. Sur.).

HOG LOUSE (Haematopinus suis) - IOWA - Ranged 0-75 (average 22) per animal on untreated sows in Fremont County. (Iowa Ins. Sur.).

SHEEP KED (Melophagus ovinus) - OKLAHOMA - Heavy on flock of sheep in Noble County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Moderate on cattle in Atoka County. First of season. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - OKLAHOMA - Winged reproductives swarmed in Payne and Muskogee Counties. (Okla. Coop. Sur.). KANSAS - Swarming at Garden City, Finney County; first of season. (Bell). NEVADA - R. tibialis alates moderate at Reno, Washoe County. Emerged March 9. (Lauderdale).

PAVEMENT ANT (Tetramorium caespitum) - NEVADA - Homeowners in Reno and Sparks area, Washoe County, concerned as reproductive forms swarmed in large numbers. (Lamberti, Lauderdale).

MISCELLANEOUS WILD PLANTS

AN APHID (Dactynotus russellae) - VERMONT - Collected on Anaphalis margaritacea (pearly everlasting) in Township of Ferdinand, Essex County, July 28, 1973, by L.L. Pechuman. Determined by A.G. Robison. This is a new State record. (Leonard).

BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Active in untreated fields in Roswell area, Chaves County; ranged up to 3 per square foot. (N.M. Coop. Rpt.). ARKANSAS - First Hippodamia convergens (convergent lady beetle) adults of season observed in alfalfa in northwest area. (Boyer). ALABAMA - Coleomegilla maculata fuscelabris adults emerged from hibernation and entered small grain fields in Lee County. Light numbers among light infestation of aphids. (McQueen).

A BRACONID WASP (Aphaereta pallipes) - SOUTH CAROLINA - This parasite of Musca domestica (house fly) showed low degree of parasitism during study of incidence of parasitism of M. domestica pupae conducted during period May through November 1973 at poultry farm in Oconee County. Collected by J.R. Ables. A. pallipes determined by P.M. Marsh. This is a new State record. (McCaskill).

PTEROMALID WASPS - SOUTH CAROLINA - Following parasites of Musca domestica (house fly) found during study of incidence of parasitism of M. domestica pupae conducted during period May through November 1973 at poultry farm in Oconee County. Muscidifurax raptor parasitized 5-20 percent of house fly pupae collected. Spalangia nigroaeneae was abundant and parasitized 20-60 percent of pupae collected. S. endius parasitized 20-40 percent of pupae collected. Parasites collected by J.R. Ables. Determinations made by B.D. Burks. These are new State records. (McCaskill). OKLAHOMA - Euneura lachni reared from Cinara watsoni (a conifer aphid) collected from shortleaf pine in Robbers Cave State Park, Latimer County, in May 1973. Determined by B.D. Burks. (Okla. Coop. Sur.).

TORYMID WASPS (Torymus spp.) - OKLAHOMA - Galls collected from twigs of post oak at Pike City, Carter County, October 3, 1973, yielded 2 specimens of T. tubicola and one specimen of T. warreni. These are parasites of a gall maker Disholcaspis quercusglobulus (a cynipid wasp). Determined by B.D. Burks. (Okla. Coop. Sur.).

AN APHIDIID WASP (Pauesia xanthothera) - OKLAHOMA - Single specimen reared from Cinara watsoni (a conifer aphid) collected from shortleaf pine in Robbers Cave State Park, Latimer County, in May 1973. Determined by P.M. Marsh. (Okla. Coop. Sur.).

TACHINA FLIES - OKLAHOMA - Flies reared from larvae of Megalopyge crispata (crinkled flannel moth) collected on shinnery oak in Ellis County during August, September, and October 1973 by J. Lamdin. Determined as Archytas aterrimus, Euphorocera tachinomoides, Lespesia aletiae, Euphorocera sp. (? claripennis), and Euphorocera n. sp. (?) by C.W. Sabrosky. (Okla. Coop. Sur.).

DETECTION

New State Records - AN APHID (Dactynotus russellae) - VERMONT - Essex County. (p. 132). A BRACONID WASP (Aphaereta pallipes) - SOUTH CAROLINA - Oconee County. (p. 133). CITRUS FLAT MITE (Brevipalpus lewisi) - NEW MEXICO - Dona Ana County. (p. 130). PTEROMALID WASPS - SOUTH CAROLINA - Muscidifurax raptor, Spalangia nigroaeneae, S. endius - Oconee County. (p. 133). A STINK BUG (Sciocoris microphthalmus) - OKLAHOMA - Love County. (p. 128).

New County Records - AN ARMORED SCALE (Hemiberlesia lataniae) ALABAMA - Montgomery, Limestone (p. 131). NORTHERN CORN ROOTWORM (Diabrotica longicornis) NORTH DAKOTA - Dickey, Richland (p. 131). SOUTHWESTERN CORN BORER (Diatraea grandiosella) TENNESSEE - Hamilton (p. 141).

CORRECTIONS

CEIR 24(8):79 - SURVEY METHODS - Brachyrhinus sulcatus should read Otiorhynchus sulcatus.

LIGHT TRAP COLLECTIONS

ARIZONA - Mesa, 3/4-10, BL, BEET ARMYWORM (Spodoptera exigua) 15, CABBAGE LOOPER (Trichoplusia ni) 2, VARIEGATED CUTWORM (Peridroma saucia) 18. FLORIDA - Gainesville, 3/8-14, BL, ARMYWORM (Pseudaletia unipuncta) 4, beet armyworm 1, BLACK CUTWORM (Agrotis ipsilon) 1, GRANULATE CUTWORM (Feltia subterranea) 53, SALTMARSH CATERPILLAR (Estigmene acrea) 1, YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) 1. MISSISSIPPI - Stoneville, 3/8-14 temp. 38-83 F., precip. 1.9 in., 2BL, armyworm 57, black cutworm 72, bollworm 4, saltmarsh caterpillar 1, variegated cutworm 51, yellowstriped armyworm 1. TENNESSEE - Hardeman County, 3/11-15, BL, armyworm 6, variegated cutworm 20, yellowstriped armyworm 14.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1973
(Continued from page 123)

CORN, SORGHUM, SUGARCANE

Highlights:

EUROPEAN CORN BORER fall populations increased in several Corn Belt States and in Kentucky, Maryland, and Delaware. FALL ARMYWORM was heavy in late corn in Illinois and Missouri, late corn and sorghum in Kansas and Oklahoma, and heavier than for several years in Arkansas. The heavy BLACK CUTWORM populations expected in Iowa did not develop, but infestations were heavy in corn in central and northeast Missouri; larvae damaged late sweet corn in the Willamette Valley of Oregon. CORN ROOTWORMS were of concern in several areas. SORGHUM MIDGE infestations were heavy on late sorghum in Texas and Missouri.

Overwintering EUROPEAN CORN BORER (*Ostrinia nubilalis*) larvae in IOWA averaged 968 per acre in cornstalk debris during a survey made the second week of May in Boone, Greene, Hamilton, and Story Counties. This was far below the 1972 average of 6,074 borers per acre. The first adults appeared in light traps in Polk and Ringgold Counties during the week ending June 1. Mated females and an egg mass were found in Polk County the week ending June 8. Adults were abundant in grass near cornfields, but most corn was too small to attract ovipositing females. By the week ending June 15, adult emergence was declining in central Iowa and 1.5 percent of the corn plants contained egg masses with only 2 percent of the plants showing feeding damage. Egg laying peaked about June 22-23. In most cornfields, 5-20 percent of the plants were infested by June 29. Third and fourth instars were most abundant, with some fifth instars present, by July 6. Infestation of most fields (except early planted) across the State was noneconomic. The second-generation adult flight was increasing the first week of August; however, cool weather across the State decreased the overall potential of the pest. A statewide fall survey conducted October 1-5 showed that 52.5 percent of the plants were infested--an increase of 3.7 percent over 1972. The number of borers per 100 plants increased from 53.5 in 1972 to 84.7 in 1973. Infestation was heaviest in the southeastern district where 86 percent of the corn plants were infested with an average of 182 borers per 100 plants. Very few treatments were made for first or second-generation European corn borer control in Iowa in 1973.

The first development records of overwintering European corn borer larvae in ILLINOIS were taken in mid-May in Gallatin, Champaign, and Ogle Counties. Pupation had reached 58 percent in Gallatin and 28 percent in Champaign Counties, but none was noted in Ogle County. First adult emergence was observed May 21 in Gallatin County. By the first week of June, adult emergence was observed in all three counties, and averaged 100 percent in Gallatin, 15 in Champaign, and 4 in Ogle. Oviposition by newly emerged female moths had occurred throughout the southern half of the State by the second week of June. In Mason and Pike Counties, egg masses averaged 80 and 120 per 100 plants of 30-inch corn, respectively. Some hatching was noted in Pike County. Whorl feeding by second, third, and some fourth-instar larvae averaged 30+ percent in two

St. Clair County fields of 60-inch sweet corn. Within seven days, light feeding could be found in all counties. In Champaign and Livingston Counties, it averaged less than one percent. A survey of Ostrinia nubilalis first-generation populations indicated a very low State average of 1.4 larvae per 100 plants. Some localized damage was noted in Adams and Pike Counties where selected fields averaged up to 250 borers per 100 plants.

Emergence of first-generation European corn borer moths occurred throughout Illinois by the third week of July. Oviposition began the last week of July and continued the next 30 days. Second-generation larval feeding was apparent in all counties by August 8. First-instar larvae were observed in Whiteside County and one fourth instar was found in Randolph County August 15. Fifth-instar larvae were noted in Kankakee County. During the last week of September and the first week of October, the annual second-generation survey was completed. It was noted that 1973 populations were almost 4 times heavier than 1972. The heaviest infestations (246 per 100 plants) were observed in the west district, and the lightest were noted in the central and eastern districts at 71 per 100 plants. Adams County had the highest average of 658 borers per 100 plants. The light first-generation population, and heavier fall population is partially explained by unfavorable spring weather at planting, which resulted in larger acreages of late-planted corn in Illinois. About 108,300 of these acres were treated.

In INDIANA, there was a shortage of oviposition sites in corn grown for grain for the overwintered generation. When pupation was 50 percent complete by May 14, only 15 percent of corn had been sown. First adult flights occurred the third week of May, when 40 percent of corn had been planted, and peaked by mid-June when corn averaged 8 inches tall. First-generation infestations averaged 10 percent. Live larvae averaged 8.5 per 100 stalks. The second-generation moth flight began the second week of July when corn averaged 44 inches tall and 5 percent silked. At peak flight in late July and early August, corn was 80 percent silked and 60 percent had not yet reached dough stage. With much host material at a desirable age, plus excellent weather for oviposition and early instars, the European corn borer fall population in Indiana was the heaviest in the 16 years the survey has been conducted in the State. The population was at least double the 10-year average in all districts except the south-southcentral district, and the north-northeast district was 5 times its average. Borer counts averaged more than 100 per 100 stalks in all districts in the northern half of the State except the northwest district. The south-southwest district had more than 100 borers per 100 stalks. Counts averaged less than 50 larvae per 100 stalks in the south-central and southeast districts. This pest was a problem in sweet corn, especially for commercial canning, and infested sweet peppers in the southern third of Indiana in August.

Overwintering European corn borer larval populations throughout OHIO were generally lighter than in 1972. Oviposition by first-generation moths was first observed June 3 at Wooster, Wayne County. Larvae were present in 35 percent and 50 percent of the plants, respectively, in 2 Licking County cornfields by June 25. Up to 50 percent of plants examined in the northeast and east-central districts, in Henry and Fulton Counties, in the northwest,

showed larval feeding 7 days later. In the southern half of the State, up to 35 percent of corn showed some damage by July 3. Serious damage to 85-90 percent of the plants in a 150-acre Mercer County planting and 94 percent of a Medina County planting had occurred by July 9. Second-generation adults began to emerge at Wooster, Ohio, June 17.

European corn borer adults began emerging in MICHIGAN as expected the last week in May. The first generation was not as heavy as expected from the large acreage of field corn left standing in fall 1972. First-generation larval damage did occur in some early sweet corn. Second-generation adult catches exceeded, by about three times, those of 1971 and 1972. They peaked August 21 at 893 in Lenawee County. As a result of this heavy adult population, egg deposition and hatch were extremely heavy the week of September 7. Several fields of snap beans were plowed under due to larval contamination. Late sweet corn and peppers were also damaged. The first generation damaged crops over a large area of Michigan, while the second generation was reported at a low level in field corn. The fall infestation survey showed an increase over that of 1972. The first generation of European corn borer damaged wheat and oats in many fields in southern Michigan. This damage is not unprecedented in the State, but damage from the first generation is unusual in corn and damage to small grains is even more unusual.

Overwintering survival of European corn borer larvae ranged 80-85 percent in WISCONSIN and pupation began by May 11. Flight began the week of June 3 and conditions favored a good spring brood. By the time the summer flight began the third week of July, the combined broods produced a heavy population and much control was necessary by canning companies. This last flight continued until mid-October. At the beginning of the season overwintering European corn borer larvae were generally light in MINNESOTA. Except for some heavy rains in the southwest, spring and early summer weather seemed very favorable for development. The first generation was light and no significant damage occurred. Adults increased sharply in light traps in August particularly in the south-central district, but the fall survey revealed no increases. Overwintering populations decreased in the west-central and southwest districts and remained about the same in other districts. It is expected that first-generation populations in 1974 will be generally light to moderate and infestations of economic importance will be isolated and scattered.

Winter mortality of European corn borer larvae averaged 32 percent in Cass, Richland, and Ransom Counties, NORTH DAKOTA. The fall infestation survey showed a decrease from 140 to 50 borers per 100 plants from 1972 in Cass, Dickey, Ransom, Richland, and Sargent Counties. Percent of infested plants decreased from 53 in 1972 to 32 during 1973. European corn borer was especially light in SOUTH DAKOTA. A survey in the southeastern area in mid-July indicated infestations of less than 5 percent. The only economic population was noted in a 100-acre cornfield near Letcher, Sanborn County. The fall abundance survey indicated Beadle, Davison, and Miner Counties may have locally heavy infestations of first-brood *O. nubilalis* in 1974. The first generation of European corn borer was unusually light throughout NEBRASKA. Due to a delay in

planting caused by wet weather in May, a large portion of the corn crop was smaller than normal. In Clay County, only 4 percent of plants were infested during the period July 13-16. Populations increased considerably during the second generation to levels slightly heavier than 1972 in the east and southeast, but remained lighter than 1972 levels in the northeast, central, and southern crop districts. Second-generation damage was generally light in all districts.

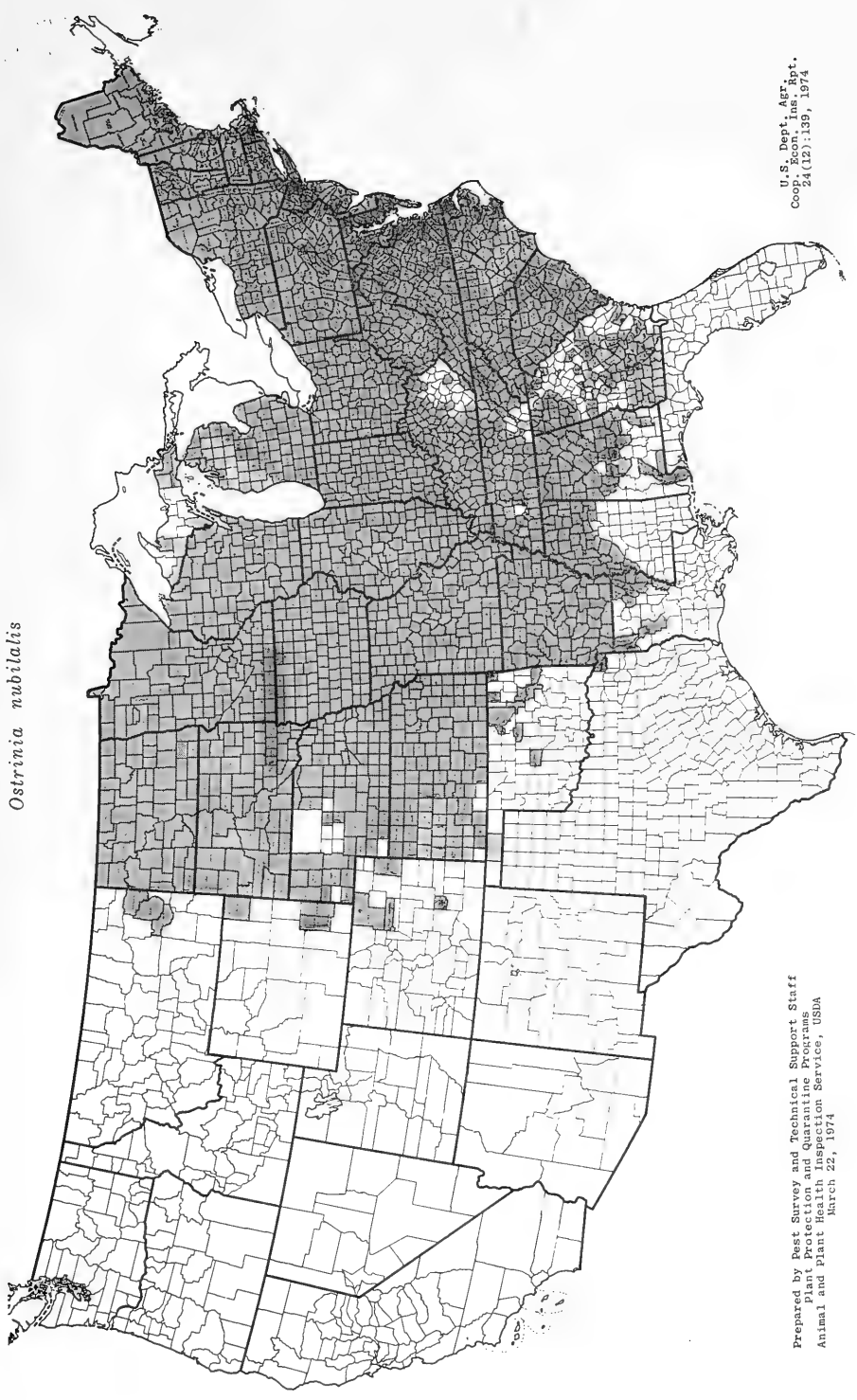
European corn borer caused more damage to corn in northeast and east-central KANSAS in 1973 than in 1972, but caused less damage in the north-central and western districts. Overwintering moths emerged in Montgomery County as early as mid-May, by May 24 in Brown County, by June 7 in Republic County, and by May 30 in Finney County. Blacklight trap catches indicated flights of the overwintering brood peaked in Brown County about June 12, in Republic County about June 7, and about June 12 in Finney County. The first eggs of the season were found in older corn in Brown, Douglas, and Johnson Counties the second week of June and some hatching was underway in the latter two counties. First-generation moth flights peaked in Brown County July 19, Riley County August 1, Republic County August 7, and Finney County July 31. Second-generation flights peaked in Brown County September 4, Riley County September 19, and Finney County October 1. Light trap catches and field surveys indicated most second-generation larvae did not pupate but carried into the winter. Second-generation pupation was estimated at about 10 percent for the southeast district and 2 percent for the northeast district. Light populations of second-generation moths were trapped in Finney County. O. nubilalis infestations in sorghum in eastern Kansas were very minor and much less frequent than in 1972.

The first European corn borer adult emergence of the season in MISSOURI occurred in Boone and Platte Counties May 19. Light to moderate larval populations were found in all corn-growing areas. Most economic infestations during the first brood were found in the northeast area. Second-generation larval infestations were heavier in the northeast area than in other areas. The fall abundance survey showed percent infestation and borers per 100 plants to be heavier than in 1972. Infestations were heavier in all districts except the southern areas which were slightly lighter than in 1972. The number of borers per 100 plants was heavier in 1973 than in 1972 in all areas. The greatest increase was in the northeast area where percent infestation was 89.60 compared to 64.32 and the average number of borers was 414.48 compared to 113.80 in 1972.

European corn borer fall damage surveys indicated moderate damage in central KENTUCKY. Borers infested 36.8 percent of corn plants. Infestations were heavier in the south-central area where 46.6 percent of the corn plants were infested. Infestations were very light in the extreme western area, averaging 24.4 percent. European corn borer occurred in corn throughout northern ALABAMA. Due to erratic occurrence from year to year, the pressure of parasites and predators, and damage from several other pests and diseases, the extent of damage caused to the 610,000 acres of corn in Alabama by this pest is difficult to estimate. First moth flights began May 20 in Morgan County.

Distribution of European Corn Borer

Ostrinia nubilalis



U.S. Dept., Agr.,
Coop. Econ. Inv. Spt.
24 (12): 139, 1974

Prepared by Pest Survey and Technical Support Staff
Federal Plant Quarantine, Agricultural Research
Administration, U.S. Department of Agriculture,
Animal and Plant Health Inspection Service, USDA
March 22, 1974

European corn borer infestations in corn in SOUTH CAROLINA were economic in 15.6 percent of fields in 1973 compared to 11.3 percent in 1972, an increase of 38 percent. Economic damage was not confined to any specific area. Although economic damage by O. nubilalis is the exception rather than the rule in South Carolina, the 1973 survey indicated the need for continued close surveillance of population densities.

European corn borer damaged seedling corn throughout the Coastal Plain of NORTH CAROLINA. Spot checks in about 15 fields scattered across Johnston, Wilson, Lenoir, and Sampson Counties revealed 15 percent of the plants observed were infested. Damage in maturing corn was severe in localized spots but generally caused little yield loss over the State. Field populations ranged 1-80 percent of stalks infested. Severe infestations were observed in Northampton, Edgecombe, Sampson, and Robeson Counties. Infestations of 9 larvae per stalk were reported in 200-300 acres of field corn in Robeson County. Fallen ears and very weak stalks were common in the area. The European corn borer first-brood moth flight was complete and most egg masses had hatched by June 6 in VIRGINIA. On the Eastern Shore, additional treatments were not required after June 7 in Northampton County nor after mid-June in upper Accomack County. Larvae were not abundant in Southampton, Nansemond, and Sussex Counties by July 18 and there was little damage to corn in this area.

Moderate to heavy European corn borer populations on corn in Dorchester, Queen Annes, Wicomico, and Worcester Counties, MARYLAND, were slightly above normal. Damage to field corn in southern areas north of Queen Annes County, and in the central area was light. First adult flights occurred May 4 on the Eastern Shore and 13 days later in the central area. Early in June, statewide infestations ranged 2-5 percent and mid-June levels peaked at 20 percent. Heaviest damage in early July on the Eastern Shore ranged 40-90 percent and 10-60 percent in the central area. Second-brood egg laying peaked at 5-30 egg masses per 100 plants during mid-July on the Eastern Shore and 1-2 masses in the central area. During late August and September, larvae averaged 133 per 100 plants in the central area, 160 per 100 plants in the southern area, and 224 per 100 plants on the Eastern Shore. If overwintering conditions are normal or milder than normal, above normal damage can again occur during 1974 in areas below Kent County on the Maryland Eastern Shore.

Pupation of overwintering European corn borer larvae in DELAWARE first occurred about April 15 in corn stubble in Sussex County. First adults of the season were collected in blacklight traps April 26 in Sussex County and May 2 in Kent County. By mid-May, adults averaged 5 per night in blacklight traps in these counties and by May 22 early peak counts averaged 21 per night. Egg masses and first-stage larvae were present on early planted corn the first week of June. For most of June and the first week of July, adult blacklight trap collections averaged less than 3 per night, but by July 13 had increased rapidly and ranged 100+ per night during mid to late-July. During the last week of July, egg masses averaged 1 per 3 corn plants. A very large third peak adult flight occurred from mid-August through the first week of September and a peak egg population was present on late-planted corn at this time with counts averaging over one egg mass per plant. The fall survey

showed a State average of 407 borers per 100 corn plants, much above the 1972 population of 186. This heavy larval population in field corn was also reflected in the heavy infestations that occurred in other crops such as peppers and potatoes during summer months.

First European corn borer moth catches in NEW YORK light traps were on May 25 at Highland, Ulster County, and May 28 at Geneva, Ontario County. Egg masses were observed on early corn in Dutchess and Monroe Counties during the second week of June. Moderate larval populations on sweet corn in Albany County were observed during mid-June. Pupation of the first brood at Highland, Ulster County, was about 10 percent complete July 9 and about 50 percent complete July 23. Second-brood egg hatch occurred about August 10 in Monroe County. The second-brood peak was noted about August 20 at Highland. A moderate infestation was reported on a Dutchess County pepper planting during late July. O. nubilalis was reported from a young block of early apples on a marginal spray program during late July in Ulster County. Chemical treatments were effective on sweet corn in Erie County.

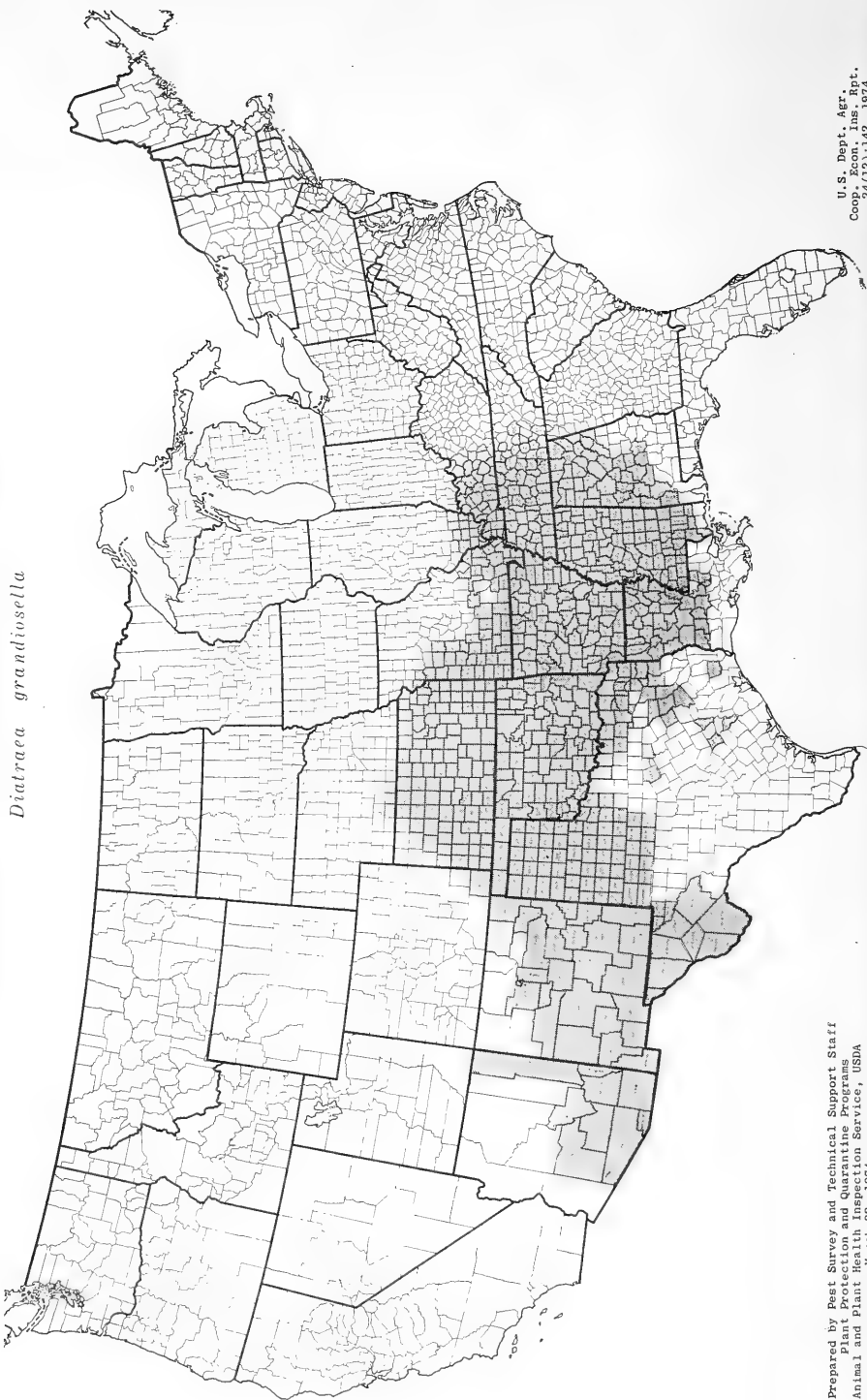
In VERMONT, the fall European corn borer survey in field corn showed 25.2 percent of the plants infested with an average of 48.7 borers per 100 plants. This is a marked increase over 1972 when 14.4 percent of the plants were infested with 25.2 borers per 100 plants. In Windham, Grand Isle, and Chittenden Counties, there were 90.8, 90, and 90.9 borers per 100 plants in 1973, versus 7.3, 43, and 26.7 borers per 100 plants in 1972. Essex County continued to have the lightest infestation with 5 percent of the plants infested with 3 borers per 100 plants. This is an increase over 1972 when 2.8 percent of the plants were infested with 2.8 borers per 100 plants. Vermont grows about 65,000 acres of corn for silage and grain.

European corn borer moths averaged 2 per week per blacklight trap during June in MAINE. This resulted in a heavier than anticipated first-generation infestation in corn of 5-100 percent in the central area. Most of this infestation was in the tassel or above the upper internode of early corn. About 50 percent of the larvae failed to reach full growth due to the breaking off of the tassel and another 25 percent probably due to disease or cool, wet weather. Losses were considered light. In southern and northern Maine, second-generation larvae were more often found in the lower internodes with a State average of 7 percent infestation. In Aroostook County, one field was estimated to have a 10 percent loss due to downed stalks at silage cutting. Due to population levels and the amount of no-till corn during 1973, European corn borer may be of concern during 1974 in Maine. Loss to silage corn in the State is estimated at \$450,000, with an additional \$15,000-loss to sweet corn. Controls were not used in Maine in 1973.

SOUTHWESTERN CORN BORER (Diatraea grandiosella) damaged corn in the western third of KENTUCKY, with certain fields showing up to 60 percent lodging of stalks. Detection surveys were conducted in TENNESSEE during the period October 8-19 in all counties not known to be infested. D. grandiosella was found for the first time in Hamilton County. This is a new county record. Loss surveys were conducted in fields of grain corn in 20 western and 13 central counties where this pyralid was known to occur prior to January 1, 1973. The loss in the western area ranged from 0.12 percent in

Distribution of Southwestern Corn Borer

Diatraea grandiosella



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Hardin County to 37 percent in Madison County, with a mean percent loss for all counties surveyed of 11.5 percent. The loss in the central counties ranged from 0.3 percent in Warren County to 36 percent in Giles County, with a mean percent loss for all counties surveyed of 10.28 percent. Southwestern corn borer was a serious pest of corn in northwestern and the central portion of northern ALABAMA. Of the 67 counties in the State, 42 are known to be infested. First larvae of the season were reported June 15 in Cullman County.

Southwestern corn borer first-generation larvae ranged 1-5 per corn plant with 16-70 percent of the plants infested in the southeast area of MISSOURI. The heavier infestations were found in Mississippi County. Light populations were observed in the southwest area late in the growing season, with up to 11 percent of the plants infested and up to 4 percent of the plants girdled. The fall survey in the southeast area showed the percent infested plants to be 35.40 compared with 25.05 in 1972. The percent girdled plants was 11.58 in 1973 and 7.05 in 1972. During the southwestern corn borer fall survey, the only significant infestations encountered in KANSAS were observed in Edwards and Stafford Counties in the south-central district. In these counties infested plants ranged 90-100 percent.

Southwestern corn borer infestations were generally light in early planted corn in Texas County, OKLAHOMA, but up to 30 percent lodging was reported in scattered late-planted fields. Southwestern corn borer ranged light to moderate in corn in Union and Colfax Counties, NEW MEXICO. This corn pest has not been detected in north-central or northwest New Mexico this season and has not been found in these areas since the killing freeze of 1971.

SUGARCANE BORER (Diatraea saccharalis) was as abundant on sugarcane in the Everglades region of FLORIDA as it was in 1972, but local populations were much heavier. In some fields, loss was 45 percent of the gross tonnage. Of the 256,000 acres of sugarcane planted in the region, 25,000 acres were treated for this pest. Loss to the 1972-1973 crop was estimated at \$10,000,000, primarily from damage done to the cane rather than cost of control.

FALL ARMYWORM (Spodoptera frugiperda) infestations in WISCONSIN were about as severe this season as at any time in the past. Adults were first noted the beginning of August in Dane County and in the shore area of Lake Michigan in late July. Larvae infested late corn in Dane, Columbia, Fond du Lac, Eau Claire, Wood, Manitowoc, Green, and Rock Counties. Some fields were sprayed specifically for this insect. Ear infestations of 60 percent were found in some late sweet corn plantings. Heavy infestations occurred in many fields of late-planted corn in ILLINOIS. The first occurrence was observed in early July and damaging populations were still present in mid-August. This extended period of activity and damage was due to the occurrence of two or three generations. About 124,100 acres of corn were treated in Illinois. Fall armyworm was heavy in whorls of late-planted corn in the south-central, west-central, and central areas of MISSOURI during late July and August. Observations showed that 3-100 percent of the plants were infested with 1-4 larvae per plant.

Heavy infestations of fall armyworm were common in whorls of late-planted corn and sorghum in KANSAS, particularly in the southern and eastern areas. This problem was often aggravated by associated infestations of Heliothis zea (corn earworm). An estimated 22,000 acres of sorghum were treated for whorl infestations of S. frugiperda, and an estimated 32,650 acres of corn were treated for whorl infestations of fall armyworm and/or corn earworm. Fall armyworm damaged corn and sorghum from mid-June to mid-October in OKLAHOMA. Heavy infestations were present in many areas by early August, especially in late-planted sorghum fields, and continued into mid-September.

Fall armyworm was generally heavier than for many years in ARKANSAS, but was not an important pest as a "budworm" feeding in the whorls. S. frugiperda was economic in a number of fields of very late sorghum in Miller County, and several counties in the northeast area. Larval feeding on plants only a few inches high threatened stands. Chemical treatment afforded excellent results. Fall armyworm was destructive in buds and ears of sweet corn in the Everglades area of FLORIDA, where it was a major pest of this crop.

Fall armyworm became widespread in grain corn in MARYLAND by mid-July, but damage was minor and very few growers applied controls. Damage levels by July 20 ranged 1-2 percent in late-planted silage corn in Carroll, Baltimore, Washington, and Frederick Counties. A minor increase occurred in August with the heaviest damage ranging 5-15 percent. Damage to ears of sweet corn on the Eastern Shore rarely exceeded 4 percent before production was phased out by late August. Less than 600 acres of sweet corn for processing required controls this season in Maryland. Fall armyworm was moderate in sweet corn ears and silks in Ulster County, NEW YORK, on August 20. Heavy infestations in some Columbia County dent corn were observed in late August. Chemical treatment was not effective. By the end of August, fall armyworm larvae were common throughout PENNSYLVANIA on late-planted corn. Infestations were light to moderate with 20-75 percent of the plants infested with 1-2 larvae per plant. Fall armyworm damaged corn in Orange, Grand Isle, Chittenden, Washington, and Rutland Counties, VERMONT, during the last week of August. Larvae entered ears and damaged silage corn.

BLACK CUTWORM (Agrotis ipsilon) adult emergence in OHIO was first recorded March 30 in blacklight traps at Wooster, Wayne County. The first gravid female was detected the following day. This was 16 days earlier than the average for the past 7 years. In Licking County, larval injury ranged 1-30 percent of corn plants examined. Black cutworm larvae were first reported feeding on 8 to 10-inch field corn in Carroll and Crawford Counties, IOWA, during the week ending June 1. Few reports of significant damage were noted, which was a sharp decline from 1972 observations. Expected large populations did not develop statewide.

Black cutworm infestations and damage to corn in ILLINOIS were moderate. Occasional fields in the west, central, west-southwest, and east-southeast districts were damaged during late May and early June. About 93,800 acres of corn received emergency control treatments, and 47,300 acres were replanted because of cutworm injury. In contrast to the usual situation of localized infestations in low, wet areas, cutworm activity was scattered over

entire fields. In one Shelby County field, larvae averaged 35 per 100 damaged plants June 5. The resulting yield loss was 5+ percent based on a study comparing yields of damaged versus undamaged plants. Heavy larval infestations of black cutworm in corn were observed throughout June in the central and northeast areas of MISSOURI. These infestations ranged from small spots within fields to several fields that had to be replanted. Light infestations were reported from areas throughout the State.

Black cutworm infestations in scattered fields of silage corn in Churchill County, NEVADA, required chemical controls in mid-June. Black cutworm moths increased significantly in OREGON compared to 1972 levels, especially during August and September. Comparison of total catches for 1972 and 1973 at Keizer and St. Paul, Marion County, for the period May 17 through October 3 showed moths were 3 and 6 times heavier, respectively, at these locations. These levels reflect a general increase in larval populations during the season which damaged late plantings of sweet corn at scattered localities in the Willamette Valley.

BEET ARMYWORM (Spodoptera exigua) was a continuing pest of corn and milo with severe damage early in the 1973 growing season in CALIFORNIA. Beet armyworm infestations and damage to sweet corn were heavy in Clark County, NEVADA, in May and Douglas County in early July. This noctuid was destructive to buds of corn and was particularly abundant during late spring and early fall in FLORIDA, and appears to have become a regular component of the insect complex damaging sweet corn in the Everglades area.

SORGHUM WEBWORM (Celama sorghiella) was heavy on late-planted sorghum in the extreme southern areas of MISSOURI during mid-September. Counts in these late fields ranged 40-1,200 larvae per 100 heads in the southeast and 6-730 larvae per 100 heads in the southwest. Sorghum webworm infestations in sorghum were heavy, up to 20 per head, in some east-central, southeast, and south-central counties of OKLAHOMA in August and early September. Counts ranged up to 75 per head in late sorghum in Payne County in early October. Sorghum webworm was the most important of the insect pests of sorghum requiring treatment in ARKANSAS. Less than 10 percent of the acreage was treated. Treatments increased with late planting compared to earlier planting. Control results were good.

Several other NOCTUIDS were of some concern. REDBACKED CUTWORM (Euxoa ochrogaster) caused serious damage to 10 acres of corn in Canyon County, IDAHO, by May 10, and 8 acres of emerging corn in Gooding County by May 24. By June 4, damage was serious in 135 acres of corn under sprinkler irrigation in Canyon County. A similar loss was noted in Twin Falls County at that time. ALFALFA LOOPER (Autographa californica) severely damaged some corn in Yellowstone County, MONTANA, soon after plants emerged. WESTERN BEAN CUTWORM (Loxagrotis albicosta) moths were very light in light traps at Parks, Dundy County, and Scottsbluff, Scotts Bluff County, NEBRASKA. Heavy infestations requiring treatment were reported in scattered cornfields near Benkelman, Dundy County, the first week in August. YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) caused some stand damage to some corn and sorghum in KANSAS, particularly in the east-central, southeast, and south-central districts from mid to late June. About 5,000 acres of corn and 11,900 acres of sorghum were treated.

STALK BORER (*Papaipema nebris*) infestations were above normal this spring in central MARYLAND no-till corn. About 600 acres in Carroll and Baltimore Counties were moderately damaged and required controls. *P. nebris* larvae overwinter in Maryland and moved into fields to feed among border rows. Most damaged plants fail to recover. SOYBEAN LOOPER (*Pseudoplusia includens*) is becoming more widely established as a pest on ears of sweet corn in the Everglades area of FLORIDA. It has infested commercial plantings for several seasons but 1973 was the first year that appreciable numbers were present on experimental plots at Belle Glade, Palm Beach County.

The first larvae of CORN ROOTWORMS (*Diabrotica* spp.) of the season in ILLINOIS were found June 19 in Henderson County, when several early second instars were dug. *D. longicornis* (northern corn rootworm) adult was also noted in Henderson County during the week of July 9. Pupation at this time had reached 20 percent in Henderson County, 37 percent in Woodford County, and 25 percent in Champaign County, with probable adult emergence believed to have occurred in Woodford and Champaign Counties. Some egg hatch was occurring in these counties. In the western district, normally a heavily infested area, adults averaged 24 per 100 plants compared to 109 in 1972. The northeast district, which is usually low, had the highest district average with 104 beetles per 100 plants compared to 36 in 1972. Statewide, there were few reports of rootworm damage in 1973. This was due primarily to extensive controls in problem areas. However, a potential for damage in 1974 exists as indicated by the fact 22 percent of the fields surveyed in the northwest, northeast, west, and central districts averaged more than one beetle per plant.

Corn rootworm larvae were first observed in IOWA the first week of July in Shelby County feeding on roots of field corn which followed popcorn. Second instars were also found on field corn in Webster County July 3. Few reports of damage were received in 1973. By the first week of August, adults, mostly *D. virgifera* (western corn rootworm) averaged 10 per plant on field corn in Worth County. By August 24, *D. longicornis* and *D. virgifera* averaged fewer than 1 per plant in Worth County. A statewide survey of corn during the period October 1-5 showed that less than 0.7 percent of the stalks were lodged due to *Diabrotica* spp. larval feeding. This is a decrease from the 1.6-percent average of 1972. Of the 13 million acres of corn grown in Iowa in 1973, about 3-3.5 million acres were treated for control of corn rootworms.

In KANSAS there were more complaints than usual regarding severe root damage and lodging of corn throughout much of the State, even where treatments had been applied. Some lodging contributed to corn rootworm larvae was suspected to be due to high winds in late June and early July. In conjunction with these high winds, lodging was also thought to have been promoted by a softening of the soil about the corn roots by heavy rains. The first reports of *D. virgifera* adult emergence were from Shawnee County during late June and from Finney County in early July. Damaging adult populations fed on silks in scattered fields throughout much of Kansas, with most treatment being made in the southwest district. In this district, an estimated 71,700 acres of corn were treated for adult infestations in late July and early August compared to about 99,000 acres for the entire State.

Diabrotica virgifera and D. longicornis larval activity in NEBRASKA was observed June 15 in Saunders County and June 20 in Clay County. In one Adams County cornfield with 24-inch extended leaf height 50 percent of the plants were infested with 1-5 larvae per plant June 21. Damaged corn was reported from most areas of the State. D. virgifera adults damaged silks in Phelps, Dodge, Thurston, and Scotts Bluff Counties where adults ranged 12-15 per plant during late July.

In SOUTH DAKOTA, D. virgifera was of greatest economic importance and D. longicornis continued to be of less economic importance in the main corn-growing areas. D. longicornis adults are usually present later in season and of little consequence in silks at pollination. Corn rootworm eggs hatched and larvae were feeding on corn roots near Beresford, Clay County, June 22. By mid-July, heavy larval populations of up to 94 per root system were observed in untreated corn roots near Garretson, Minnehaha County, and up to 87 in a field near Madison, Lake County. By the third week of July, D. virgifera adults had emerged in most corn-growing areas. Populations were heavier than in the past few years. Adults ranged 8-10 per plant in two Charles Mix County fields, 10-12 in untreated Moody County fields, and 10-15 in Lake County. Heavy populations in corn-growing areas in August and September, the normal oviposition period for D. virgifera, suggest heavy rootworm infestations will occur on untreated corn in 1974. Because of the increase in populations, it is recommended that first-year corn, as well as corn-on-corn, be treated in 1974. About one million acres of corn in South Dakota were treated during 1973 for larval control.

During August, a total of 54 counties in the principal corn-growing areas of MINNESOTA were surveyed to determine the adult Diabrotica spp. population. As in past surveys, 5 fields were chosen at random and beetles were counted only in fields with a 2-year history of continuous corn. Of the fields surveyed, 67 percent were in corn in 1972 and 33 percent had corn for the first time in 1973. The survey revealed a population increase in all districts except the southeast, where a decrease was noted. Corn rootworm damage to corn did not diminish in 1973 and will be serious again in 1974. Beetles averaged 48,180 per acre in the southwest district. Populations increased in all counties, being heaviest in Murray County. This district also had the heaviest populations in the State. It is of interest to note D. longicornis was again predominant over D. virgifera as in the past, especially in the southwest district. All districts showed increases in adult populations except the southeast which showed a decrease. The south-central, southwest, west-central, central, and east-central districts of Minnesota can expect damage comparable to 1973 and the southeast district may expect some reduction in damage. Experience has shown that economic numbers of beetles build up in fields of corn-on-corn.

Diabrotica longicornis and D. virgifera populations in WISCONSIN declined drastically during fall 1972 and fall egg counts revealed very little potential for 1973. Lodging observations during 1973 tended to confirm this. The adult survey conducted in August 1973 also showed a generally light population with the heaviest counts in the Fox River and Rock River drainage areas. The State average for 1973 was 0.66 adult per plot as compared to 0.5 adult per plot

in 1972. Adults began appearing July 20. By July 27 emergence averaged about 50 percent and was completed by August 1. This rapid transformation is expected to have resulted in heavy egg laying. Preliminary analysis of soil samples has substantiated this hypothesis.

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) has spread generally from the initial infestation on the western border of NEW HAMPSHIRE through the southern counties to the eastern border. *D. longicornis* is currently a serious pest in certain fields under continuous corn production, but only in the Connecticut River Valley.

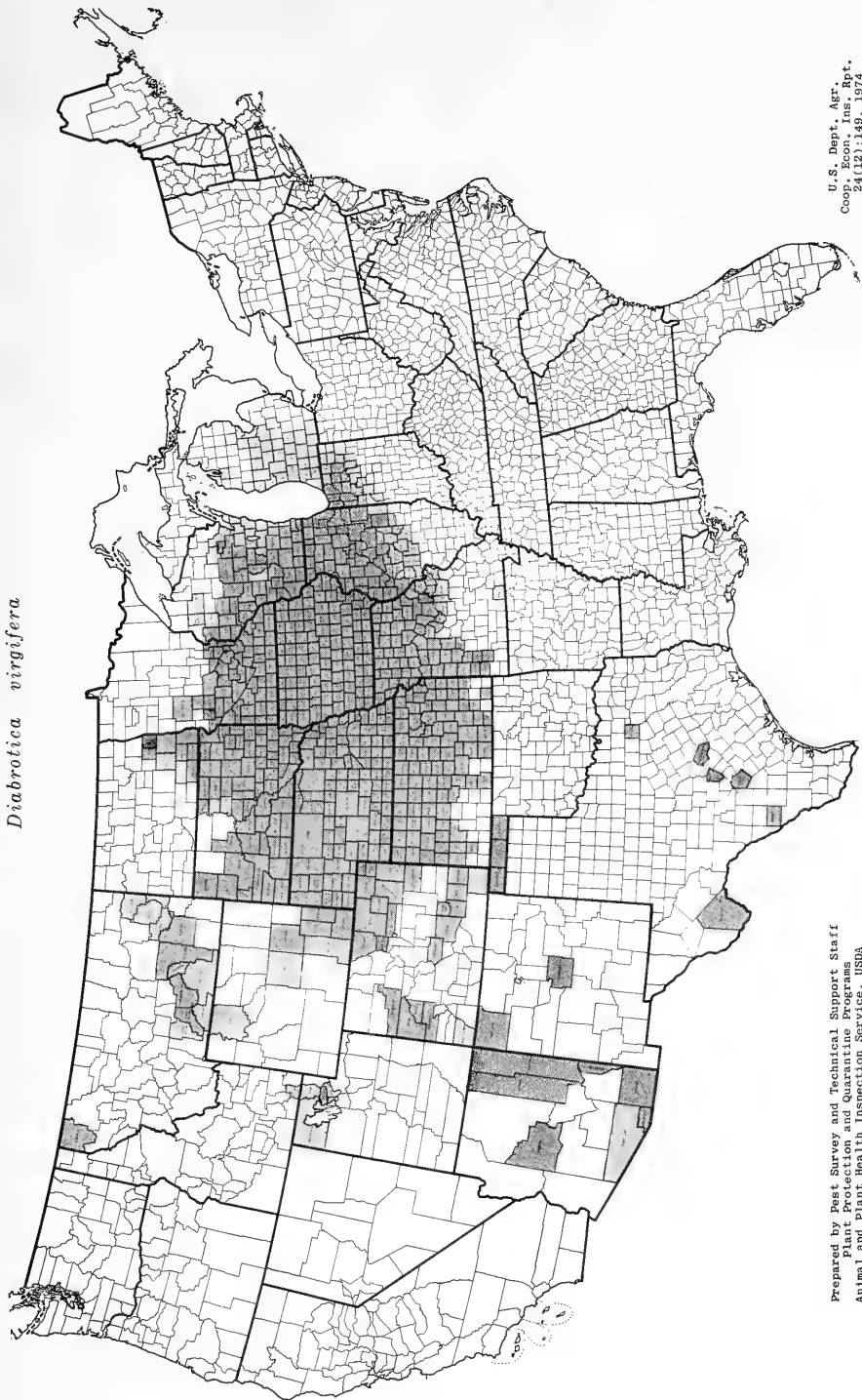
Lodging of corn by northern corn rootworm has remained stable over the past three years in MARYLAND. Rootworm lodging in the most heavily damaged fields ranged 0-3 percent in Frederick, Harford, Carroll, and Baltimore Counties. Adults varied 1-15 per 10 silks in these same counties. In Montgomery, Howard, Cecil, Kent, and Queen Annes County fields, adults ranged 0-5 per 10 silks in the most heavily infested grain corn. In Harford, Cecil, Kent, Queen Annes, and Montgomery Counties, surveys showed light population increases over 1972 levels. These increases, although slight, represented significant inroads into the Eastern Shore production areas. In the central area, 70-80 percent of the 50,000-acre pre-plant treatments made were applied for rootworm control. These preplant treatments have increased in central Maryland in no-till and conventional corn over the past three years. Treatments made during 1973 should cause some decreases in rootworm populations in Carroll, Baltimore, and Frederick Counties within the next few years. However, other central Maryland and Eastern Shore counties are expected to show slight population increases again in 1974.

Northern corn rootworm adult feeding on corn was noticeable over most of OHIO by July 30. In Mercer County, adults ranged 3-7 per corn silk, the heaviest infestation detected to that date. Adult dispersal was underway by August 15. During mid-August, 90 and 80 percent of silks examined in Tuscarawas and Knox Counties, respectively, were clipped. Adults ranged up to 8 per ear in Knox County. By August 30, adult dispersal was well advanced statewide. In KENTUCKY, adult infestations of northern corn rootworm and SOUTHERN CORN ROOTWORM (*D. undecimpunctata howardi*) in corn were about the same as 1972 levels. Adult counts ranged 1-2 per ear. The first northern corn rootworm adult of the season in INDIANA was seen July 10 in Pike County. On this same date, several adults were dug from soil in Tippecanoe County. There was little if any damage to corn grown for grain reported in the State during 1973. Northern corn rootworm was collected for the first time in Dickey and Richland Counties, NORTH DAKOTA, during the 1973 season. These are new county records.

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) infestations were heavy in the coastal counties of south-central TEXAS during April. Severe damage to seedling grain sorghum was reported from Calhoun, Victoria, Matagorda, and Jackson Counties. Over 3,000 acres of sorghum were replanted due to heavy damage. Infestations decreased during mid-May in the south-central area. Southern corn rootworm damage in NORTH CAROLINA was generally much less than in 1972. Only 5 fields of corn in the Coastal Plain were observed with any damage.

Distribution of Western Corn Rootworm

Diabrotica virgifera



Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
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WESTERN CORN ROOTWORM (*Diabrotica virgifera*) was observed for the first time in Arenac and Branch Counties, MICHIGAN, during the 1973 season. Infestations have increased to damaging levels in some fields in the southwestern area and are present in counties where 70 percent of the State's corn is grown. Along with the native *D. longicornis*, *D. virgifera* threatens an estimated 20 percent of the corn grown in Michigan. Middle or late-instar western corn rootworm larvae were first observed in corn grown for grain in Porter County, INDIANA, June 25. Adults were taken in the same county July 10. Larval damage exceeded that of the past, especially in Newton, Porter, La Porte, St. Joseph, Elkhart, and Kosciusko Counties, and in a small portion of western Lagrange County. This pest was found for the first time in De Kalb, Allen, Huntington, Clinton, Hamilton, and Fountain Counties.

Western corn rootworm larvae infested corn throughout central and northern MISSOURI. Larval counts ranged 1-30 per plant. Light larval populations were observed in the southwest area where counts ranged 1-8 per plant. Adults ranged 0.5-8 per plant in the northern areas and 1-5 per plant in the southwest area during late July and early August. Western corn rootworm adults were found in 56 percent of the cornfields in Barnes, Cass, Dickey, La Moure, Ransom, Richland, and Sargent Counties, NORTH DAKOTA, during 1973. Infestations averaged 36 adults per 100 plants. Most corn planted in MONTANA during 1973 was treated for western corn rootworm infestations. Damage was evident in some fields. Most adults were noted after pollination was well underway, but caused little damage.

Western corn rootworm infestations in Franklin County, IDAHO, spread but caused no reduction in corn production. A western corn rootworm outbreak in UTAH affected several thousand acres of corn in Box Elder, Weber, and Cache Counties although control treatments reduced injury in areas damaged during 1972.

CORN FLEA BEETLE (*Chaetocnema pulicaria*) remained light and caused minor damage to corn in MARYLAND, except in Queen Annes, Talbot, Dorchester, and Caroline Counties. In these four counties, counts were above normal during the period May 10 to June 2 and ranged 6-15 adults per corn plant. Corn during this period measured 3-6 inches. Some Stewarts disease or wilt did occur in corn for processing this season but levels were very light. Heaviest counts outside these four middle Eastern Shore counties ranged 3-7 adults per plant. Damage in the middle Eastern Shore area declined rapidly after June 6 due to good growing conditions. In this same area, an estimated 800 acres of corn received controls for this pest in early June.

Corn flea beetle damage to corn in KENTUCKY was light statewide. Minor foliage feeding was noted in Trigg, Todd, Logan, Shelby, Nelson, and Spencer Counties in late May and early June. Heavier damage was noted in the western area early in the season. Foliar loss on corn 3 to 4 inches tall ranged up to 10 percent in some fields. During the week of April 27, corn flea beetle was heavy enough (averaged 2 per plant) on 2-inch sweet corn in Madison County, ILLINOIS, to warrant treatment. On May 16, beetle-damaged plants averaged 100 percent on 2 to 6-inch sweet corn in Madison and St. Clair Counties. Counts averaged 80 per 100 plants. This same week, populations averaged one per 100 plants on 2-inch field

corn in Greene and Pike Counties with five percent of plants damaged. Generally, populations were light and no additional treatments was reported.

MAIZE BILLBUG (Sphenophorus maidis) and S. callosus damaged seedling corn in scattered fields during the second week of May in Robeson and Hyde Counties, NORTH CAROLINA. Severe stand reductions of 4-25 acres occurred in the Coastal Plain by May 18. Damage was heaviest in Washington, Hyde, Tyrrell, Beaufort, Craven, and Pamlico Counties, where about 60 percent of the fields showed stand reduction in marginal rows. Larval and adult infestations were generally concentrated along field margins. Preplant treatment is a common practice in the Coastal Plain; however, some fields following the standard preplant broadcast treatment had sufficient stand reduction to warrant partial replanting. S. callosus has been the most common species observed for the past 3 years in North Carolina. Damage by Sphenophorus spp. (billbugs) to corn in KENTUCKY, mostly 5 to 8-leaf stage, was heavier than the previous two years. The heaviest damage was noted in Ohio County where 30 percent of plants in some fields showed typical feeding damage.

RICE WEEVIL (Sitophilus oryzae) adult infestations were widespread in the Coastal Plain of NORTH CAROLINA in fall 1973. Damage and egg laying in standing corn were reported from Onslow County to Northampton County. Field infestations have been observed for several years during September and October, but reports are becoming more numerous each year. This situation could contribute significantly to loss in the Coastal Plain where untreated corn is stored.

DUSKY SAP BEETLE (Carpophilus lugubris) damage in fresh market and process sweet corn was slightly below 1972 levels in MARYLAND. Damaged tips ranged 10-30 percent in the heaviest infested fields during mid-July. Statewide populations decreased during late July and into August. Damage was minimized in process sweet corn production areas of Maryland by good pest management, scouting, and timely sprays. About 5,000 acre units were sprayed before July 30. A BANDED SAP BEETLE (Glischrochilus fasciatus) continued to be of concern to commercial sweet corn growers in Penobscot County, MAINE, and perhaps other areas. The beetles were usually found in damaged ears, which may in part be caused by the larvae of this species. The 5 percent infestation resulted in an estimated loss in sweet corn sale value of about \$1,500 to one commercial grower. Also of concern is this pest being found in field corn in other areas of Maine.

Several WHITE GRUBS, Bothynus subtropicus, Pachystethus marginata, and Cyclocephala parallela, showed a moderate increase in sugarcane in the Everglades area of FLORIDA during 1973. There was visible destruction of cane in 1,000+ acres resulting in an estimated loss of \$300,000.

The annual CHINCH BUG (Blissus leucopterus leucopterus) winter survey conducted in late February and early March in the eastern two-thirds of KANSAS revealed no threatening overwintering concentrations. As in 1972, chinch bug was a very minor pest in seedling corn and sorghum in the eastern half of Kansas in 1973. An estimated 2,460 acres of corn and 6,290 acres of sorghum were

treated for this pest. Chinch bug nymphs and adults caused heavy damage to corn, millet, and other grass crops in Amite, Forest, Lamar, Pearl River, and Walthall Counties, MISSISSIPPI, throughout August and September. Controls were applied in most cases.

SAY STINK BUG (Chlorochroa sayi) appeared to be establishing itself as a serious pest of sorghum in southwestern NEW MEXICO in 1973. Populations of 5 adults and up to 5 nymphs per head were observed feeding on pedicles. This caused mature seed to drop and in some cases caused 100 percent losses to early fields. Buildups in Lea, Eddy, and Chaves Counties did not exceed 12-15 per head and little late damage was reported.

FALSE CHINCH BUG (Nysius ericae) again moved into sorghum fields in Quay, Harding, and Union Counties, NEW MEXICO, during mid to late August. Heavy feeding required close surveillance and some controls. Heavy adult infestations were reported feeding in heads of sorghum in a few fields in Montgomery County, KANSAS, during mid-August and were suspected to have caused some kernel damage. Localized but heavy infestations of Nysius spp. were noted on sorghum in the Uvalde and Rolling Plains areas of TEXAS during mid-July. The heaviest infestations were reported during mid-August in the San Angelo, Rolling Plains, and High Plains areas. Some control measures were directed toward these pests in these areas.

SORGHUM MIDGE (Contarinia sorghicola) infestations in TEXAS were generally heavy on late grain sorghum. Increasing infestations were noted in the south-central and Blacklands areas during late June and early July. Infestations were also reported from the north-central and Rolling Plains areas during this time. The heaviest infestations on early sorghum were reported during the period June 22 to July 27 in the central and north-central areas. Limited activity was noted in the South Plains during late August. Sorghum midge was the second most important insect pest of sorghum in ARKANSAS; however, only about 5 percent of the crop required treatment. The need for treatment was closely correlated with planting dates. The later the crop was planted the greater was the possibility of infestations. Sorghum midge was heavy on late-planted sorghum in southeast MISSOURI during 1973, but no infestations were reported from other areas of the State. Infestations of sorghum midge and Celama sorghiella (sorghum webworm) were much lighter than normal on sorghum in SOUTH CAROLINA.

BANKS GRASS MITE (Oligonychus pratensis) was generally moderate on corn and sorghum in the Trans-Pecos and High Plains areas of TEXAS during 1973. The first reports of increasing populations were received from Pecos, Reeves, and Hale Counties during the week ending July 20. Increasing but noneconomic populations were noted during mid-August in most of the southern and High Plains areas except in Bailey, Lamb, and Hale Counties. During early September, infestations decreased throughout the Trans-Pecos and High Plains areas. Banks grass mite infested corn and sorghum in the panhandle counties of OKLAHOMA from mid-July to early September. Scattered cornfields were heavily infested especially in the area south and southwest of Guymon, Texas County, and the Turpin area of Beaver County. Heavy infestations in sorghum were limited to some isolated fields in the Panhandle, but heavy populations were present in Washita and Caddo Counties in mid-September.

Small colonies of Banks grass mite and Tetranychus sp. (a spider mite) observed on corn in Scotts Bluff and Morrill Counties, NEBRASKA, July 27. Up to 2 lower leaves were killed, but heavy rains reduced populations to subeconomic levels. Light activity was first noted June 22 in Lincoln County, and by August 6, several dryland cornfields required treatment. Mites remained a problem most of August until corn reached dent stage. Damaged fields were reported in Keith, Garden, Perkins, Lincoln, Antelope, and Boone Counties. Populations of Banks grass mite on silage corn in Churchill County, NEVADA, were lighter in 1973, than in previous years due to seed treatments in most fields. In non-seed treated fields, populations began increasing in mid-July and by early August heavy infestations in many fields required chemical treatments.

SMALL GRAINS

Highlights:

FALL ARMYWORM was of concern on small grains in a few areas. HESSIAN FLY damaged about 200,000 acres of wheat during spring in Kansas, and seriously damaged several thousand acres of wheat in Alabama.

Light FALL ARMYWORM (Spodoptera frugiperda) infestations were common in older wheat throughout much of KANSAS from early October through mid-November. Damage occurred in some isolated cases throughout the State. Moderate to heavy infestations in early planted wheat were common during the second week of October in Chautauqua, Cowley, Sumner, Harper, and Sedgwick Counties. Heavy, beating rains, coupled with flooding in some cases, destroyed most infestations in these counties by the following week. An estimated 3,200 acres of small grains were treated. Fall armyworm was present in early planted small grains in Jackson County, OKLAHOMA, by the first week of September. Heavy damage to scattered fields was reported from all areas of the State except the Panhandle and southeast during September and early October, but isolated heavy infestations continued into early November. Heavy fall armyworm populations were noted in the San Angelo area of TEXAS on September 28 in Blanco and San Saba Counties. Increasing populations were noted in the San Angelo area in late October. Isolated heavy infestations were reported from the south-central area in November. Damage to small grains was reported from Brazos, Burlison, Hays, and Guadalupe Counties. Infestations decreased during late November throughout the State. Fall armyworm infested several thousand acres of oats, barley, rye, and wheat in various areas of ALABAMA.

PALE WESTERN CUTWORM (Agrotis orthogonia) was observed in many areas of MONTANA during 1973. Damage to small grains was reported in Gallatin, Jefferson, Missoula, Madison, Liberty, Toole, Daniels, and Sheridan Counties.

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) required early treatment in almost all the rice-growing areas of CALIFORNIA.

HESSIAN FLY (Mayetiola destructor) damaged an estimated 210,000 acres of wheat during spring in KANSAS. The acreage was concentrated in the north-central, central, south-central, west-central and southwest districts. Based on the results of the spring survey, loss due to spring infestations for the 1973 wheat crop was set at 4,302,140 bushels. A survey conducted to determine "flaxseed" infestations in wheat going into the winter of 1973 showed some significant infestations in early planted and volunteer wheat in the south-central and western areas, particularly in Lane, Gove, and Finney Counties. Results of an incomplete statewide winter survey also showed infestations to be common, though moderate, in early planted wheat in Montgomery, Labette, and Cherokee Counties of the southeast district. Hessian fly populations were moderate in some small grain fields in east-central and south-central MISSOURI. Lodging as a result of these infestations ranged up to 30 percent.

Very heavy populations of Hessian fly were found April 10 in Houston County, ALABAMA, damaging two fields of wheat. Surveys in other southeast counties revealed serious damage to several thousand acres as far north as Prattville, Autauga County. A biological Race-E is believed to have developed and become adapted to this area some 300 miles south of the area of northern Alabama just north of the Tennessee River where it occasionally occurs. Variety resistance has been reevaluated following thorough survey and selected variety recommendations made for 1973 and future plantings of the usual 100,000-acre wheat crop in Alabama.

Hessian fly populations were lighter in INDIANA this year than in 1972. The average number of puparia per 100 stems for all varieties was 1.9, compared with 9.1 in 1972. Only 14 fields in seven counties (out of 53 counties surveyed) had individual fields with infestations of 10 percent or more as compared with 2 counties in 1972. All these counties were north of Indianapolis in the west-central, north-central, northeast, and central districts. The reduction was due at least in part to the increase use of varieties which were resistant to the prevailing race of the fly, which averaged 0.4 percent infested as compared with 6.7 percent infested in wheat which is susceptible to Race B. Overall a State average of 1.1 percent of the stems was infested of all that were examined.

ENGLISH GRAIN APHID (Macrosiphum avenae) and Schizaphis graminum (greenbug) generally infested barley, wheat, oats, and rye in the area of IDAHO from Twin Falls County eastward to Bannock County and northward to Fremont County by harvest time. Heavy M. avenae populations developed on small grains in Churchill, Humboldt, Lyon and Pershing Counties, NEVADA, in June and early July. Chemical controls were required on about 1,600 acres. Infestations of M. avenae in wheat heads were reported in several southwest, west-central, central, and north-central counties of OKLAHOMA during May. Populations ranged up to 50 per head in some areas. M. avenae was present in northwest ARKANSAS wheat as early as January 5 though populations were light (5-10 per 100 sweeps). Survey was negative in mid-January following a period of zero temperature. Infestations increased slightly as temperatures rose; however, hymenopterous parasites were very active at 60+ degrees F. and no doubt helped limit populations. No fields required treatment and no loss occurred. M. avenae appeared in threatening numbers in some

MICHIGAN small grain fields in June. This species is an excellent vector of barley yellow dwarf. No more than light populations of M. avenae occurred in INDIANA. Small colonies on isolated heads of wheat were observed in many fields in the northern districts by mid-June. M. avenae and other aphids ranged light to heavy on oats throughout southern and central ALABAMA on January 1 and maintained a continuous population throughout the season. Barley yellow dwarf was first reported January 26 throughout Dallas, Montgomery, and Autauga Counties. One of the worst seasons for this disease followed in most southern and central counties.

A rather unusual occurrence of AN APHID (Rhopalosiphum padi) in SOUTH DAKOTA began in late September. Infestations were observed in all winter wheat fields spot checked across the State. Populations usually ranged 2-6 adults per linear row foot from Pennington County across to Kingsbury County. The heaviest populations were observed in late October in a field of winter wheat north of Wall, Pennington County, where counts ranged 100-300 aphids per linear foot. However, no economic damage was observed. R. padi proved to be one of the major pests of all cereal grains and required treatment in many areas in CALIFORNIA.

Several major flights of SAY STINK BUG (Chlorochroa sayi) were observed in UTAH during the season. These flights began in the spring in Washington County, later in Iron, Beaver, Millard, and Juab Counties, and to a lesser extent throughout the State. Damage to small grains varied but overall damage exceeded one million dollars.

BROWN WHEAT MITE (Petrobia latens) caused the yellowing of some 200,000 acres of barley in CALIFORNIA. This species was observed damaging barley and wheat in Dawson, Missoula, and Prairie Counties, MONTANA. Damage was noted to a lesser degree on wheat in Liberty County.

The first reports of WINTER GRAIN MITE (Penthaleus major) infestations in TEXAS were received from Wilbarger, Foard, and Haskell Counties on January 26. By February, populations were causing some damage to small grains in Haskell County where mites averaged 109 per row foot. Populations decreased to a very low level in early March and remained light throughout the remainder of the season.

Economic populations of COULEE CRICKET (Peranabrus scabricollis) moved from pine forested areas into 10 acres of agricultural lands in Clearwater County, IDAHO, and controls were applied July 13. On June 8, a population of 40-50 crickets per square yard moved into Power County winter wheat and required control.

The annual survey to determine the percent of cutting by WHEAT STEM SAWFLY (Cephus cinctus) in NORTH DAKOTA was conducted in hard red spring wheat stubble fields in Divide, Mountrail, Williams, McHenry, Pierce, McKenzie, McLean, Sheridan, Golden Valley, and Stark Counties. Cut stems averaged 1.7 (ranged up to 33.8) percent compared to the 2 percent found in 1972. Cutting was evident in 76 percent of the fields surveyed in 1973 compared to 60 percent in 1972.

TURF, PASTURES, RANGELAND

Highlights:

FALL ARMYWORM damaged grasses in several Southern States. Infestations of a SOD WEBWORM were severe in Maryland. SOUTHERN CHINCHILLA damaged St. Augustine grass in Florida and California.

Heavy FALL ARMYWORM (Spodoptera frugiperda) populations developed in localized areas across much of SOUTH CAROLINA. The first severe outbreak occurred the first week in September in Georgetown County with 100 acres of Coastal Bermuda grass completely defoliated. By the end of September, heavy infestations were present in several counties in the lower and middle sections of the State. Overall infestations across the State were about normal and damage did not begin to approach the severe level of infestation noted in 1970. Fall armyworm heavily damaged several pastures in the Everglades area of FLORIDA.

Fall armyworm was the most important pest of Bermuda grass turf and Bermuda grass and Johnson grass pastures in MISSISSIPPI. Larval activity began in Amite, Adams, and Wilkinson Counties in June and July, and by early August populations were economic in previously flooded Warren, Yazoo, Sharkey, and Issaquena Counties. At the end of August, economic infestations appeared in the more northern counties of Oktibbeha, Clay, Lowndes, Attala, and others. By mid-September, populations were economic in nearly all counties of the State. Newly seeded lawns and pastures were severely damaged by S. frugiperda in all sections of TENNESSEE during October.

Fall armyworm was the number one pest of pastures in ARKANSAS. Infestations first occurred in July and continued through September with three generations occurring. Infestations were spotty within a given area yet were present in all areas of the State. Counts were as high as 12-15 larvae per square foot. Chemicals afforded excellent control. There was some loss to pastures in addition to the cost of control but an estimate of loss would be extremely difficult to calculate in dollars. Loss in grazing capacity is estimated at 2-3 percent. Heavy larval populations were observed in fescue pastures in south-central and southwest MISSOURI during September and October. Larvae ranged 1-15 per square foot. The most severe damage was observed in fall seeded grasses.

Heavy fall armyworm infestations were reported in lawns and pastures in southeast and south-central OKLAHOMA by early August. Damaging populations spread north and west reaching Beaver County by mid-September. Damage continued through October in some areas. Most reports were of damage to Bermuda grass, but Bahia grass, fescue, rye, and millet were also damaged in some areas.

SAGEBRUSH DEFOLIATOR (Aroga websteri) infestations in NEVADA continued to increase and spread with hundreds of acres of sagebrush severely damaged in areas of Elko, Humboldt, Pershing, and White Pine Counties.

CALIFORNIA TORTOISESHELL (Nymphalis californica) heavily damaged and defoliated several thousand acres of snowbrush ceanothus (Ceanothus velutinus) in the mountainous areas about Carson City in Douglas and southern Washoe Counties, NEVADA, in July.

Infestations of a SOD WEBWORM (Crambus trisectus) in bluegrass in Baltimore, Montgomery, Howard, Prince Georges, and Anne Arundel Counties, MARYLAND, were the heaviest within the past 5 years. The first injury appeared by mid-July in most areas, thereafter damage levels in home lawns and commercial turf increased rapidly in August and September. Larval counts varied 8-38 per square foot of turf. Several hundred acres of sod and several thousand home lawns were lost in September. Estimated losses in sod exceeded \$60,000 this season. Since overwintering larval populations are well above normal in central Maryland, 1974 infestations are expected to again range moderate to heavy. However, if the winter is mild, losses in 1974 will be well in excess of the record levels of 1973 in the State. Another SOD WEBWORM (Crambus topiarius) severely damaged lawns in Pershing County, NEVADA, in August and September. Some treatments were ineffective.

A STEM BORER (Diatraea evanescens) became economic in late August and early September on several thousand acres of Argentine Bahia grass in FLORIDA, primarily in Citrus County, but also in Hernando and Pasco Counties. Larvae damaged and killed 10 percent of stems, especially seed stems, of grass grown for seed production. Controls did not give satisfactory results.

BLUEGRASS BILLBUG (Sphenophorus parvulus) caused widespread damage to lawns in Douglas and Lancaster Counties, NEBRASKA, with Lancaster County showing a significant increase in damage over 1972. One sod field in Douglas County had up to 66 adults per square foot May 4. Damaged lawns were also reported from Burt and Lincoln Counties.

SOUTHERN CHINCH BUG (Blissus insularis) remained one of the more economic insects in FLORIDA causing a total loss of several million dollars in damage or control costs on St. Augustine grass. This chinch bug severely damaged St. Augustine grass lawns and where no treatment was applied in time completely eliminated the St. Augustine grass in CALIFORNIA. HAIRY CHINCH BUG (B. leucopterus hirtus) heavily damaged home lawns in Lamöille, Washington, and Windsor Counties, VERMONT. Economic controls were necessary and applied during the first week of August.

Unusually large populations of SAY STINK BUG (Chlorochroa sayi) occurred on various rangeland plants throughout NEVADA from late June through October. Movement into alfalfa, grain, and cotton was reported but no treatments were required except on cotton. Heavy migrations into urban areas and buildings also occurred.

CICADAS, mostly Okanagana spp. and some Platypedia spp., developed heavy populations throughout NEVADA but were most numerous in the northern and western areas of the State with heavy oviposition damage evident on native shrubs and trees.

RANGE CRANE FLY (Tipula simplex) infested several thousand acres of rangeland grass in Tulare County and extended into Fresno County, CALIFORNIA. Much treatment was necessary due to the forming of slicks on the hillsides causing erosion.

Melanoplus femurrubrum, M. differentialis, and Schistocerca americana, were the most important GRASSHOPPERS in ALABAMA. They occurred statewide with M. femurrubrum being dominant. The most serious damage occurred on 2 to 6-leaf clover seedlings during the fall months in pastures and reseeded clover and grass sod where grasshoppers, in combination with crickets, destroyed many of the seedling plants and weakened stands. Grasshoppers were heavier in pastures than the previous two years in KENTUCKY. The heaviest damage was observed in Caldwell, Hopkins, and Ohio Counties where counts were 500, 425, and 420 per 100 sweeps, respectively, in early August.

BANKS GRASS MITE (Oligonychus pratensis) populations damaged 60 acres of an orchard grass hay field in Latah County, IDAHO, by June 15. Damage was complicated by dry soil conditions and numerous frosts that had also damaged crops in the area. Banks grass mite and Anaphothrips obscurus (a grass thrips) developed heavy, damaging infestations on timothy hay in Lyon County, NEVADA, in late July, and required chemical controls.

BROWN WHEAT MITE (Petrobia latens) caused considerable damage to several orchard grass pastures in Grant and Adams Counties, WASHINGTON. One pasture near George showed 60 percent damage.

Heavy populations of BERMUDAGRASS MITE (Eriophyes cynodoniensis) caused severe damage to Bermuda grass in several localized areas of southern FLORIDA.

WEATHER OF THE WEEK ENDING MARCH 11

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

HIGHLIGHTS: Thunderstorms, devastating tornadoes, rain, and destructive wind composed a winter finale last week as a series of storm systems from off the Pacific Northwest coast drifted eastward across the Nation. Storms dumped heavy precipitation over the Northeast, Southeast, and Pacific Northwest. Only southwestern sections of the Nation, including the Texas and Oklahoma Panhandles, remained dry during the week. Mild temperatures covered most of the Nation for the fourth consecutive week averaging nearly 13 degrees above normal in the west-central Plateau region. However, New England areas reported temperatures about 4 degrees below normal for this time of year.

PRECIPITATION: It was a wet and wild week. As usual, the Pacific Northwest coastal sections reported heavy precipitation with the weekly total measuring 2 to 7 inches. Southern Florida got its fair share of precipitation: West Palm Beach measured 2.40 and Miami recorded 2.20 inches for the week. Ending an exceptionally dry winter, thunderstorms dumped generous amounts of much needed rain over south-central Texas during week. Del Rio totaled 1.29 inches. Early in the week a Low over Tennessee trailed a cold front along the gulf coast reaching into south-central Texas, triggering thunderstorms, hail, and tornadoes. Loma Alta, Texas, was pelted with 1.75-inch hail and Bristol, Tennessee, got hail the size of hen's eggs, while tornadoes touched down near Charleston, South Carolina, and Glenville, Georgia. Thursday, a cold front settled over the Nation's midsection curving through the upper Mississippi Valley into northern Texas whipping up snow and wind. Snowfall by evening measured 2 inches at Eau Claire, Wisconsin, 2 inches at Hibling, Minnesota and 3 inches at Williston, North Dakota. Friday morning, a severe thunderstorm ripped through Kingsville, Texas. Reports indicated ping pong ball size hail, damaging winds, and heavy rains struck the city, disrupting electrical power, toppling mobile homes, and flooding streets with over 2 feet of water. During the weekend, a cold front moving across the Appalachians and the central Gulf Coast States generated snow and thunderstorms with some heavy rains drenching Louisiana. After a six-hour period, rain fall measured 1.82 inches in Boothville, Louisiana, and 1.08 at New Orleans, Louisiana. Early Sunday, a fierce storm system moved from the upper Mississippi Valley and the western Great Lakes across the Northeast dumping over 3 inches of snow on Wilmington, Vermont, and Rumford, Maine. The storm finally drifted off the coast Sunday evening, but a trailing Low settled over Maine stirring up strong winds. Winds were clocked at speeds of 47 m.p.h. in Boston and 58 m.p.h. at Altoona, Pennsylvania.

TEMPERATURE: Tuesday, temperatures warmed to record highs for this date along parts of the gulf coast, with Apalachicola, Florida, reaching 81 degrees while Moisant International Airport at New Orleans and Lake Charles, Louisiana, both topped the 85-

degree mark. In sharp contrast, by midweek cool temperatures invaded the eastern half of the Nation. The 50-degree line reached into the Tennessee Valley and the Carolinas. Even northern Florida only climbed into the 60's. The coldest spot in the Nation Wednesday morning was Caribou, Maine, where the thermometer dipped to the zero mark and wind gusts topped 40 m.p.h. Sunday, a warming trend began in the Plains region. Record high temperatures occurred in many cities. Some examples were: 75 degrees at Denver, Colorado; 80 degrees at Pueblo, Colorado; 65 degrees at Casper, Wyoming; and 88 degrees at Midland, Texas.

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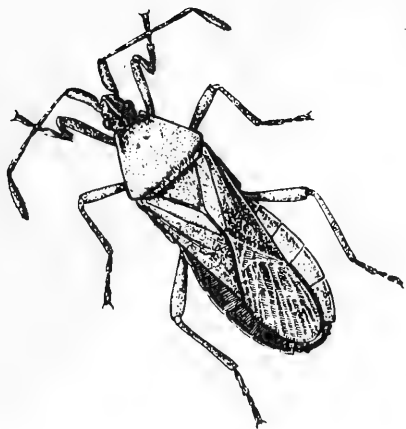
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Cooperative Economic Insect Report

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

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Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMY CUTWORM damage continued heavy in some wheat in west-central Oklahoma; pest generally light in wheat in northwest area of State. Heavy in wheat in southeast Colorado. (p. 163). SPOTTED ALFALFA APHID heavy in alfalfa in west-central Oklahoma. (p. 164).

ALFALFA WEEVIL tip infestations ranged light to heavy on alfalfa in several areas with some control underway; damage apparent in south-central Kansas. Populations of an ALFALFA WEEVIL COMPLEX increased rapidly during February in Imperial Valley of California. PEA APHID in alfalfa required treatments in extreme southeast California, heavy on this crop in west-central, central, and south-central Oklahoma. Activity increased in Arkansas. (pp. 165-166).

GRANULATE CUTWORM continued to damage tobacco throughout Coastal Plain of North Carolina. (p. 166).

Predictions

ALFALFA WEEVIL infestations expected to be serious further north and west in Kansas and expected to increase in Nebraska in 1974. (pp. 177-178). GRASSHOPPER infestations in forage croplands will be generally scattered and localized in Minnesota and no problem is anticipated in Illinois during 1974. (p. 184).

Detection

A NOCTUID MOTH reported for the first time from Hawaii and known to occur in the Tropics and Subtropics of the Old World is a new United States record. Larvae are known to damage corn, sorghum, and other grasses. This noctuid is not known to occur in the continental U.S. (p. 164).

New State records include ASPARAGUS APHID in North Carolina (p. 167), SAY STINK BUG in Hawaii (p. 167), SOUTHERN GREEN STINK BUG in Oklahoma (p. 166), and a SPIDER MITE in New Mexico (p. 168).

For new county records see page 171.

Special Reports

Summary of Insect Conditions in the United States - 1973
Forage Legumes. (pp. 172-183).
Soybeans. (pp. 184-190).
Peanuts. (pp. 190-191).

Distribution of Alfalfa Weevil. Map. (p. 174).

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WEATHER OF THE WEEK ENDING MARCH 18

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

HIGHLIGHTS: Spring arrived unheralded. Bitter cold air encompassed the Nation's entire midsection from Montana and central Texas eastward through New England. Behind the front, temperatures plummeted to record low levels including -26 degrees at International Falls, Minnesota, 3 degrees at St. Louis, Missouri, and 26 degrees at Abilene, Texas. Only the Southwest reported temperatures significantly above normal and northern Arizona averaging 9 degrees above normal for the week. Just ahead of the front, tornadoes, hail storms, and torrential rains swept through sections of the Southeast, mid-Atlantic, and the Northeast causing at least 3 deaths and widespread property damage.

PRECIPITATION: Most of the western half of the Nation remained dry with the normally soggy Pacific Northwest coastal areas recording only light precipitation. However, both Arizona and west Texas received some much needed rain. Weekly totals measured 0.88 inch at Phoenix, Arizona. San Angelo, Texas, got 0.25 inch of precipitation. Meanwhile, heavy rain, snow, and thundershowers drenched the eastern half of the Nation. Early in the week, bitter cold spread over the central United States triggering heavy thunderstorms in Arkansas. A tornado was reported 2 miles north of Van Buren, Arkansas, 0.75-inch hail pelted Ft. Smith. Thunderstorms formed just ahead of a midwest cold front extending from the lower Mississippi Valley to the southern Appalachians at midweek. More than 1 inch of rain soaked both Columbus, Mississippi, and Tuscaloosa, Alabama, in only six hours. Tuesday night, a low center hovering over Texas began its move across the South stirring up tornadoes, high winds, hail, and heavy rains along the Gulf Coast States and continued into South Carolina during Wednesday afternoon. Three deaths, one each at Jesup and Montezuma in Georgia and at Many, Louisiana, were reported. Weather of the week continued on page 192.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Euxoa auxiliaris*) - KANSAS - Of several wheat fields surveyed in southwest, west-central, central, and south-central districts, only one field in Lane County had an economic infestation with major damage restricted to field borders. Average larval counts per square foot in wheat by county (fields per county in parentheses): Gray 0-3 (3); Meade trace-2 (3); Seward trace (3); Stevens trace (4); Morton trace-2 (3); Hodgeman 0-2 (3); Ness trace-2 (4); Trego trace-2 (4); Gove zero to trace (4); Lane 2-4 (4); Rush trace (1); Pawnee 1 (1); and Edwards 1 (1). Damaging infestation reported in wheat in Greeley County. (Bell). OKLAHOMA - Heavy damage continued in some wheat in Washita, Caddo, Custer, and Beckham Counties. Heavy, up to 10 per square foot, in wheat and alfalfa in Kiowa County. Generally light in wheat checked in Major, Woods, and Alfalfa Counties, but ranged up to one per linear foot in spots in few fields. (Okla. Coop. Sur.). COLORADO - Ranged up to 12 per row foot in Prowers County wheat. (Hantsbarger).

BEEF LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Lack of rain during February and warm weather during same period induced maturation of most host plants throughout Kern County breeding grounds. Peppergrass has produced seed and completely dried; most filaree plants have bloomed and produced seed. Filaree and plantago showing stress due to lack of moisture. Leafhopper eggs just hatched; first and second instar counts low; few overwintering adults still found. If dry conditions continued, large percentage of nymphs might have died, which would have reduced acreage requiring treatment. On March 8, large storm passed through area leaving 1-2 inches of rain and snow throughout breeding grounds. This will hold most host plants long enough to allow most immature leafhoppers to survive and become adults. Situation will now change. Controls will probably be needed in Kettleman Hills, King County. Leafhopper counts ranged up to 26 per 100 sweeps south of Avenal and on west side of Kettleman Hills. (Cal. Coop. Rpt.).

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Ranged 0-15 per linear foot in wheat in Roosevelt and Quay Counties. Parasite activity appears responsible for population reduction in these areas. (N.M. Coop. Rpt.). TEXAS - Greenbug generally light in small grains throughout Rolling and High Plains areas. Beneficial insects heavy in fields in Wichita, Hardeman, Archer, Baylor, Knox, Haskell, Throckmorton, and Wilbarger Counties in Rolling Plains. Parasitic wasps most numerous, but lady beetles, nabids, and spiders also found in large numbers. Greenbug very light in Lubbock, Hale, Castro, Deaf Smith, Crosby, Floyd, Briscoe, and Hall Counties during survey of area 14 days ago; large numbers of beneficial insects also noted. (Boring, Green).

OKLAHOMA - Greenbug moderate in wheat in Hughes County. Counts per linear foot ranged 0-10 in Major, Woods, and Alfalfa Counties, 1-6 in Cimarron County. (Okla. Coop. Sur.). ARKANSAS - Light activity in small grains reported from scattered eastern areas of State. No buildup expected with current low temperature and moist conditions. (Boyer). KANSAS - Found in only one field of wheat surveyed this period. Averaged 4 per drill row foot in Seward County. (Bell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Heavy in alfalfa in Washita, Caddo, Custer, Roger Mills, Beckham and Grady Counties. (Okla. Coop. Sur.). FLORIDA - Very light, 12 nymphs and adults collected in 100 sweeps of 8-inch tall alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

A NOCTUID MOTH (Leucania loreyi (Duponchel)) - HAWAII - Male moth taken in blacklight trap at Honolulu International Airport, Oahu, during April 1972. Collector unknown. Single female moths collected on two occasions by university student(s): One at Honolulu International Airport during February 1973 and one at Portluck Road during April 1973. Male moth taken in blacklight trap at Hickam Air Force Base, Oahu, October 23, 1973, by E.S. Shiroma. Determined by E.L. Todd and G.F. Brooks. These collections constitute a new United States record, but this noctuid is not known to occur in the continental U.S. L. loreyi is known to occur in the Subtropics and Tropics of the Old World. It occurs in Europe, Iran, Pakistan, Iraq, Cyprus, Israel, India, Egypt, Tunisia, Somalia, the Sudan, Southeast Asia, Japan, and the Philippines. Larvae of this noctuid are known to damage corn, sorghum, and other grasses. (PPQ).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Overwintering survival survey completed. Statewide survival 76 percent compared to 12-year average of 75 percent. Survival 70 percent in west district which had heaviest second-generation population in fall 1973 survey. Percent overwintering survival by district: Northwest 78, west 70, central 85, west-southwest 50, southwest 82, and southeast 89. (Ill. Ins. Rpt.). ALABAMA - Larvae light in about 10 percent of cornstalks inspected in several fields in Jackson and De Kalb Counties. (Cain).

BLACK CUTWORM (Agrotis ipsilon) - TEXAS - Heavy infestations of A. ipsilon and Peridroma saucia (variegated cutworm) caused severe damage to young grain sorghum in Calhoun and Jackson Counties in Coastal Bend area. (Cole).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Generally light in small grain fields inspected in Wilbarger, Hardeman, Archer, Baylor, Knox, Haskell, Throckmorton, and Wichita Counties in Rolling Plains. Counts of 148-400 per row foot observed in few fields in Archer County. In parts of more heavily infested fields, mites slowing growth of wheat. Heavy in one Lubbock County field, ranged 300-400 per linear row foot. (Boring, Green).

BROWN WHEAT MITE (Petrobia latens) - ARIZONA - Moderate infestation on small grains north of Elfrida, Cochise County, may require treatment. (Ariz. Coop. Sur.). TEXAS - Light on wheat in Hale, Castro, and Deaf Smith Counties. Heaviest infestations ranged up to 15 per linear row foot. (Green).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Infestation of small larvae reported damaging small droughty wheat week ending March 8 in Morton County was first of season; some Euxoa auxiliaris (army cutworm) also present. A. orthogonia recently reported infesting wheat in Ford County, but extent of infestation not reported. (Bell).

TURF, PASTURES, RANGELAND

TEXAS LEAFCUTTING ANT (Atta texana) - TEXAS - Heavy infestation reported from Gholson community, McLennan County. Chemical control applied. (Hoelscher).

TWOLINED SPITTLEBUG (Prosapia bicincta) - ALABAMA - First and second-instar nymphs in small spittle masses light on winter weeds in lawn at Auburn, Lee County. First hatch of season. (McQueen).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Larvae light in one alfalfa field examined in Wichita County during mid-March; averaged 2 per 20 sweeps. (Green). OKLAHOMA - Percent terminal infestation in alfalfa ranged as follows by county: Jackson 10-60; Washita, Caddo, Custer, Roger Mills, and Beckham 75-100; Harper 15-20; Texas 10; Osage 50-100; and Pottawatomie 40-70. Larvae per 10 sweeps averaged 80 in Logan County, 60 in Kingfisher County, and 25 in Woods County. Larvae reported heavy in Kiowa, Comanche, Garvin, Cleveland, Grady, and Pawnee Counties; moderate in Garfield County. Fields being treated in all areas except northwest and panhandle, some in southern counties for second time. Eggs ranged 35-55 per square foot in fields checked in Stephens, Muskogee, and Payne Counties. (Okla. Coop. Sur.).

KANSAS - Damage to terminals of alfalfa by alfalfa weevil larvae readily noticeable in 3 to 4-inch alfalfa surveyed in Harper and Reno Counties. High count of 3.3 larvae per tip, along with 92 percent infestation, found in one Harper County field. Larvae per tip and percent infested tips (in parentheses) averaged as follows by county (one field per county): Harper 3.3 (92); Reno 1.9 (88); Edwards 0.7 (24); Rush 0.8 (36); Wabaunsee 1.9 (76); Geary 0.3 (16); Riley 0.8 (48); and Pottawatomie 0.8 (32). First and second instars predominated in all districts; third instars found only in counties surveyed in south-central district and fourth instars (trace) only in Harper County. Hatching reported in alfalfa in Gray County. (Bell). MISSOURI - Observations in Gasconade County alfalfa showed 18-31 percent of plants with feeding injury. Larvae ranged 0-5 per plant. (Munson).

INDIANA - In 30 southern area alfalfa fields observed, mean percent infestation ranged 12-55 and mean number of alfalfa weevil larvae per stem ranged 1.5-2.8. Alfalfa averaged 4 and 5 inches in districts involved. New and old fields included, as well as some fields believed to have been treated for adult control. When weather permits, controls recommended for all southwest district fields observed. Larvae extracted by Tullgren funnel. (Hintz, Meyer). KENTUCKY - Larvae per alfalfa tip averaged as follows by county: Barren 0.79, Hart 1.56, Warren 0.61, and Nelson 1.16. About 20-30 percent were first-instar larvae. In Fayette County, eggs averaged 10.8, 15.2, 22.4, 15.2, 21.0, and 7.1 per square foot in several fields. (Barnett, Parr).

TENNESSEE - Number of alfalfa tips infested by alfalfa weevil larvae per 50 tips examined in 13 fields checked in 8 counties ranged from two in one Washington County field to 48 in Davidson County field. Number of larvae per 50 tips examined in these 8 counties ranged from 3 in one Crockett County and in 2 Hardeman County fields to 70 in one Davidson County field. (Gordon et al.).

FLORIDA - Six Hypera postica larvae collected in 100 sweeps of 8-inch tall alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

ALFALFA WEEVIL COMPLEX (Hypera spp.) - CALIFORNIA - Populations increased rapidly during February in Imperial Valley, Imperial County. Treatment threshold considered to be 20-25 larvae per sweep. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Trace infestations of large larvae noted in alfalfa surveyed in Pottawatomie and Edwards Counties. (Bell). NEW MEXICO - Single specimens collected from alfalfa near Lovington, Lea County, by G. Nielsen in 1965 and by D.C. Heninger near La Mesilla, Rio Arriba County, in 1970. Determined by R.E. Warner. These are new county records. (N.M. Coop. Rpt.).

A WEEVIL (Ceutorhynchus neglectus) - WISCONSIN - Adults swept from alfalfa at Genoa City, Walworth County, June 21 and 23, 1967, by J. Weedman and A. Schwana. Determined by R.E. Warner. This is a new county record. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Increased in Imperial County alfalfa; required treatment. (Cal. Coop. Rpt.). TEXAS - Light, averaged 60 per 20 sweeps, in alfalfa field examined in Wichita County. (Green). OKLAHOMA - Heavy in alfalfa in Washita, Caddo, Custer, Roger Mills, Beckham, Grady, and Garvin Counties; moderate in Pawnee County, and light in Harper County. Average counts by county: Logan 32, Kingfisher 25, Woods 5. (Okla. Coop. Sur.). KANSAS - Trace infestations noted in alfalfa in Wabaunsee, Reno, and Gray Counties. First of season. (Bell). ARKANSAS - Activity on alfalfa increased in all areas of State. (Boyer). FLORIDA - Light, 550 nymphs and adults collected in 100 sweeps of 8-inch tall alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - First adults of season observed in crimson clover near Headland, Henry County. (Stephenson). OKLAHOMA - Single specimen collected at Stillwater, Payne County, November 3, 1971, by Y. Singhaseni. Determined by D.C. Arnold. Confirmed by J.L. Herring. This is a new State record. (Okla. Coop. Sur.).

SOYBEANS

A CERAMBYCID BEETLE (Dectes texanus texanus) - KENTUCKY - Collected from soybeans in Hickman County July 15, 1973, by H. Raney. This is a new county record. (Barnett, Gregory).

TOBACCO

GRANULATE CUTWORM (Feltia subterranea) - NORTH CAROLINA - Larvae continued to damage tobacco throughout Coastal Plain. Losses up to 1,000 square yards of tobacco plant bed reported in Robeson County. Observations in Wayne County revealed several beds infested. Close observations of all plant beds warranted. (Robertson, Westerbeek).

GENERAL VEGETABLES

ASPARAGUS APHID (Brachycolus asparagi) - NORTH CAROLINA - Nymphs found on 25 percent of asparagus plants in residential planting at Middleburg, Vance County, October 22, 1973, by J.W. Gentry. No alates found. Typical rosetting of host caused by this species observed. Determined by L. M. Russell. This is a new State record. (Gentry).

SAY STINK BUG (Chlorochroa sayi) - HAWAII - Single specimen found in container of mixed produce at Hilo, Hawaii Island, by L. Tada March 7, 1974. Determined by J.L. Herring. This is a new State record. Produce raised in Hilo area. (Tada).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Treatment on lettuce necessary in Imperial County. (Cal. Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - OKLAHOMA - Infested young garden onions in McCurtain, Bryan, Marshall, Murray, Love, Carter, and Cleveland Counties. (Okla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PEACHTREE BORER (Sanninoidea exitosa) - NEW MEXICO - Larval activity observed in about 100 percent of peach trees inspected in northern Bernalillo County. Many older trees severely weakened. (N.M. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TENNESSEE - Second-instar larvae observed on peach tree in Davidson County March 12. (Schmitt). OKLAHOMA - Heavy on fruit trees in Wagoner County. Light on wild plum in several northwest counties. (Okla. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - OKLAHOMA - Female collected on fruit tree in Pauls Valley area, Garvin County. (Okla. Coop. Sur.).

ROSY APPLE APHID (Dysaphis plantaginea) - OREGON - Eggs hatched in Medford area, Jackson County. Apple growers advised to treat where populations warrant. (Berry).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Appeared earlier and is more prevalent on citrus this year than in past years in Yuma County. (Ariz. Coop. Sur.).

ORNAMENTALS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Eggs hatched and small tents appeared on wild cherry and other plants in southeast area. (Wall).

NATIVE HOLLY LEAFMINER (Phytomyza ilicicola) - ALABAMA - Adult emergence noted on Dwarf Youpon holly in Lee County March 15; 10-100 females per large plant laying eggs. Several hundred plants involved. Most plants show heavy damage to leaves from 1973 infestations in several southern counties. (Lemons et al.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Overwintering broods observed in 15 dead and damaged pines south of Dothan, Henry County. Large pine died and removed at home in Auburn, Lee County, following heavy infestation past fall and winter. Nearby trees treated. (Stephenson et al.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - SOUTH CAROLINA - Specimen found in Dillon County residence by C.C. Adams March 13, 1974. Determined by C.A. Thomas. This is a new county record. (McCaskill). MISSISSIPPI - Adults infested about 25 pines 40-50 feet tall around 3 to 5-year-old home site in Oktibbeha County. Pitch tubes present on 25 trees. Some trees heavily infested and need to be removed. (Robinson).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Overwintering egg masses in bags very heavy on juniper along U.S. Interstate Highway I-85 in Macon and Lee Counties; no hatch observed. Timber owner greatly concerned about 25-acre juniper planting in Chambers County where adjoining owner has heavy count of bags with eggs and population explosion expected this season. (Shumack et al.).

PINE NEEDLE SCALE (Phenacapsis pinifoliae) - KENTUCKY - Heavily infested Scotch pine trees at one Daviess County location. (Barnett, Scheibner).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - SOUTH CAROLINA - Larvae observed on wild cherry in Richland, Lexington, Aiken, and Orangeburg Counties by J.L. King March 11, 1974. First report of season. These are new county records. (McCaskill). FLORIDA - First adult of season taken at blacklight trap in Gainesville, Alachua County, March 21. (Fla. Coop. Sur.). ALABAMA - Nests prominent on most cherry trees in northern Crenshaw County. Tents numerous in cherry trees along roadsides in Lee, Russell, and Barbour Counties. (Seibels et al.). MISSISSIPPI - Few webs found on wild plum and cherry in Oktibbeha County; larvae small. (Robinson). KENTUCKY - Egg hatch about 25 percent complete in central area. (Barnett, Nordin). MISSOURI - First and second-instar larvae observed in small webs on wild cherry in south-central area. First larvae of season. (Munson).

FOREST TENT CATERPILLAR (Malacosoma disstria) - FLORIDA - First-instar larvae observed on turkey oak (Quercus laevis) about 5 miles north of Dunnellon, Marion County, March 20. Collected and determined by C.W. Chellman. This is first report of season. (Fla. Coop. Sur.).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Nymphs present on elm trees in Santa Maria, Santa Barbara County. Warm weather and rain resulted in early movement in coastal areas. Elms just leafing out in inland areas; pest still on limbs and branches. (Cal. Coop. Rpt.).

A SPIDER MITE (Eotetranychus fremonti) - NEW MEXICO - Collected from erinose flower gall of cottonwood along Rio Grande near Hatch, Dona Ana County, by G. Nielsen April 16, 1964. Determined by D. Tuttle. This is a new State record. (N.M. Coop. Rpt.).

WALKINGSTICK (Diapheromera femorata) - OKLAHOMA - Taken from oak trees near Spavinaw, Mayes County, September 12, 1973. Collected and determined by D.C. Arnold. This is a new county record. (Okla. Coop. Sur.).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - MISSISSIPPI - Adult activity slowed by recent cool weather; up to 25 per head noted on beef cattle in Oktibbeha County. (Robinson). ARKANSAS - Activity underway prior to drop in temperature but expected to be negative until temperatures rise. (Boyer). OKLAHOMA - Light on cattle in Garvin and Comanche Counties. (Okla. Coop. Sur.).

MOSQUITOES - CALIFORNIA - Continued heavy in many areas of State. Heavy populations in downtown Sacramento necessitated controls. (Cal. Coop. Rpt.).

A LOUSE FLY (Hippobosca longipennis) - OREGON - Inspection of cheetahs at Winston, Douglas County, during late February negative. Animals treated once, scheduled for second treatment. (Rea). See CEIR 24(1-4):9 for first report in State. (PPQ).

CATTLE LICE - IOWA - Linognathus vituli (longnosed cattle louse) ranged 0-20 (average about 2) per square inch on herd of untreated, mixed Angus and Hereford cattle in Fremont County. (Iowa Ins. Inf.). OKLAHOMA - Mainly Haematopinus eurysternus (shortnosed cattle louse), continued moderate to heavy on cattle in Comanche County. Reported moderate in Pawnee County and light to moderate in Major County. (Okla. Coop. Sur.). NEW MEXICO - Bovicola bovis (cattle biting louse) ranged 5-10 per animal on cattle near Estancia, Torrance County. (N.M. Coop. Rpt.).

CHICKEN BODY LOUSE (Menacanthus stramineus) - NEW MEXICO - Ranged 300-500 per chicken on 100 percent of chickens examined near Mesilla Park, Dona Ana County. (N.M. Coop. Rpt.).

EAR TICK (Otobius megnini) - NEW MEXICO - Up to 40 specimens collected from one ear on range cattle near Estancia, Torrance County. Also collected from dogs in area. (N.M. Coop. Rpt.).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEVADA - Several specimens found in home at Lovelock, Pershing County, March 18, 1974, by G.G. Munk. Determined by R.C. Bechtel. This is a new county record. (Munk).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - Limited number of R. flavipes (eastern subterranean termite) swarms reported from Prince Georges and Montgomery Counties week ending March 15. Peak activity expected in April. (U. Md., Ent. Dept.). ALABAMA - R. flavipes infested a Geneva County house and numerous dead pine trees in Houston and Lee Counties. (Stephenson et al.). NEVADA - Light numbers of R. tibialis alates emerged and swarmed at Las Vegas, Clark County, March 11. (Greer).

WESTERN BOXELDER BUG (Leptocoris rubrolineatus) - NEVADA - Active at Yerington, Lyon County. Large numbers entering homes in southern Washoe County. (Mason, Pursel).

OLDHOUSE BORER (Hylotrupes bajulus) - ALABAMA - Adult collected at night light in northern Crenshaw County March 5, 1974. This is a new county record. (Seibels).

STORED PRODUCTS

RICE WEEVIL (Sitophilus oryzae) - NORTH CAROLINA - Adults very active on outside (around drying fans) of commercial storage bins in Johnston, Wilson, and Harnett Counties week ending March 15. All of 15 bins checked contained infested corn. Weevils very heavy in grass and area around 8 of these bins. Very little evidence of control measures. (Hunt).

AMERICAN BLACK FLOUR BEETLE (Tribolium audax) - NORTH DAKOTA - Specimens collected 7 miles west of Rugby, Pierce County, January 20, 1974, by L. Drege, determined this species by T.J. Spilman. This is a new county record. No host material specified. (Drege).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARKANSAS - Light populations of this species and Coleomegilla maculata active on warm days in northwest area. Adults more active in southern areas. First observation of eggs this season made by M. Wall in Desha County. (Boyer). KANSAS - H. convergens adults averaged 2 per square yard in 2.5-inch alfalfa in Edwards County. (Bell).

AN ICHNEUMON WASP (Bathyplectes curculionis) - INDIANA - About 80 percent of the specimens of this parasite of Hypera postica (alfalfa weevil) placed in southwest district alfalfa field in fall 1973 pupated first week of March 1974. Only small percentage pupated at site in west-central area. (Hintz).

GREEN LACEWINGS (Chrysopa spp.) - ARIZONA - Heavy adult flight observed in Cochise and Maricopa Counties. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Larvae ranged 0-115 per square foot on about 30,000 acres of dairy pasture on 10 farms in Lynden and Sumas area of Whatcom County. Fields previously known to be infested; larvae averaged 38 per square foot. (Campbell et al.).

GYPSY MOTH (Porthetria dispar) - MARYLAND - New egg mass found March 7, 1974, in Washington County on Mount Aetna Road between White Hall Road and State Route 66. To date egg mass finds reported from Washington, Cecil, and Harford Counties. Finds in Cecil and Harford Counties represent very significant increase in P. dispar activity over last spring finds in northeast area. (U. Md., Ent. Dept., March 15).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - First grub feeding activity reported in 200 acres of blue grass turf near Centerville, Queen Annes County, week ending March 15. Grub activity should begin within next 14 days on western part of Eastern Shore. (U. Md., Ent. Dept.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - TEXAS - Infestation reported in sweetpotatoes in Arlington, Tarrant County. (Turney).

DETECTION

New United States Record - A NOCTUID MOTH (Leucania loreyi) - HAWAII - Oahu. (p. 164).

New State Records - ASPARAGUS APHID (Brachycolus asparagi) - NORTH CAROLINA - Vance County. (p. 167). SAY STINK BUG (Chlorochroa sayi) - HAWAII - Hawaii Island. (p. 167). SOUTHERN GREEN STINK BUG (Nezara viridula) - OKLAHOMA - Payne County. (p. 166). A SPIDER MITE (Eotetranychus fremonti) - NEW MEXICO - Dona Ana County. (p. 168).

New County Records - ALFALFA WEEVIL (Hypera postica) IOWA - Osceola, Dickinson. MINNESOTA - Swift, Sherburne, Isanti, Morrison (p. 177). AMERICAN BLACK FLOUR BEETLE (Tribolium audax) NORTH DAKOTA - Pierce (p. 170). BLACK TURPENTINE BEETLE (Dendroctonus terebrans) SOUTH CAROLINA - Dillon County (p. 168). BROWN DOG TICK (Rhipicephalus sanguineus) NEVADA - Pershing (p. 169). A CERAMBYCID BEETLE (Dectes texanus texanus) KENTUCKY - Hickman (p. 166). NORTH CAROLINA - Pitt (p. 190). CLOVER LEAF WEEVIL (Hypera punctata) NEW MEXICO - Lea, Rio Arriba (p. 166). EASTERN TENT CATERPILLAR (Malacosoma americanum) SOUTH CAROLINA - Richland, Lexington, Aiken, Orangeburg (p. 168). OLDHOUSE BORER (Hylotrupes bajulus) ALABAMA - Crenshaw (p. 170). WALKINGSTICK (Diapheromera femorata) OKLAHOMA - Mayes (p. 169). A WEEVIL (Ceutorhynchus neglectus) WISCONSIN - Walworth (p. 166).

LIGHT TRAP COLLECTIONS

ARIZONA - Mesa, 3/11-17, BL, ARMY CUTWORM (Euxoa auxiliaris) 5, BEET ARMYWORM (Spodoptera exigua) 88, BLACK CUTWORM (Agrotis ipsilon) 5, CABBAGE LOOPER (Trichoplusia ni) 6, VARIEGATED CUTWORM (Peridroma saucia) 54, YELLOWSTRIPED ARMYWORM (S. ornithogalli) 2. FLORIDA - Gainesville, 3/15-21, BL, black cutworm 1, GRANULATE CUTWORM (Feltia subterranea) 18, SALTMARSH CATERPILLAR (Estigmene acrea) 1, TOBACCO BUDWORM (Heliothis virescens) 1. MISSISSIPPI - Stoneville, 3/15-21, temp. 83-38 F., precip. 1.25 in., 2BL, ARMYWORM (Pseudaletia unipuncta) 254, black cutworm 36, BOLLWORM (Heliothis zea) 2, saltmarsh caterpillar 2, variegated cutworm 35, yellowstriped armyworm 6. TENNESSEE - Hardeman County, 3/18-22, BL, armyworm 12, variegated cutworm 23, yellowstriped armyworm 12.

FORAGE LEGUMES

Highlights:

ALFALFA WEEVIL damaged alfalfa in several Eastern States, but larval populations did continue to decline in most areas of Pennsylvania and were lighter in Ohio. Damage was heavier in Virginia than for past 2 years. Alfalfa weevil was a major pest of alfalfa in Kentucky, and caused significant damage to alfalfa for the first time in Iowa. Populations are expected to increase in Nebraska during 1974. Alfalfa weevil caused much damage to alfalfa in several States west of the Mississippi River with a large acreage requiring treatment. EGYPTIAN ALFALFA WEEVIL developed heavy populations in California where it damaged cherries, apricots, strawberries, and beans. VARIEGATED CUTWORM was serious in Oklahoma, Kansas, and Nevada. PEA APHID was of some concern on alfalfa in limited areas.

ALFALFA WEEVIL (Hypera postica) adult populations in NEW YORK ranged 5-15 per 50 sweeps in alfalfa fields in Dutchess, Columbia, Rensselaer, and Erie Counties early in May. Adults were light in Ulster County in late May. Populations of 20 adults and 15 larvae per 50 sweeps were noted in Rensselaer County during late May. Extensive damage was observed during mid and late June in Wyoming, Oneida, and Herkimer Counties. Much damage was avoided in the latter two counties by prompt cutting. Large numbers of cocoons of Bathyplectes curculionis (an ichneumon wasp) were reported from Livingston County in late June.

Alfalfa weevil larval populations continued to decline in most regions of PENNSYLVANIA, but a slight increase was noted in the southeast region. This increase was below economic levels in most fields. The major problem areas remained the south-central and southwestern counties. A slight decrease in larval populations was noted in these areas; however, these levels were still above the economic threshold in most cases. Peak populations in the southwest and south-central counties averaged about 40 larvae per sweep. Larvae ranged 10-12 per sweep in west-central and central areas and averaged 20 per sweep in the southeast area. Bathyplectes curculionis, as in past years, was the most often collected parasite and occurred throughout the State. Tetrastichus incertus (a eulophid wasp), once a prominent parasite of alfalfa weevil in Pennsylvania, continued to decline and was not collected in the southern counties in 1973.

Peak alfalfa weevil oviposition had not yet occurred in southwest and northwest OHIO by April 12, when up to 30 eggs per square foot were recorded in alfalfa. Egg hatch was noted April 16-18 in the southwest and south-central areas, and heavy oviposition was still occurring in the central area by April 25. Larvae were first noted in the northeast area April 19 and were present statewide by May 17. Oviposition decreased markedly in central Ohio by May 25. Larval populations and resulting damage to first-cutting alfalfa were generally lighter than in 1972. First cuttings of alfalfa were made before noticeable injury resulted. Serious damage, however,

was reported in Knox, Franklin, and Pickaway Counties and several other central and southern Ohio fields. Alfalfa weevil larvae were first observed in WEST VIRGINIA April 3 in Putnam County. Most damage was very light but economic populations were observed in Wood, Pleasants, Monroe, Jefferson, and Berkeley Counties. Some treatments were applied.

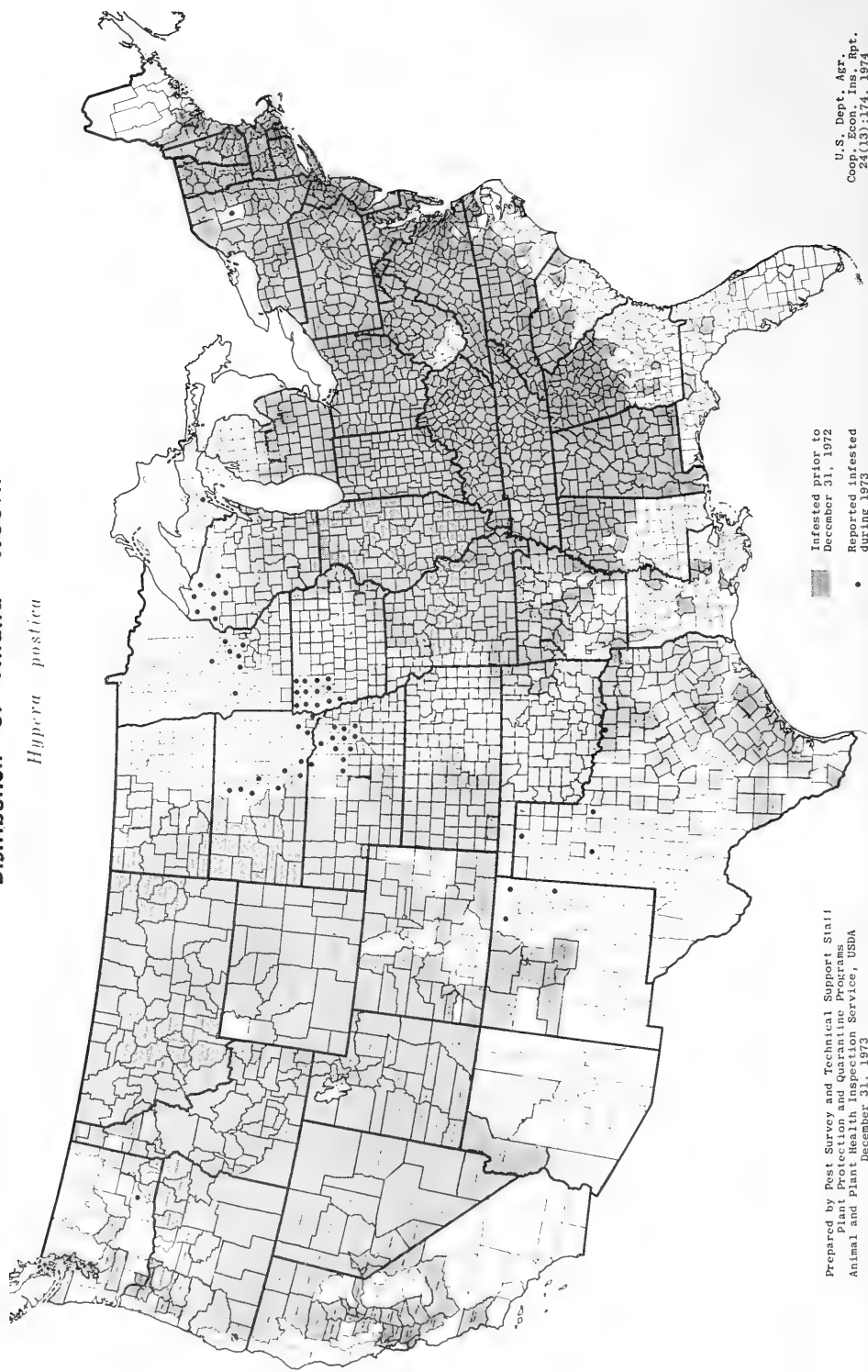
The first alfalfa weevil larval activity (one larva per 50 tips) began the last week of May on alfalfa in MARYLAND. Significant increases began in mid-April with first and second-instars ranging 1-5 per 50 tips in Washington, Frederick, Carroll, and Montgomery Counties. During the same period, adults remained stable at 1-5 per 20 sweeps. Egg hatch peaked about April 30 in central Maryland. Fields outside the previously mentioned counties were lightly infested and only an occasional field required controls (about 2 out of every 20 acres were sprayed). However, economic injury appeared in Washington, Frederick, Carroll, and Montgomery Counties in mid-May with counts in the more heavily infested fields ranging 20-40 larvae per sweep. Central Maryland accounted for 17 out of every 20 acres sprayed for this weevil; 16,000 acres of alfalfa were treated. Pupation in central Maryland began May 18 and peaked about June 1. Infestations in second-growth alfalfa were minor after June 8 and larval counts rarely ranged above 2-10 per sweep.

Damage by Hypera postica in VIRGINIA was heavier than for the past two years. Larvae were reported at Red Oak, Charlotte County, January 29. More than 50 percent of the tips in the single alfalfa field observed showed signs of feeding. The abnormally early hatch in this field was probably due to frequent warm weather during the previous winter. Surveys in two Charlotte County fields averaged 6 and 2 injured tips in two 30-tip samples taken February 9. In Bedford County, fields showed no damage February 5. In the week prior to March 16, 12.6 percent of alfalfa tips were infested and defoliation averaged an estimated 0.2 percent. Infestation in 11 percent of the fields exceeded the treatment threshold. During the week of March 23, tip infestation averaged 22.3 percent. The estimated defoliation averaged 0.92 percent. Weevils were still too small to cause serious damage and farmers were warned to delay spraying until damage increased.

Records on winter egg hatch at Steeles Tavern, Augusta County, indicated that alfalfa weevil adult infestations in that immediate area of Virginia should have been lighter than in 1972. On March 30, surveys disclosed 23.4 percent of the tips sampled were infested and an average defoliation of 1.94 percent. By April 13, 47 percent of the tips less than 6 inches tall were infested, and defoliation averaged 8.3 percent. Larvae were rapidly increasing in size and farmers in the Coastal Plain and Piedmont areas were told to spray. By April 27, sampling indicated 66 percent of the tips less than 6 inches tall were infested, and the average estimated defoliation was 19.1 percent. During the week of May 11, tip infestation was 97 percent and defoliation averaged 22.5 percent. During the week of May 18, tip infestation was 96 percent and defoliation averaged 22.5 percent. Alfalfa that was 7 inches tall or more averaged 28.7 percent defoliation with 60 percent of the fields exceeding a treatment threshold of 20 percent defoliation. By May 5, the average defoliation was 18.7 percent with 33 percent of the fields exceeding a treatment threshold. By June 1, the average estimated defoliation was 41.2 percent.

Distribution of Alfalfa Weevil

Hypera postica



Infested prior to
December 31, 1972

Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
December 31, 1973

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Alfalfa production in most areas of NORTH CAROLINA is limited by alfalfa weevil. Controls are usually applied by April 1. A survey conducted prior to application revealed 3-5 larvae per alfalfa tip in the mountain and western Piedmont areas. Larvae averaged 5 per tip in 3 Rowan County fields the first week of April. About 80 percent of the foliage showed feeding damage in these fields. Infestations were heavy on the rapidly declining alfalfa acreage in ALABAMA. All of the 3,000 acres remaining in the State were treated. Alfalfa weevil also damaged white clover, vetches, and other legumes in Alabama. A survey of alfalfa grown in Bolivar County, MISSISSIPPI, was begun the first week in March. At that time, there were 8,700 weevil larvae per acre. By March 27, the population had increased to 47,000 larvae per acre, and by May 6, there were 197,000+ larvae per acre. On June 1, the population had declined to 1,300 per acre.

Hypera postica egg counts made the first week of March ranged 25-30 per square foot in Knox County, TENNESSEE. Some light larval feeding was also observed at this time. The major egg hatch occurred March 15-30, and 38 percent of tips checked by March 30 were infested with an average of 23 larvae per 50 tips in fields surveyed. Damage was very light at this time. Beginning the first week of April, weekly surveys of alfalfa within the State were conducted, then discontinued the week ending May 25. A total of 90 fields were surveyed during this period with 26 of these fields at or above the control level. Adverse weather conditions made attempts to control populations in some fields unsuccessful. Only some growers were able to obtain control when chemicals were applied.

Alfalfa weevil was a major pest of alfalfa in KENTUCKY. Spring egg counts peaked in April in the southern area where an average of 130 per square foot was noted. First-instar larvae were first observed March 16 in Warren and Barren Counties. By late March, most south-central area fields required treatments; however, inclement weather prevented or diminished treatment activities. Consequently, due to inadequate control, infestations in the south-central area had reached extremely high levels by early April. Larvae in Barren County averaged 3.4 per alfalfa tip with 78 percent of the tips infested. Infestations were slightly heavier in Warren County, where 95 percent of the tips showed some feeding damage. By mid-April, infestations were economic in the western and central areas. Many south-central area fields required another treatment by this time. Ichneumonid wasps had increased above usual levels and averaged 20 per 100 sweeps in alfalfa in the central area during late March. Alfalfa weevil egg counts for the fall of 1973 were much lighter than usual.

In INDIANA, 6 fields in Daviess County illustrate alfalfa weevil larval population development. This pattern roughly applies for southern district populations with allowance for slight retardations eastward and/or northward. By March 16, when alfalfa averaged 3 inches tall, there were 0-0.14 larva per stem. A week later there was an average of one larva per stem; counts were halved the next week, when spring-laid eggs began to hatch. By April 13, there was 0.8 larva per stem, by April 20 when alfalfa was 8 inches tall 1.9 larvae per stem, and in the succeeding three weeks 2.5, 4.4, and 4.6 per stem when alfalfa was in the bud stage. Counts during the week ending May 18 were meaningless as two-thirds of the fields had been treated. Nearly every field

in those counties through which U.S. Highway 50 runs and southward to the Ohio River had economic populations, old fields early, new fields later, which required a first-cutting treatment plus an occasional stubble spray. While early cutting might have sufficed, rains precluded that course, and often interfered with control applications, so that most were made late. From U.S. Highway 50 north to Indianapolis populations ranged from near economic to economic. North of Indianapolis there were no problems except in La Porte County and in the northern two tiers of counties. Populations tended to diminish eastward from La Porte County, and south into the next tier of counties. Populations there began to increase early in May.

Parasitism of alfalfa weevil adults by Microctonus aethiops (a braconid wasp) peaked at Gull Lake, MICHIGAN, at about 40 percent. M. aethiops was released at 49 new sites. Parasitism peaked about June 4 and decreased to 10-20 percent by June 8. Proper timing of the first cutting of alfalfa at Gull Lake again resulted in little damage. Some strips were treated due to prolonged bad weather. Alfalfa weevil populations in WISCONSIN entered the season at a low ebb attributable principally to a high degree of parasitism by Bathyplectes curculionis (an ichneumon wasp) in 1973. Egg hatch was late (beginning May 4) and did not peak until the second week of June at which time alfalfa was either cut or being cut. A damage survey conducted during late May substantiated this delayed hatch and merely reflected the population resulting from the overwintered eggs. Some damage of 25 percent or more and larval counts of 25 per sweep were found in some fields the first week of June in the Wisconsin River area. Parasitism by B. curculionis was again heavy, about 80+ percent for the mid-May period. The alfalfa weevil adult population was never very heavy and reached 5 per 25 sweeps in late October in some fields. Larvae were present throughout the summer and could be taken until the second week of November. The parasites B. curculionis and Tetrastichus incertus (a eulophid wasp) were again released at several sites during 1973. A limited amount of detection survey resulted in 8 new county records for this weevil in Wisconsin. Only Iron, Vilas, Oneida, Forest, and Florence Counties were not surveyed due to time limitation and the fact that only 0.3 percent of the alfalfa acreage in Wisconsin is in these counties.

The first Hypera postica larvae of season in ILLINOIS were taken the week of March 5 in Gallatin and Hardin Counties. Tip feeding on alfalfa averaged 10 percent with four first-instar larvae per 100 stems. No larvae were observed in nearby Pulaski and Johnson Counties. Alfalfa ranged 1-4 inches in height. Development was slow. By the last of March, activity had increased to only 21 percent tip feeding, 17 adults per 100 sweeps, and 25 larvae per 100 sweeps in the southern third of State. Most larvae were first and second instar with some thirds and alfalfa was 6-8 inches tall. Hatching had occurred in all counties and economic populations of 20 larvae per sweep were observed throughout the southern fourth of the State by April 30. H. postica remained subeconomic in the northern half of Illinois due to hard, beating rains and cold weather in May which slowed development. During the second week of May, a significant increase was observed, especially in the west and west-southwest districts. Larvae ranged up to 40 per sweep. Continued warm and dry weather during the rest of May resulted in populations up to 100 per sweep in

Adams County, 4 per sweep in Champaign County, and 0.6 per sweep in Ogle County. About 105,500 acres of alfalfa were treated in Illinois. The first alfalfa weevil larva was detected in MINNESOTA at the Rosemount experiment station April 23. This early find gives rise to the speculation that in all probability eggs can survive a milder winter, such as that of 1972-1973. Hypera postica was observed in Swift, Sherburne, Isanti, and Morrison Counties for new county records. The northernmost find was near Randall, Morrison County. Economic infestations have yet to be found in Minnesota. It is of interest to note that parasites of alfalfa weevil have been found as this pest has spread into the State.

Alfalfa weevil caused significant damage to alfalfa in IOWA for the first time in 1973. Damaged fields were generally confined to southern and extreme southeastern counties. In central Iowa, no larvae were detected during the last week of April. By mid-May, first and second instars ranged up to 2 per sweep in alfalfa in Decatur County and were easily detected in Lee, Lucas, Monroe, Montgomery, Page, Ringgold, and Taylor Counties. By the third week in May, counts were increasing and 50-82 percent of alfalfa tips showed damage in Lee and Van Buren Counties. Most larvae were second to third instars. During the week ending June 1, larvae ranged 4-65 per sweep in Decatur, Lucas, Ringgold, and Van Buren Counties where damage was severe and treatment was underway. In Polk County, however, larvae averaged less than 1 per sweep at this time. Late field work, due to a wet spring, delayed normal cutting of alfalfa. Larvae increased only slightly in the more northern counties where counts ranged 2-8 per sweep by the second week in June. Pupae were readily observed at this time in southeastern counties. About 10,000+ acres of alfalfa in southern Iowa were treated in 1973. Alfalfa weevil was collected for the first time in 13 counties during June. Of these, all have previously been reported except Osceola and Dickinson Counties, which are new county records. Alfalfa weevil infestations in ARKANSAS developed later than in 1972. The first larvae were taken in northwest area alfalfa March 22, compared to March 2, 1972. The earliest treatments occurred in the southeast and southwest areas in late March. The heaviest larval counts in an untreated test field in northwest Arkansas ranged 4,000-5,000 per 100 sweeps May 11. Populations declined thereafter. Control was accomplished chemically in most areas and there was no loss to the alfalfa crop other than control costs.

Alfalfa weevil larvae appeared in the first cutting of NORTH DAKOTA alfalfa June 5. Populations increased to 8,000 per 100 sweeps by July 9 and then decreased to 500 per 100 sweeps in the second cutting July 20 and to 70 per 100 sweeps in the third cutting. The first cutting had 64 percent of the tips damaged. Alfalfa weevil continued to be a problem only in McKenzie and Williams Counties. Damaging larval populations of alfalfa weevil appeared early in Richland County, MONTANA. Controls in other areas of the State were supplied by the early cutting of alfalfa. Adult alfalfa weevil activity was very light during early May in the Powell and Heart Mountain areas of Park County, WYOMING. In mid-June, up to 319 per 5 sweeps were taken on alfalfa at Powell. Populations ranged 34-97 per five sweeps at Torrington, Goshen County, and 8-80 per 5 sweeps at Sheridan, Sheridan County.

Alfalfa weevil infestations developed somewhat later than in 1972 in the northern Black Hills of SOUTH DAKOTA near Spearfish, Lawrence County. By June, adults averaged 421 per 100 sweeps, larvae averaged 28. Larvae averaged 2,100 and adults 329 per 100 sweeps in 3 fields 14 days later. An extensive and intensive survey in the central and eastern areas verified collections for all counties west of the Missouri River. An estimated 110,000 acres of alfalfa were treated in South Dakota, mainly in the northern Black Hills area including parts of Butte, Lawrence, Meade, and Pennington Counties.

Alfalfa weevil was found for the first time in 12 counties of NEBRASKA (see CEIR 23(24):358). Populations generally increased throughout its range, reaching economic levels in portions of Dawson and Lincoln Counties. Larvae were first found May 4 in Otoe County and averaged 4 per 100 sweeps. In Dawson County, larvae averaged 0.5 and adults 3.4 per 100 sweeps May 17. Populations increased rapidly to peak in Dawson County in mid-June. Larvae ranged 2-2,880 (average 592) and adults ranged 0-24 (average 5) per 100 sweeps in the Gothenburg and Cozad area of Dawson County June 12-14. Control measures included early cutting and chemical application. Several Dawson County fields were treated unnecessarily. In Otoe County, populations peaked about May 31 when larvae ranged 14-396 (average 150.3) and adults ranged 0-3 (average 0.4) per 100 sweeps. These are new infestation levels and populations are expected to increase in 1974. Light adult and larval populations were still active in Otoe County October 18 and in Dawson County October 23-24.

Alfalfa weevil was a serious pest in some alfalfa in all crop reporting districts of KANSAS. Damage was concentrated in the southeast, east-central, south-central, and central districts. Acreages treated by district and for the State were as follows: Northeast 8,000 acres; east-central 43,000; southeast 60,650; south-central 57,400; central 42,650; north-central 2,150; southwest 8,300; west-central 100; and northwest 100. This was a total of 222,350 acres treated in the State. The estimated acreage treated amounted to over four times that for 1972. The trend indicates this pest will be of much more economic importance in 1974 when serious infestations are expected to occur with more regularity further north and west than in 1973. First eggs hatched during mid-March in Montgomery, Elk, and Chautauqua Counties and up to 45 percent of the terminals were infested with up to 30 young larvae per square foot in Montgomery County. During the second week of April field surveys showed hatching to have occurred as far north as Saline County and as far west as Barton County.

Alfalfa weevil larvae began to pupate in southeast Kansas in late April with eggs just hatching as far north and west as Ottawa County. By early May, treating had begun in the southeast district with damage often being readily apparent in the southernmost counties of this district and the south-central district. In this area, serious damage was most frequently encountered in fields making slow growth, sometimes related not only to the feeding of heavy larval populations but also to waterlogged, poorly drained soil. By May 11, significant damage to alfalfa was evident in the southernmost counties of the east-central district and throughout the southeast. By May 18, damaging infestations

were found in scattered fields along the Kansas River Valley and as far north and west as Ottawa and Lincoln Counties. Adults had begun emerging in southern counties of the southeast and south-central districts. During late May, larval populations had begun to decrease to a point where some regrowth was occurring in cut fields in the southeast. Populations remained heavy and damaging in many uncut fields and regrowth was reported being delayed by heavy larval populations in many other areas in the eastern two-thirds of Kansas where much stubble treatment was made especially during the first week of June. By June 15, Hypera postica larval populations had decreased greatly over most affected areas except the northernmost and some concern was expressed that heavy adult populations were delaying regrowth in some alfalfa in Reno County. In late June, larvae and adults were found in only trace numbers in alfalfa throughout the State. From mid to late September, adults were moving back into fields for fall oviposition in the eastern area. During mid to late November, some eggs hatched and larvae up through third instar were found in light numbers in Riley and Wabaunsee Counties.

Alfalfa weevil eggs began hatching in south-central OKLAHOMA in mid-February and in the north-central counties in late February. Heavy larval populations were present in southern counties by mid-March, the northeast and north-central counties by mid-April, and the northwest counties by early May. Only the Panhandle counties escaped serious damage. By the first week of May, most alfalfa had been cut in the southern half of the State and larvae were destroying regrowth in many areas. Newly emerged adults were heavy in the southwest area by the second week of May. All stages were declining in the southern half of the State by mid-May and in the northern half by the first week of June, but activity continued into mid-June in some areas. Adults began reentering alfalfa fields in early October. By the end of November egg counts ranged 77-124 per square foot and light numbers of larvae were appearing at the rate of 1-2 per square foot. Heavy larval populations of alfalfa weevil were noted in most central TEXAS counties in early January. Counts ranged up to 200 larvae per square foot with eggs up to 116 per square foot. Alfalfa weevil was found for the first time in Austin, Wood, Fisher, Brown, Dickens, Cottle, Hale, Kent, Hansford, and Potter Counties, Texas, during 1973.

Alfalfa weevil larvae built up early in NEW MEXICO and caused much damage to first cuttings of alfalfa in southern Bernalillo, Santa Fe, Valencia, and Rio Arriba Counties. A heavy buildup was noted in San Juan County on later cuttings during early July. This pest was collected in Colfax, Union, and Quay Counties for the first time this year. Injury was lighter to alfalfa in UTAH than in 1972. Loss was estimated at \$3,000,000. Oviposition by alfalfa weevil in NEVADA began in early April, but populations were light and spotted with most of the eggs being laid in early May when the first larvae were also observed. Treatment of alfalfa began in mid-May and was accelerated in late May when favorable weather caused rapid larval development and peak larval populations of 150+ per sweep. Chemical treatments were mostly ended by early June in most of central and northern Nevada.

Alfalfa weevil overwintering adults began migrating into Linn and Benton County, OREGON, alfalfa during mid-March and early April. Adult populations in these counties ranged 4-20 times more than 1972; larvae did not reach the 1972 level. Adult populations in the fall were also lighter than normal. Heavy populations developed again in the central and southern alfalfa-growing areas. Parasite releases were restricted to two Willamette Valley counties. In Benton County 134 Microctonus aethiops (a braconid wasp) were released; in Linn County 454 Tetrastichus incertus (a eulophid wasp) and 316 M. aethiops. No recoveries were made. Alfalfa weevil was moderate in alfalfa seed fields near Touchet, Walla Walla County, WASHINGTON. This weevil was only a moderate pest in the Ellensburg area of Kittitas County as alfalfa growers have learned to adjust cutting dates to prevent maximum injury. Infestations occurred in northern Franklin County for the first time in very small numbers. Very low numbers were again found in two fields near Othello, Adams County.

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) emerged late in the season in northern CALIFORNIA counties where it infested ripening cherries, apricots, strawberries, and green beans. This is the first time this weevil has been known to infest crops other than alfalfa. There is a possibility that this late emergence was due to a previously cold winter or that this was a second generation as the July infestations were all newly emerged weevils. An ALFALFA WEEVIL COMPLEX (Hypera spp.) caused notable damage throughout alfalfa plantings in several areas of California. Heavy populations developed during the season with an emergence late in the summer. This would indicate that possibly there was a second generation. This was the heaviest population experienced.

Heavy populations of VARIEGATED CUTWORM (Peridroma saucia) damaged alfalfa in several west-central, central, and south-central counties of OKLAHOMA during late May and early June. Heavy infestations caused serious delays in regrowth of alfalfa in KANSAS following the first cutting, particularly in counties of the central and south-central districts, and substantial, but less widespread, economic damage in east-central, southeast and southwest districts. Damaging infestations were first found in alfalfa stubble in Harper and Sumner Counties during mid-May. Reports of damaging infestations had decreased by the end of the first week of June but treating was probably continued, at least in the more northern counties affected until mid-June. In some cases, delayed alfalfa regrowth which had been primarily due to P. saucia feeding, had been assumed to have been due to feeding by Hypera postica (alfalfa weevil). An estimated 60,925 acres of alfalfa were treated.

Variiegated cutworm was reported from most counties in NEVADA, and severely damaged alfalfa in Clark, Douglas, Esmeralda, Lincoln, Lyon, and Nye Counties in 1973. Infestations of all larval instars ranged up to 10 per crown on thousands of acres. Plant regrowth in many established fields was completely stopped and all green tissue stripped from the stubble. Several seedling fields were completely destroyed. Damaging infestations were present in the south in May, in the central areas in June and early July, and in the north in July. Treatments were ineffective in some instances and may have been due to improper dosage or weather. In the alfalfa seed areas of Humboldt and Pershing Counties treatments for other pests gave adequate control.

ALFALFA LOOPER (Autographa californica) was heavy on many crops in WASHINGTON, particularly in alfalfa seed fields in central and eastern areas during the early growing season. An atypical strain of this insect was not controlled by usual effective virus disease in alfalfa seed fields. Pheromone traps indicated high levels of adults throughout the season in many areas. Along with this species, Trichoplusia ni (cabbage looper) was heavy throughout the State. T. ni was particularly heavy in many field and vegetable crops and for the first time in many years caused damage in alfalfa and seed alfalfa fields, in many cases requiring treatment. Pheromone traps in eastern and western areas collected heavy populations of adults of both of these loopers throughout the growing season.

Heavy infestations of 15 alfalfa looper larvae per sweep were observed on alfalfa in Gallatin and Madison Counties, MONTANA. This noctuid was noted on emerging corn and in vegetable gardens in Musselshell, Gallatin, and Silver Bow Counties. Alfalfa looper and Cynthia cardui (painted lady) caused a loss in excess of one million dollars of forage crops in UTAH. Alfalfa looper damaged alfalfa in the southern desert area of CALIFORNIA.

BEET ARMYWORM (Spodoptera exigua) was present in alfalfa throughout the growing season and caused much damage in CALIFORNIA. This species, along with Peridroma saucia (variegated cutworm), damaged and held back regrowth of alfalfa with plants entirely defoliated in Clark and southern Nye Counties, NEVADA, in mid to late May. Infestations became economic in Crittenden and St. Francis Counties in late September on seedling alfalfa in ARKANSAS. Infestations were not economic in established stands.

Damage by FALL ARMYWORM (Spodoptera frugiperda) was spotty throughout most of KANSAS and of minor importance; however more damage than usual was noted in alfalfa in the fall. An estimated 4,030 acres of alfalfa were treated of about 16,000 acres that probably needed treatment. Fall armyworm was moderate to heavy in alfalfa in many counties in the eastern half of OKLAHOMA in August and September.

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) appeared earlier than usual in NEVADA. Larvae infested alfalfa in several western and northwestern counties but required controls only in Churchill, Humboldt, and Pershing Counties where about 1,800 acres were treated. Counts ranged 30-40 per sweep in the heaviest infestations. This noctuid was severe in many alfalfa fields in CALIFORNIA and caused much damage. However, lush growth prevented extensive damage and little treatment was necessary.

PEA APHID (Acyrtosiphon pisum) egg hatch began in WISCONSIN March 20 but it was not until late June that populations showed an appreciable increase on alfalfa. Migrants moved rapidly to peas and by the first two weeks of July, substantially heavy populations were present in peas in some areas. The population decreased noticeably in late July, increased in early August and then stabilized for the remainder of the year. The late fall afforded ample time for transformation to sexuals and a high incidence of egg laying occurred. Pea aphid increased in alfalfa

in central KENTUCKY during late March. However, populations did not seem as damaging as in previous years. Populations in alfalfa were lighter than normal in ARKANSAS. This may have been due to disease and excessive rains. Numbers per 100 sweeps ran 100+ in January, increased to 200-250 in early March, 800-1,000 in mid-March, and 2,000 in early April but declined in mid-April when numbers are normally at their peak. Pea aphid populations were much lower than normal in May. No treatments were required and no loss occurred. Pea aphid increased by mid-March and moderate to heavy infestations were present in alfalfa in scattered fields in many areas of OKLAHOMA from mid-April to mid-May. Populations were generally light the remainder of the year.

Pea aphid populations ranged 2,500-3,000 per 10 sweeps in Union County, NEW MEXICO, during late August, causing much yellowing. Heavy infestations were reported in Quay and Chaves Counties during mid-May. Elsewhere populations of this aphid were generally very light due to predator activity. Populations were variable on alfalfa in UTAH, ranging from very light to severe. Pea aphid caused an estimated \$100,000 loss to alfalfa in Utah. Infestations on alfalfa seed in NEVADA required the usual treatments beginning in late June and continuing into August in Churchill, Humboldt, Lander, and Pershing Counties. Predators and parasites were effective in maintaining low population levels on hay except in Lyon County where small acreages were treated.

Pea aphid infested Ladino seed clover and was severe in alfalfa plantings in CALIFORNIA. Late in the season, infestations appeared in almost all alfalfa areas. Outbreaks of pea aphid and Macrosiphum creeli (an aphid) in alfalfa seed fields were the heaviest in at last five years in WASHINGTON. Pink insecticide tolerant strains comprised 25-75 percent of population in some areas. Pea aphid infested large acreages of alfalfa during 1973 in MONTANA as in 1972. Some pea aphid populations of 1,500 per 100 sweeps in third-cutting alfalfa were noted in McKenzie County, NORTH DAKOTA, but generally this aphid was noneconomic throughout the State.

Early instar nymphs of MEADOW SPITTLEBUG (Philaenus spumarius) were collected in trace numbers in Harrison County, INDIANA, by March 16. By May 18, although it was difficult to count in the wet tangle that alfalfa was by that time, perhaps 25 percent of the stems had nymphs in this county. Populations decreased both westward and northward. Heavy populations developed in alfalfa and clover in south-central KENTUCKY in May. Adults averaged 300 per 100 sweeps. By early June, the northern area was also under stress. Populations ranged up to 400 adults per 100 sweeps at some locations. Meadow spittlebug caused very little damage to alfalfa in VIRGINIA. On May 30, adults had emerged and were light in Pittsylvania, Franklin, Bedford, Campbell, and Roanoke Counties. Populations varied light to moderate throughout MARYLAND in alfalfa and red clover. Few if any growers applied controls specifically for this pest. Spittle masses ranged 1-3 per square yard during May and increased rapidly to 10-30 per square yard in the heaviest infested fields by early June. Central area growers applied controls to 2,100 acres.

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) infested 10-20 percent of the leaves when alfalfa was cut on schedule in MAINE. This was less than in 1972. Delayed cutting increases infestation. Infestations continued to be widespread in all counties of NEW HAMPSHIRE. Although the leaves are mined extensively controls are not required. It is quite possible that this insect may be controlled by cultural practices. Alfalfa leaf blotch-miner populations were heavy and damaging on first and third cuttings of alfalfa in VERMONT. A. frontella is now distributed throughout the State. About 40 percent of the leaflets were mined in a Champlain Valley field in Chittenden County.

The first alfalfa leaf blotch-miner flies of the season in NEW YORK were observed in alfalfa May 7 in Dutchess and Columbia Counties. In early May, sampling in Rensselaer County yielded 200 adults per 100 sweeps. By late May, populations had increased in Dutchess and Columbia Counties and flies were noticeable in many fields in Rensselaer County. Damage ranged 20-40 percent of the leaf area of alfalfa stands during late June in Hamilton and Herkimer Counties. Infestations were reported from St. Lawrence County in late June and from Clinton, Franklin, and Essex Counties in second-cut alfalfa during late July. Alfalfa leaf blotch-miner adults and eggs were found on alfalfa in Northampton County, PENNSYLVANIA, April 25. Two fields were sampled and 471 adults were collected in a 100-sweep sample in one field and 4 adults in a similar sample in the other field. Pinholes were found in a few leaflets as well as a small number of eggs. Three fields were sampled in the same area May 10, but no mines were detected in leaflets in one field and less than 1 percent of the leaflets had mines in the other two fields. Adults averaged 185 per 100 sweeps of 16-inch tall alfalfa in Hummelstown, Dauphin County, June 20.

The areas of economic GRASSHOPPER populations in MINNESOTA show little variation from those of the past several years. However, there was a slight increase in populations in 1973 over 1972. An estimated 108,000 acres of forage crops had economic populations. This was an increase of 16,000 acres over the 1972 infested acreage. Melanoplus femurrubrum was the dominant species throughout the State with one exception. In a small localized area in Kittson and Marshall Counties M. bivittatus predominated. M. differentialis and M. sanguinipes were also present in many fields but seldom exceed M. femurrubrum in numbers. Grasshopper infestations in 1974 will again be generally scattered and localized in Minnesota. Field margins and roadsides will continue to be primary sources of infestation for forage and croplands. Weather conditions at the time of hatch and development will greatly influence the size of infestations in many areas. A grasshopper survey during September in ILLINOIS showed light populations in the counties observed. Occasional fields averaged up to 20 grasshoppers per square yard in the northeast area. About 33,300 acres of clover and alfalfa were treated, but no problem is anticipated for 1974.

SOYBEANS

Highlights:

VELVETBEAN CATERPILLAR larvae increased significantly on soybeans over 1972 levels in North Carolina and were heavy throughout northern Florida. GREEN CLOVERWORM was economic on soybeans in several areas. It was an unprecedented pest in Ohio being the heaviest in 13 years, and was the heaviest on record in Illinois. Green cloverworm infestations on soybeans in Iowa were the heaviest since 1968. MEXICAN BEAN BEETLE was a major pest of soybeans in eastern Maryland.

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) populations on soybeans increased significantly over 1972 in NORTH CAROLINA. Light counts were general over the Coastal Plain by August 24. By September 14, a population buildup was evident throughout the area. During the week October 12, larvae were present in all of 75 fields surveyed in Duplin, Wayne, Sampson, and Johnston Counties. Counts averaged 31 per 5 row feet in 25 of these fields. Population levels in many mature fields reached 50+ larvae per 5-foot sample in the south and central Coastal Plain by October 15. However, most soybeans had matured to the point that extensive defoliation did not reduce yield. This defoliator has reached detectable levels in North Carolina soybeans during September for the past 3 years. Larvae were detected throughout the Coastal Plain during the first week of August, which is the earliest general infestation observed in the State. There is a definite possibility that this pest is adapting to the winter climate in North Carolina.

Velvetbean caterpillar was heavy on soybeans throughout northern FLORIDA. An average of 2 control applications per field was required. One large planting of about 30,000 acres had heavier populations than surrounding plantings and an average of 3 applications per field were made. Populations reached damaging levels about August 15 and continued until September 15, conforming to the pattern of previous years. Larvae surpassed 25 per row foot in many fields, compared with counts of 10-15 per row foot in previous years. This pest occurred in numerous soybean fields in coastal and central ALABAMA counties, being heaviest in the southwest area. It occurred further north into Dallas and Montgomery Counties and as far north as De Kalb County. The earlier presence of this pest this season indicated again that it may have overwintered along the coastal areas of Alabama. Velvetbean caterpillar larval populations in MISSISSIPPI were generally less than one per row foot most of the year, although local populations of 5-6 per row foot developed during mid-October in Issaquena County. These larvae completely defoliated the plants but the beans were mature enough that yields did not appear to be affected.

BLACK CUTWORM (*Agrotis ipsilon*) larvae were a serious problem in local areas of MISSISSIPPI during July, following heavy spring floods in Adams, Issaquena, Sharkey, and other Delta counties. Larvae destroyed soybean stands ranging in size from 5 to 200 acres. Moderate to heavy populations damaged young soybeans in Wagoner and Muskogee Counties, OKLAHOMA, in mid-July.

GREEN CLOVERWORM (*Plathypena scabra*) larvae ranged up to 20 per 3 row feet and caused moderate to heavy damage to soybean foliage in Essex, King and Queen, King William, Richmond, Westmoreland, Lancaster, Caroline, and Middlesex Counties, VIRGINIA, by August 7. The average damage was seldom greater than 25 percent total foliage loss which was approaching treatment recommendations. However, 50 percent defoliation had been reported in some fields. On August 13, populations were light on soybeans in the city of Virginia Beach and in New Kent, Nansemond, Southampton, and James City Counties. By August 17, larvae were still severe in Westmoreland, Richmond, and nearby counties. Over 6,000 acres in Westmoreland County were treated. Larvae were very light in the City of Virginia Beach and caused practically no damage. During the week of August 24, a very high percentage (75 or more) of larvae were killed by fungus disease following a week or more of wet weather in Nansemond County. Up to 12 infected larvae per 10 row feet had been found. On September 7, larvae were not present in sufficient numbers to cause economic damage in any of the fields surveyed in Westmoreland, Lancaster, Northumberland, Richmond, Dinwiddie, Sussex, and Southampton Counties, or the Independent Cities of Nansemond, Chesapeake, and Virginia Beach. Natural control factors and heavy treatment had greatly reduced population levels.

Green cloverworm damage to soybeans in Caroline, Wicomico, and Worcester Counties, MARYLAND, varied light to moderate (10-30 percent defoliation). This pest caused much damage between July 25 and August 20, with 14,000 acres sprayed due to 40-60 percent defoliation, in Cecil, Kent, Talbot, Dorchester, and Somerset Counties. Pupation peaked about August 13 and moth flights followed shortly. Second-generation egg laying was heavy during late August; however, this generation was rapidly suppressed (90 percent reduction) by natural parasites and a fungal disease. *P. scabra* remained well below economic levels until soybeans matured. Overwintering populations were well below normal due to heavy parasite and disease mortality in August and September. Green cloverworm did not reach economic levels in the central and southern Maryland soybean-production areas.

Green cloverworm infested 6,000 acres of soybeans in Lebanon County, PENNSYLVANIA. In South Annville Township, one infestation averaged 20 larvae per plant August 6. Damage was estimated at 10 percent. Green cloverworm was an unprecedented insect problem in OHIO soybeans during the 1973 season. In the southern area, infestation was the heaviest observed in 13 years. Notable damage had occurred in the southwest area and some northern counties by August 16, with up to 70 percent defoliation observed in Crawford County. Statewide inquiries concerning lepidopterous larval complexes (of which green cloverworm was the principle agent) were common by August 22. This prompted much unneeded emergency spraying of maturing soybeans. Larval infestations subsided by the first week of August. Parasitism by tachina flies, ichneumon wasps, and braconid wasps, along with fungal disease, were the prominent biotic mortality agents at that time.

Economic green cloverworm larval populations were observed in Warrick County, INDIANA, where larvae ranged 4-15 per linear foot in blossoming to full-bloom soybeans by July 20, and probably occurred, but infrequently, in other parts of the State. Heavy

populations did, however, induce some unnecessary treatment of soybeans. Levels peaked in the southern districts at the end of July, and in August in the rest of the State. Disease had removed them all in the southern districts by August 24, and by August 31 in the central districts. Green cloverworm was common to severely damaging to soybeans throughout MICHIGAN in August. Treatments, including some made too late or in fields where they were not justified, were widespread and generally satisfactory.

Populations of green cloverworm were extremely heavy in many soybean fields in the northern two-thirds of ILLINOIS during late July and the first half of August. This outbreak is one of the heaviest on record. Some fields averaged 25 larvae per row foot, with counts of 6-15 per row foot common in most fields surveyed. Overall damage to soybeans was light and in most instances non-economic. A fungus disease and a parasitic fly decimated entire populations during early to mid-August. Hot, humid weather favored the spread of fungus disease. About 736,000 acres were treated.

Green cloverworm larvae reached economic levels on soybeans across large areas of IOWA in 1973, the first time since 1968. During the second week of July, second to fourth-stage larvae were first observed feeding on leaves. About July 27, third to fifth-stage larvae had reached economic levels of 15-17 per row foot in Scott and Polk Counties. Although infestations fluctuated between fields, counts ranged up to 50 per row foot in Mills and Pottawattamie Counties. All larval stages were general during the first week of August when treatments were applied. Infestations in central Iowa began to decline during the first week of August. Fields in Clinton, Mills, and Pottawattamie Counties required treatments during the third week of August as larvae increased in the southern half of the State. About August 24, larval counts were declining in the southern third of the State. Dead and diseased larvae were found in soybean fields during the week ending August 31 in Story County, and controls were generally not recommended as economic thresholds had not been reached. Between 100,000 to 200,000 acres of soybeans were treated in Iowa in 1973.

Green cloverworm populations in WISCONSIN were heavier than normal and several thousand acres of soybeans were treated in the southeast area. Most treatments were applied in mid-August and by the first week of September populations collapsed. First larvae were noted during the first week of July. A heavier than normal catch of adults in blacklight traps was noted about July 20 predicting a problem. By mid-August, larvae ranged 3-6 per linear foot in Rock, Dane, Jefferson, Walworth, Kenosha, and Racine Counties. Observations in the Chippewa River area and elsewhere revealed the bulk of the problem to be centered in southeast Wisconsin.

Green cloverworm caused much "ragging" of soybean leaves throughout ALABAMA, in combination with other leaf feeders, but the extent of damage was questionable. Populations and leaf feeding were heaviest in the northern area.

BEE T ARMYWORM (Spodoptera exigua) larvae were much more prevalent and widespread in SOUTH CAROLINA than normal. Severe defoliation of soybeans was observed during August in Lee County. Larval infestations were present in practically all soybean fields in the lower part of the State by mid-August, many fields were economically infested. In early September, economic levels continued to be present in the lower part of the State. Most growers treated with fair to good results. By mid-September, scattered infestations were also present in mid-State and parts of the Piedmont. Indications are that this pest should be watched closely in the future. Beet armyworm caused about 1,500 acres of soybeans to be treated one or more times in the Weeksville area of Pasquotank County, NORTH CAROLINA. Spot defoliation in some fields was near or above the damage threshold level of 40 percent for 6 weeks prior to bloom. Populations of 75 small larvae per 5 row feet were observed in the area. This is the most severe beet armyworm damage known to have occurred in North Carolina. Light, sporadic populations were observed in soybeans and other crops throughout the Coastal Plain.

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) larval infestations were damaging foliage in Quitman, Coahoma, Bolivar, Issaquena, and Amite Counties, MISSISSIPPI, during the week ending July 13. Populations were typical in all fields surveyed at 2-4 larvae per 3 row feet. Some treatments were applied where beans were less than 4 inches tall. Infestations of S. ornithogalli either alone or in combination with Trichoplusia ni (cabbage looper), Heliothis zea (corn earworm), and undetermined species of saltmarsh caterpillars were heavier than normal in soybeans planted at the normal date in ARKANSAS. Some fields needed treating while others were treated at somewhat below economic levels.

FALL ARMYWORM (Spodoptera frugiperda) and Loxostege rantis (garden webworm) were heavier than normal and economic in scattered fields of extremely late-planted soybeans in all areas of ARKANSAS. Grassy fields attracted heavier populations of S. frugiperda than did clean fields.

SOYBEAN LOOPER (Pseudoplusia includens) was generally light on soybeans in western FLORIDA, seldom reaching economic levels. Of 40,000 acres surveyed in Walton County September 11, only 2,000 acres were significantly infested. This pest reached moderate levels in north-central Florida and was heavy at several locations in the central area primarily in Lake County but also in Pasco County.

PAINTED LADY (Cynthia cardui) larval feeding on soybeans in WISCONSIN was most noticeable in Pierce, Trempealeau, Eau Claire, and Adams Counties and occurred primarily in early July. An overlap between the first and second generations was evidenced by mid-August but nowhere could significant populations be found to justify control. Painted lady larvae were troublesome on soybeans in IOWA in 1973. Early leaf feeding was first reported during the second week of June in Jasper, Lyon, Pocahontas, Polk, Pottawattamie, and Wright Counties. Damage of 10-20 percent leaf loss was generally widespread across fields, but not necessarily localized near thistles or other weeds. About June 22, increased larval infestations were reported across Iowa but there were only

a few fields where severe defoliation required treatment. Light, noneconomic infestations, apparently second-generation larvae, were evident through the week ending July 13. Fewer than 25,000 acres of soybeans were treated for control of C. cardui in Iowa in 1973.

Very heavy flights of painted lady adults began the third week of May in SOUTH DAKOTA. These flights were followed in mid-June by heavy infestations of 4-5 larvae per thistle plant in all areas of the State from Day County to Fall River County. Soybeans were also infested with fields being treated in Codington, Deuel, Brookings, and Moody Counties. Heavy flights were again observed the last week of June. Second-generation larvae were much lighter and no damage to soybeans was known to have occurred after the first part of July. Unusually heavy C. cardui larval populations were present in NEBRASKA and there was some feeding on soybeans. Light damage was reported the last of June in Buffalo, Burt, Saunders, and Washington Counties. Larvae caused serious defoliation in one field of soybeans in Edwards County, KANSAS, in mid-August. Light larval populations were common in soybeans in Riley, Washington, and Republic Counties during the same period.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) larvae caused more damage than usual to soybeans throughout SOUTH CAROLINA. Economic damage occurred in several areas.

MEXICAN BEAN BEETLE (Epilachna varivestis) was the major pest of soybeans in Caroline, Dorchester, Wicomico, Somerset, Worcester, Prince Georges, and Charles Counties, MARYLAND. Overwintered adults were active in June and ranged 6-10 per 20 row feet in the heaviest infested fields. These early infestations (1,000+ acres) required protective controls in June. In late June, adult counts declined in Dorchester, Wicomico, and Worcester Counties due to dispersal. In late June and early July, larvae remained non-economic (0-15 per 20 row feet) with an occasional moderate infestation above 20 per 20 row feet. First-generation adults were active during mid-July in the southern area and on the Eastern Shore. Larvae increased rapidly during August on the lower Eastern Shore to 30-65 per 20 row feet in several areas. Defoliation varied but moderate injury of 30-50 percent was evident in all lower Eastern Shore counties by late August. In September, defoliation in unsprayed fields ranged 30-90 percent. Generally, these late-season populations were below the levels of the past 2 years, but this was due largely to the increased use of timely chemical controls. Overwintering populations in September were moderate to heavy in Dorchester, Caroline, Wicomico and Somerset Counties, Maryland.

Mexican bean beetle adults and early instar larvae were present in soybeans as early as June 10 in VIRGINIA. Populations averaged less than 2 per row foot in King and Queen, King William, Essex, Richmond, Westmoreland, and Hanover Counties. Based upon reports, adults were present in some Lancaster County seedling fields June 12 and some growers were treating. That same week, 2-3 adults per row foot were present on 2,000 acres in King George County. By August 3, adult and larval populations continued to cause spotty damage in the Tidewater area. Forty acres of soybeans in King and Queen County had been reported to be nearing the level recommended for treatment by July 25. Many fields were treated in

Lancaster County July 31, and in Richmond County July 30. Populations remained light in Virginia Beach during mid-August. By late August, large acreages had been treated in the Northern Neck area of Virginia, even though surveys showed only 15 of 319 acres exceeded the threshold with an average of 21.1 beetles per 30 row feet. Large acreages were still being sprayed in the Northern Neck area September 7. A sample taken in southeastern Virginia showed an average of 4.8 beetles per 30 row feet in untreated fields; 160 of the 232 acres (69 percent) were treated. Defoliation averaged 4.3 percent. In the city of Virginia Beach, a 32-field project (865 acres) averaged 12.7 beetles per 30 row feet in 21 untreated fields, 296 of these acres (35 percent) were treated with an average defoliation of 8.1 percent for all fields.

By September 14, Epilachna varivestis populations had continued to increase in many areas of Virginia with 20-40 percent defoliation common on nearly all mature soybeans. A sample of 14 fields taken from southeastern Virginia (269 acres) showed an average of 66.8 beetles per 30 row feet in all fields, and 40 of these acres (15 percent) needed treatment. Defoliation averaged 11.4 percent. That same week in the city of Virginia Beach, a 32-field project (865 acres) averaged 0.6 beetle per 30 row feet in 27 untreated fields, with 114 acres (13 percent) treated. Defoliation averaged 14 percent for all fields. By September 21, populations were decreasing in many areas of Virginia although defoliation was common on most mature plants. Populations were still decreasing the week of September 28. Severe infestations resulted in complete defoliation in some fields. In Greensville County, 40 percent of the fields had severe infestations, while Southampton County had 20 percent of the fields heavily infested. In Nansemond County, 10-15 percent of the fields were badly damaged. Defoliation came too early, before the normal maturity period. This pest was definitely economic in these counties of Virginia.

Mexican bean beetle surveys were conducted during the periods June 25-29 and September 12 to October 5 to determine the severity of defoliation in the Coastal Plain of NORTH CAROLINA. This area produces 80 percent of the soybean crop in the State. The June survey of 3,408 fields revealed no fields defoliated sufficiently to be detected from an automobile passing at 30-45 miles per hour. Observations during the September and October survey revealed generally very light defoliation. Defoliation was heaviest in Harnett, Cumberland, Sampson, Hoke, Scotland, and Robeson Counties. Defoliation of 20+ percent was found in 1.2 percent of all fields surveyed in the 37 Coastal Plain counties of North Carolina.

The first Mexican bean beetle adult of the season in INDIANA was swept from alfalfa April 27. Populations, generally noneconomic, were observed in occasional soybean fields the first week of June in the west-central and central districts as well as in the southern districts. Few if any developed into problems. Although there was some treating in Greene, Lawrence, Clay, and Owen Counties, much of it was probably premature. Although second-generation adults were observed by July 27 in the southern districts, and oviposition by August 3, populations that normally develop in August were postponed until September. At that time, sometimes as a result of movement from mature to late-planted fields, occasional fields accumulated heavy populations. One such

field in Lawrence County, which received adults from three older fields, had an average count of 23 adults per 4 row feet plus numerous other pests. Few fields were economically infested, and as the last fields matured the beetles moved to alfalfa, where they were sometimes common. A small population was observed in soybeans in Clinton County, the farthest north this insect has been observed in numbers on this crop in Indiana.

Light larval girdling by a CERAMBYCID BEETLE (Dectes texanus texanus) began during late September on early maturing soybeans in Hyde County, NORTH CAROLINA. Infestations were more widespread in Washington, Hyde, and Tyrrell Counties this year than usual. Damage in the form of lodged plants was light due to an excellent harvesting season. About 90 percent of the soybeans in the area were harvested by November 30. Damage to soybeans from this pest was observed in Pitt County during 1973 for a new county record.

BEAN LEAF BEETLE (Cerotoma trifurcata) larval damage in KENTUCKY was first observed in Christian County on soybeans 3-6 inches tall in mid-July. Larvae were feeding on roots and stems. Adult defoliation of soybeans was most severe in Christian, Warren, and Ohio Counties. More damage was caused by this pest in 1973 than the previous two years.

GRASSHOPPERS (Melanoplus differentialis and M. femurrubrum) cause noticeable damage to soybeans in Green and Rock Counties, WISCONSIN, and no doubt confused the cloverworm picture in many instances. These species also caused concern to tobacco growers in some areas of the State.

SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults became pests to soybeans after pod development in the coastal counties of ALABAMA, although occurrence was statewide. Damage was lighter than for several years.

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) is seldom economic in ARKANSAS. Special attention, however, was given to large numbers that occurred in maturing soybeans in late September. Specimens appeared to be feeding on pods. Possible damage is being further investigated. Heavy populations were reported girdling soybean stalks in Hughes County, OKLAHOMA, in late August.

PEANUTS

SOUTHERN CORN ROOTWORM (Diabrotica undecimpuncta howardi) populations in VIRGINIA were heavier in peanuts than the average population for the past 12 years, but were not as heavy as in 1972 in Nansemond, Isle of Wight, Sussex, Southampton, and Prince George Counties. Damage ranged up to 50 percent in some untreated fields but as usual the infestations were spotty. Under severe pressure some insecticidal treatments did not perform as well as expected. Southern corn rootworm larval damage to peanuts during 1973 in NORTH CAROLINA was very light compared to the extensive loss in 1972. The estimated acreage with rootworm damage in Martin, Gates, Hertford, Bertie, Halifax, and Edgecombe Counties decreased from 18,000 acres in 1972 to 5,000 in 1973. Estimates reveal that about 37,000 acres were treated for corn rootworm control in 1972 compared to 46,000 acres treated in 1973. The increased acreage treatment in 1973 was due to heavy 1972 losses.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations in peanuts were reported from mid-July to mid-September in OKLAHOMA. Infestations were variable, averaging less than 10 percent of the plants in some counties and up to 68 percent of the plants in Marshall County. Lesser cornstalk borer reoccurred during the season as a major pest of peanuts throughout the 9-county commercial growing area of ALABAMA. Control was difficult. First reports on July 7 indicated scattered larval feeding throughout the 9 commercial producing counties.

REDNECKED PEANUTWORM (Stegasta bosqueella) infestations in peanuts occurred from mid-July to mid-September in OKLAHOMA. Terminal counts ranged up to 35 percent infested in July and August and 50-80 percent in most areas in September.

GRANULATE CUTWORM (Feltia subterranea) became a pest of peanuts in many fields in southeast ALABAMA where 200,000 acres were grown in 1973. About 25 percent of the peanut acreage received treatment. Control of this and other leaf feeders was difficult. First granulate cutworm larvae of the season ranged 3-5 per row foot July 29 in Crenshaw County.

TOBACCO THRIPS (Frankliniella fusca) and other thrips were serious early in the season on 55 percent of the 200,000 acres of peanuts grown in ALABAMA where no replant systemic insecticides were used.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) damage to peanuts in NORTH CAROLINA was severe again in Northampton and Halifax Counties. Damage increased about 2-fold in Martin and Edgecombe Counties. Summer rains held the pest in check until late August and September in most localities. About 37,000 acres were treated in this area. About 88,500 acres of peanuts are grown in these counties annually.

Weather of the week continued from page 162.

At least 200 mobile homes were destroyed, numerous downed trees and power lines were reported in the Gulf States, Kentucky, Tennessee, and South Carolina. Thursday afternoon a Low pressure center moved into Pennsylvania, producing heavy rains in sections of the Mid-Atlantic States and snow in the Northeast. Winter fought vigorously to maintain its grip on the Nation as heavy precipitation fell over southern New England. The storm drenched Boston, Massachusetts, with 1.50 inches and Providence, Rhode Island got 1.25 inches of rain, and dumped 15 inches of snow on Limestone, Maine, before drifting into the Canadian Maritime. Early Saturday morning, an arctic front moved through the Plains into northern Texas leaving 1 to 4 inches of snow on the ground. Later in the day, scattered showers and thunderstorms were reported in the central Gulf States north of a warm front cutting across southern Florida. Jacksonville, Florida, measured over an inch of rain in only 6 hours. Throughout the day, a winter storm dumped 5 to 7 inches of snow over portions of Missouri and southern Illinois with heavy snows pushing northeastward by evening. By Sunday, the storm had left a band of snow measuring 3 to 7 inches extending from central Missouri northeastward through western Pennsylvania, Upper New York, and into New England.

TEMPERATURE: A cold front invaded two-thirds of the Nation's midsection sending temperatures plummeting to record lows for the first week of spring. The rest of the Nation recorded near normal temperatures except for sections of the Southwest where temperatures were as much as 9 degrees above normal during the week. Temperatures were considerably below normal from the northern and central Rockies to the middle and upper Mississippi Valley. Thursday, behind a cold front, clear skies and record cold temperatures dropped into the central Plains and Mississippi Valley. Sioux City, Iowa, set a new record low with 2 below zero and Lincoln, Nebraska, dipped to a cold nighttime low of 5 above zero. Friday, arctic air behind a midwest front dropped temperatures into the wintry teens and 20's. Meanwhile, ahead of the front, it was a sunny but cool spring day throughout the Gulf Coast and Southern and Middle Atlantic States with highs reaching into the low 60's. During the weekend, the whole Nation suffered from below normal temperatures except sections of the lower Plateau, most of California, and the Pacific Northwest as arctic air penetrated deep into the Nation behind the midwest cold front, pushing below freezing temperatures from Texas through the Ohio Valley into New England. International Falls, Minnesota, recorded the Nation's low with 26 degrees below zero, a record 39 degrees below normal, Sunday morning. Record lows were also recorded at Kansas City, Missouri, with 15 degrees, Dubuque, Iowa, with 4 degrees below, and Duluth, Minnesota, with 17 below.

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**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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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United States Department of Agriculture
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Hyattsville, Maryland 20782**

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

BEEF LEAFHOPPER at treatment levels in Kings and Fresno County area of California. (p. 195).

ENGLISH GRAIN APHID unusually heavy on barley on Eastern Shore of Maryland. BROWN WHEAT MITE moderate to heavy on wheat in Oklahoma Panhandle. (p. 196).

ALFALFA WEEVIL larvae heavy in some alfalfa in Rolling Plains of Texas; low temperatures killed larvae in areas of Oklahoma, Kansas, and Arkansas, and reduced activity in North Carolina. (pp. 197-198).

Predictions

EUROPEAN CORN BORER damage to potatoes potentially heavy on Eastern Shore of Maryland. (p. 212). COLORADO POTATO BEETLE infestations on truck crops potentially heavy on Eastern Shore of Virginia. (p. 214).

Detection

● A EULOPHID WASP reported from Virginia is a new United States record. (p. 203).

New State records include a SCOLYTID BEETLE from New Mexico (p. 202) and two WHITEFLIES, one from New Jersey (p. 201) and one from New Mexico (p. 200).

For new county records see page 204.

Special Reports

Summary of Insect Conditions in the United States - 1973

Cotton. (pp. 205-209).

Tobacco. (pp. 209-210).

Sugar Beets. (pp. 210-211).

Miscellaneous Field Crops. (pp. 211-212).

Potatoes, Tomatoes, Peppers. (pp. 212-215).

Beans and Peas. (pp. 215-216).

Cole Crops. (pp. 216-217).

Cucurbits. (pp. 217-218).

General Vegetables. (p. 218).

Distribution of Asparagus Aphid. Map. (p. 219).

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WEATHER OF THE WEEK ENDING MARCH 25

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

PRECIPITATION: A vigorous storm system again drenched the Pacific coast. Weekly totals included: Astoria, Oregon, 2.46 inches; Eureka, California, 4.47 inches; and San Francisco, California, 2.07 inches. Throughout the week heavy precipitation, hail, high winds, and dense fog plagued the Gulf Coast States. Over 5 inches of rain fell on both New Orleans, Louisiana, and Pensicola, Florida, and near continuous precipitation dampened the entire eastern seaboard during the week. Early in the week, a stationary front lying across northern Florida and into the gulf spawned a Low center which moved northeastward offshore. Rain and showers fell along the south Atlantic coast but freak snowstorms occurred in North Carolina and Virginia.

Norfolk got a whopping 7 inches of snow, Greensboro, North Carolina, received 4 inches of snow, and Panama City, Florida, reported 1.86 inches of rain. Monday evening, a late winter storm had moved out to sea with snow and rain diminishing along the mid-Atlantic coast. Meanwhile in the West, a Pacific cold front moving inland brought widespread rain to the Pacific coast. Scattered rain fell over most of the Pacific Northwest into the northern Rockies and down through central California and into Nevada. Wild weather swept across Texas on Tuesday. Gusts up to 65 m.p.h. were reported near Galveston. Late in the morning 0.50-inch hail fell near Beaumont, Texas, a funnel cloud was sighted near Houston, and tornadoes touched down near Corpus Christi. Weather of the week continued on page 220.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Damaging infestations reported in alfalfa and wheat in Clark County; some treating reported in Clark and Meade Counties. Mass nighttime larval migration from one wheat field to another across major highway reported in Gray County. Field from which larvae migrated being grazed and soil well packed by cattle; field migrated to was nongrazed with loose sandy soil. In entered field, larvae averaged about 11 per square foot along border and reached into field for about 60 feet. Farther into field, larvae ranged about 1-1.5 per square foot. In field from which they migrated, larvae still averaged about 4 per square foot. (Bell). OKLAHOMA - Pupation underway in west-central counties although some remaining larvae only about half grown. Mostly full-grown larvae ranged up to one per linear foot in wheat in Beaver County. Larvae damaged garden crops in Harmon County. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipunctata) - MISSISSIPPI - Light trap catches in Oktibbeha and Washington Counties indicate moths active. (Robinson).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Survey in Pyramid Dudley Hills of Kings County showed counts at treatment levels. Although total acreage not large, it is sufficient to deem control. On west side of Kettleman Hills from Avenal south to State Highway 41 an area about 0.5 mile deep will require treatment. Other acreage within Kettleman Hills may also need treatment. Large areas of seedling Russian thistle found on slopes on west side of Kettleman Hills will require spraying deeper into hills than usual this fall. Treatment will be required in Los Gatos Canyon and an area north of Palmer Avenue in Fresno County. Spraying tentatively scheduled to begin week of March 25. Rains of 14 days ago in Kern County revived most vegetation, new growth evident. Control will be difficult as condition of vegetation will dictate operations; widely separated areas may become ready to spray at same time. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Treatments needed on some barley and wheat in Yuma County for this species and Schizaphis graminum (greenbug). R. maidis infestation heaviest. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - TEXAS - Continued very light, averaged less than 10 per row foot in small grains in Archer, Baylor, Hardeman, Knox, Haskell, Throckmorton, Wilbarger, Wichita, and Young Counties of Rolling Plains. Beneficial insects continued heavy in wheat. Parasitic wasps, lady beetles, and spiders observed most often. (Boring). Survey conducted in 17 panhandle counties during period March 19-22 showed maximum greenbug counts per foot of planted row of wheat ranged from zero in Oldham, Armstrong, and Donley Counties to high of 150 in Sherman County. Percent parasitism by braconid wasps by county: Sherman 20, Moore 5, Collingsworth 80. (Daniels). S. graminum detected on grain sorghum throughout Brazos River Bottoms of central area. Some moderate infestations reported in Robertson, Burleson, Brazos, and Grimes Counties. Populations appear to be declining at this time. (Cole).

OKLAHOMA - Greenbug continued light in wheat in panhandle counties, but lady beetles and parasites also active and numerous. (Okla. Coop. Sur.). ARKANSAS - Survey in wheat and oats negative in northwest area. (Boyer). MISSOURI - Light in all small grains checked in south-central area. Ranged 0-5 (average less than 1) per row foot. (Munson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Increasing but still light, averaged 650 nymphs and adults per 100 sweeps of 16-inch high alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Larval population currently light; first larvae of season observed in field of shade-grown tobacco at Greensboro, Gadsden County. (Fla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

CHINCH BUG (Blissus leucopteros leucopteros) - MISSISSIPPI - Light to moderate infestations developing on young corn in Wilkinson County. Pest caused some serious problems in southern counties in 1973 on corn, sorghum, and pastures; will be watched closely this spring. (Dale).

SEEDCORN MAGGOT (Hylemya platura) - OKLAHOMA - Heavy in recently planted corn seed in Hughes County. (Okla. Coop. Sur.).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Light on sorghum in several central area counties. (Cole).

SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - OKLAHOMA - Ranged 1-4 per linear foot in spots in some wheat fields in Cimarron County, but averaged less than one per linear foot in most fields. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MARYLAND - Unusually heavy in several hundred acres of barley. Most fields located in Caroline, Dorchester, and Wicomico Counties. Surveys to be undertaken to determine extent of problem. (U. Md., Ent. Dept.). ARKANSAS - Survey in oats and wheat negative in northwest area. (Boyer).

HESSIAN FLY (Mayetiola destructor) - ALABAMA - Heavy in area of wheat field examined March 21 in Montgomery County. (Wood).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Moderate to heavy infestations developed over past 14 days in many wheat fields in Cimarron and Texas Counties and in scattered fields in western third of Beaver County. Mites, plus dry conditions and freeze damage, caused visible damage to many fields; some fields treated. Red and white (diapause) eggs present in most fields; red eggs most common in fields still in fair condition. (Okla. Coop. Sur.). KANSAS - Trace in Norton County wheat. (Bell).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 5-20 per row foot of small grains in Hardeman, Knox, Haskell, and Throckmorton Counties of Rolling Plains. Heavy, 300-500 per linear row foot in several fields in Archer, Baylor and Throckmorton Counties. (Boring).

TURF, PASTURES, RANGELAND

MAY BEETLES (Phyllophaga spp.) - ALABAMA - First adults of season emerged in light numbers in southern Houston County March 25. (Stephenson).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - UTAH - Taken on property at Moab, Grand County, August 8, 1972. Determined by R.E. Warner. This is a new county record. (Knighton, Roberts).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MARYLAND - First larvae of season feeding in alfalfa near Centerville, Queen Annes County. Counts light, 2-3 larvae per 100 tips. Egg hatch should peak within next 21 days in Frederick, Washington, and Carroll Counties. (U. Md., Ent. Dept.). VIRGINIA - Number of alfalfa tips infested per 50 tips examined in 14 fields in 9 counties ranged from one in one Wythe County field to 47 in one Botetourt County field. Percent infestation ranged from 2 in one Wythe County field to 94 in one Botetourt County field. Average number of larvae per tip ranged from 0.1 in one Wythe County field to 3.8 in one Botetourt County field. Based on 14 fields sampled (111 acres), 51.3 percent of tips infested. Average estimated defoliation 4.4 percent. Most larvae small, averaged 1.7 per tip based on 650 tips sampled. Infestation exceeded recommended control level in 7 fields. Damage noneconomic at present. (Allen et al.).

KENTUCKY - Alfalfa weevil larvae per alfalfa tip averaged 0.16 in Morgan County. Most fields in south-central area averaged 1+ larva per alfalfa tip. In Fayette County, eggs averaged 12, 13.4, 27.8, 82.4, 11.8, and 17.6 per square foot in several fields, and 84.5 per square foot in Barren County. (Barnett, Parr). TENNESSEE - Number of alfalfa tips infested per 50 tips examined in 21 fields in 12 counties ranged from 6 in one Blount County field to 49 in one Franklin County field. Number larvae per 50 tips ranged from 5 in one Blount County field to 66 in one Montgomery County field. Percent of tips damaged per 50 tips examined ranged from zero in one Blount County field to 35 in one Dyer County field. (Gordon et al.). NORTH CAROLINA - Cooler temperatures during period March 18-27 reduced larval activity, thus decreasing need for pre-April 1 controls. (Hunt). FLORIDA - Nine larvae collected in 100 sweeps of 16-inch tall alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

TEXAS - Alfalfa weevil larvae heavy in most alfalfa in Wilbarger and Foard Counties of Rolling Plains; 60-90 percent of terminals infested. Some fields with only 30-50 percent terminal damage. Many producers applying controls. Adults continued active in most fields. (Boring). OKLAHOMA - Record or near-record low temperatures during period March 21-24 killed nearly 100 percent of larvae in alfalfa in Payne County and up to 70 percent of larvae in Stephens and Grady Counties. Eggs reported hatching again in Roger Mills County early this period. Recent counts ranged 5-10 larvae per square foot in Payne County and 40-50 per square foot in Stephens and Grady Counties. (Okla. Coop. Sur.).

KANSAS - Temperatures as low as 10-15 degrees F. from March 21 to March 23 killed some alfalfa weevil larvae over much of State, especially in southeast district. In this district, alfalfa often 6-10 inches tall; terminals sometimes frozen back substantially. Smaller alfalfa farther north and west showed less freeze damage as well as lighter larval mortality. Percent dead larvae in some southeast district fields as follows by county: Cowley 59-81 (3 fields); Elk 57 (1 field); and Allen 65 (1 field). These percentages do not account for larvae that may have fallen off plants after dying. Examination of alfalfa terminals in fields in Riley, Pottawatomie, Wabaunsee, Geary, Cloud, Washington, Ottawa, and Saline Counties farther north and west, indicated less than 5 percent of larvae killed by freezing temperatures. Larval populations still heavy in many fields in area and damage expected to increase rapidly if present warm weather continues. Small amount of treating reported in parts of southeast district. (Bell).

ARKANSAS - Cold weather had adverse effect on alfalfa weevil larval populations in northwest area. Temperatures below 20 degrees F. for 4 nights. Of larvae collected from alfalfa 50 percent or more were dead. Most larvae collected were large. Many small larvae killed by cold probably fell to ground. Controls in northern area suspended until heavier populations develop. Farther south, larvae averaged about 200 per 25 sweeps in Crawford County. Plant terminals showed heavy feeding; growers treating. (Boyer). MISSOURI - Larvae in Wright County alfalfa averaged 248 per 100 stems. (Huggans). Larvae ranged 13-40 (average 25) per 100 stems in Howell County. Of 227 larvae collected, 208 were first and second instars and 19 were third instar. Most larvae appeared since last hard freeze. (Munson). ILLINOIS - Egg counts from alfalfa samples collected 14 days ago in Washington County averaged 250 per square foot in 6 fields. Most fall laid rather than spring laid. (Ill. Ins. Rpt.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Ranged 70-170 per 100 sweeps of alfalfa at Yuma Valley, Yuma County. Most fields being cut or too near cutting for treatment. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - WASHINGTON - Minor larval injury to alfalfa noted March 21 in field at George, Grant County. (Klostermeyer).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Ranged 500-2,600 per 100 sweeps of alfalfa at Yuma Valley, Yuma County. Most fields being cut or too near cutting for treatment. (Ariz. Coop. Sur.). NEW MEXICO - Significant reductions observed in alfalfa in Dona Ana County. Only 30-50 per 100 sweeps noted. Probably due to diverse populations of predators active in fields. (N.M. Coop. Rpt.). KANSAS - Ranged 8-440 per 10 sweeps in 3 alfalfa fields in Cowley County. Trace found in alfalfa as far north as Cloud and Washington Counties. (Bell). FLORIDA - Population increased significantly past 8 days from 550 per 100 sweeps to 9,500 per 100 sweeps on fast-growing alfalfa not yet in bloom at Gainesville, Alachua County. (Fla. Coop. Sur.).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - FLORIDA - Population increased from one adult per 100 sweeps to 35 adults per 100 sweeps in 8-day period on fast-growing alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.). NEW MEXICO - Up to 15 per 100 sweeps recovered from alfalfa at La Mesa, Dona Ana County. (N.M. Coop. Rpt.).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - First adult of season taken in pheromone trap March 19 at Walla Walla, Walla Walla County. (Halfhill).

SPOTTED CUTWORM (Amathes c-nigrum) - WASHINGTON - Larvae light in alfalfa field at George, Grant County, March 21. (Klostermeyer).

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - WASHINGTON - First adults of season trapped in pheromone traps at Walla Walla, Walla Walla County, March 19; 58 moths taken in 50 traps. (Halfhill).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - NEW MEXICO - Ranged 1,200-1,500 per 10 sweeps in alfalfa at La Mesa, Dona Ana County. (N.M. Coop. Rpt.).

TOBACCO

BLACK FUNGUS BEETLE (Alphitobius laevigatus) - VIRGINIA - Adults, pupae, and larvae collected from Tonka beans at Richmond November 8, 1973, by A.F. Press, Jr. Determined by T.J. Spilman. This is a new host record for this tenebrionid. Tonka beans are used in tobacco flavoring. (PPQ).

BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - TENNESSEE - Heavy and damaged English pea plantings in western area. (Locke).

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Adult feeding on winter peas and other perennial legumes noneconomic to March 22. (O'Keefe, Mink).

COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - ALABAMA - Larvae destroyed 100 of 200 recently set cabbage plants in Cleburne County. (Barker).

GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARKANSAS - Populations on spinach in Crawford County much lighter than 14 days ago. (Wylie).

DECIDUOUS FRUITS AND NUTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Moderate to heavy on fruit trees in Pittsburg County, persimmon in Le Flore County, and wild plum in Payne County. Recent cold weather had no apparent effect on larvae. (Okla. Coop. Sur.).

LESSER PEACHTREE BORER (Synanthedon pictipes) - SOUTH CAROLINA - Infested several peach trees at residence in Pickens County. This is a new county record. (McCaskill).

SHOTHOLE BORER (Scolytus rugulosus) - SOUTH CAROLINA - Moderate infestation observed by D.K. Pollet on peach trees in Edgefield County March 20. This is a new county record. (McCaskill).

OTHER TROP. & SUBTROP. FRUITS

AMERICAN PLUM BORER (*Euzophera semifuneralis*) - CALIFORNIA - Larvae damaged olive trees at McFarland, Kern County. (Cal. Coop. Rpt.).

AN AVOCADO LEAFROLLER (*Amorbia essigana*) - CALIFORNIA - Larvae fed on avocado foliage in McFarland, Kern County. (Cal. Coop. Rpt.).

AN ARMORED SCALE (*Hemiberlesia lataniae*) - CALIFORNIA - Averaged 15 per stem on avocado trees in La Mesa, San Diego County. (Cal. Coop. Rpt.).

SMALL FRUITS

WESTERN GRAPELEAF SKELETONIZER (*Harrisina brillians*) - NEVADA - First adults of season appeared at Las Vegas, Clark County, March 26. This is about 7 days earlier than earliest record of April 3, 1971. (Zoller).

BLUEBERRY BUD MITE (*Acalitus vaccinii*) - NORTH CAROLINA - Bud damage appeared in Pender County. Pesticide screening test indicated 55 percent of terminal buds infested. This is 4-percent increase over March 1973. (Weaver).

ORNAMENTALS

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - TEXAS - Reported in crab apple and plum in Brazos County. Populations appear very light this year in most central area counties. (Cole).

A WHITEFLY (*Aleuroplatus berbericolus*) - NEW MEXICO - Collected from *Mahonia* sp. at Roswell, Chaves County, February 4, 1974, by M. Perry. Determined by L.M. Russell. This is a new State record. (N.M. Coop. Rpt.).

A SOFT SCALE (*Ceroplastes ceriferus*) - SOUTH CAROLINA - Light on euonymus in Marlboro County. Collected by D.K. Pollet March 20. This is a new county record. (McCaskill).

A PIT SCALE (*Cerococcus dekleyi*) - FLORIDA - Adults general on stems of 10 Coastal Plain willow trees (*Salix caroliniana*) at country club in Miami, Dade County, February 25. This is a new host record in State. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - ALABAMA - Nearly grown larvae of *D. frontalis* and *D. terebrans* (black turpentine beetle) heavy in 5 of 25 dead and dying pines near Chewacla Park, Lee County. Two of these 40-foot pines practically cleaned of bark. Beetle broods fed on by flickers and sap suckers, but still numerous enough to bring on population explosion in this 200-acre tract of pine timber. Several new pitch tubes of *D. terebrans* observed in area; beetles moved in on these and nearby pines during past 30 days of warm temperatures. About 500 pines killed in Mount Olive area of Jefferson County; many more trees in area infested. Full-grown larvae and pupae collected. (Peterson, Green).

SEQUOIA PITCH MOTH (Vespamima sequoiae) - WASHINGTON - Larvae ranged 2-10 per tree on ten 10-foot tall ponderosa pines at Centralia, Lewis County, March 12. Pitch masses ranged 1-10 per tree on ten of fifty 10 to 25-foot tall ponderosa pines at Bellevue, King County, March 19. (Cade, Campbell).

PINE SPITTLEBUG (Aphrophora parallela) - TENNESSEE - Active on Scotch pine much earlier than normal in western area. (Locke).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - SOUTH CAROLINA - Moderate larval infestation noted on cherry by D.K. Pollet March 21 in Marlboro County. This is a new county record. (McCaskill). ALABAMA - Larvae in cherry and other trees in several southern counties nearing full growth. (Seibels et al.). TENNESSEE - Active on wild cherry in central and western areas; webbing very apparent in some areas. Emergence very early this year; no damage to date. (Locke, Gordon). KENTUCKY - Egg hatch about 50 percent complete in central area. (Barnett, Nordin).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - First adult of season taken in light trap March 28 at Las Cruces, Dona Ana County. (N.M. Coop. Rpt.).

OLETHREUTID MOTHS (Rhyacionia spp.) - NEW MEXICO - R. neomexicana moth reared from pupae collected November 1973 near Ruidoso, Lincoln County. Determined by D. Jennings. This is a new county and forest record. (N.M. Coop. Rpt.). CALIFORNIA - R. bushnelli pupae moderate in tips of shoots of Monterey pine trees in El Cajon and Santee, San Diego County. (Cal. Coop. Rpt.).

A WHITEFLY (Aleurochiton forbesi) - NEW JERSEY - Collected from Acer platanoïdes (Norway maple) at Lake Hopatcong near Rockaway, Morris County, September 23, 1973, by J.E. Lipis. Determined by L.M. Russell. This is a new State record. (Lipis).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 7 cases reported from continental U.S. during period March 10-16, all from Texas. Total of 40 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 44,338,200, all in Texas. Total of 108,435,600 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 1.2 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Adults still active outside overwintering sites on warm days in Monroe and Chickasaw Counties. Where flies overwintered in buildings in pastures and cattle near such buildings, flies occasionally noted on cattle. Annoyed calves near overwintering sites on warm days. (Robinson).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Ranged 25-30 per head on beef cattle in Oktibbeha County. (Robinson). OKLAHOMA - Averaged 10 per head on cattle checked in Payne County. (Okla. Coop. Sur.).

DEER FLIES (Chrysops spp.) - MISSISSIPPI - First adults of season noted in Monroe County resting on buildings and on beef cattle. (Robinson).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Cattle lice, mainly this species, ranged 0-2 per hair part on cattle checked in Payne County. Heavy in Comanche County, moderate in Pawnee County. (Okla. Coop. Sur.).

PSOROPTIC CATTLE SCABIES - During the period July 1 through December 31, 1973, there were 16 outbreaks of psoroptic cattle scabies reported in the U.S. It is estimated that about 40 outbreaks will have been reported by June 30, 1974. In each of the 16 cases already reported, State and Federal quarantines were invoked then lifted when later inspection of infested and exposed cattle showed no evidence of scabies after acceptable treatment had been made. Sheep scabies has been eradicated from the U.S., and it is believed that psoroptic cattle scabies can also be eradicated. However, this will require much time and effort. Much progress has been made toward this end by State and Federal training schools held in various sections of the country, particularly in the Southwest, and to the use of information materials and community meetings which stress the cost of scabies to the cattle industry and the consumer. Psoroptic, sarcoptic, chorioptic, and demodectic mites affect cattle, but it is the psoroptic mite upon which eradication efforts are being concentrated. This mite burrows into the skin to obtain food. This is followed by inflammation and irritation, causing the animals to spend much time scratching, biting, and licking. Affected animals neglect feeding and lose weight. Hides are also damaged. Cattle should be watched closely. First signs of scabies in cattle are tail switching, although flies are not present in winter, and licking. Fences should also be inspected closely for swatches of hair, indicating cattle are in distress and have been rubbing. When these early signs are evident, treatment should be started promptly. (Veterinary Services).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Moderate to heavy on cattle in Pittsburg County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) - OREGON - Adults reported to have emerged from finished oak floor (estimated 1,300 square feet) in Portland area residence, Multnomah County. (Penrose).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND Swarms still reported from all areas of State. Peak activity not expected for at least 14 days. (U. Md., Ent. Dept.). KENTUCKY - First swarming of season reported from Knox County March 26. (Barnett).

MISCELLANEOUS WILD PLANTS

A SCOLYTID (Chaetophloeus fasciatus) - NEW MEXICO - Collected from Prosopis glandulosa (honey mesquite) June 15, 1973, in Dona Ana County by J. Riazance. Determined by F.G. Warner. This is a new State record. This insect has been intercepted at Mexican border points in wooden chairs and has caused question about distribution. Species now considered probably cosmopolitan with Chihuahuan Desert mesquite. (N.M. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - TENNESSEE - Emergence heavier than normal for this time of year. (Locke). WASHINGTON - Light adult populations and some larvae reported in some wheat in Morton County. Adults of Hippodamia convergens (convergent lady beetle) light in alfalfa surveyed in Washington and Cloud Counties. (Bell).

A BRACONID WASP (Lysiphlebus testaceipes) - MISSISSIPPI - Adults active and parasitizing several aphid species feeding on vetch in Oktibbeha County. L. testaceipes determined by M.F. Schuster. (Robinson).

A EULOPHID WASP (Tetrastichus rhosaces) - VIRGINIA - Adults collected from Cassida rubiginosa (a chrysomelid beetle) on Carduus nutans at Winchester, Frederick County, July 6, 1973, by R.H. Ward. Determined by B.D. Burks. This is first record for North America. (Allen, Surles). Four species of Cassida are recorded as hosts of T. rhosaces in European literature. (PPQ).

AN ICHNEUMON WASP (Bathyplectes curculionis) - INDIANA - Reared from first or second-instar Hypera postica (alfalfa weevil) larvae collected March 12, 1974, in Harrison County. As 80 percent of B. curculionis larvae pupated during first week of March in warmer southwest district, this is early case of parasitism. (Meyer).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS (Trimerotropis spp.) - NEVADA - T. cincta collected at Beaver Dam State Park, Lincoln County, August 22, 1972, by G.M. Nishida. Determined by A.B. Gurney. T. latifasciata collected at Dago Pass, Pershing County, July 26, 1973, by L.W. Barclay. Determined by R.C. Bechtel. These are new county records. (Bechtel).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Maturing grubs feeding on grass roots in several areas in Baltimore, Queen Annes, Charles, and Prince Georges Counties. Most grubs still 3-4 inches below root zone. Counts appear light to date (2-4 per square foot of sod). (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - IDAHO - Two adults collected from garden fence at Boise, Ada County, March 19. First of season. (Flanagan).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Egg cluster counts ranged 1-3 per 10 square yards on range grass near Roy, Harding County. (N.M. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - FLORIDA - Larvae caused estimated 25 percent loss of stand in young commercial 4-acre flue-cured tobacco field at Havanna, Gadsden County. Grower considering plowing and resetting field. (Fla. Coop. Sur.). ALABAMA - Larvae extensively damaged 3 acres of recently set tomato plants at Pansey, Houston County. Grower will replant entire commercial area. (Mathews, Stephenson).

DETECTION

New United States Record - A EULOPHID WASP (Tetrastichus rhosaces) - VIRGINIA - Frederick County. (p. 203).

New State Records - A SCOLYTID (Chaetophloeus fasciatus) - NEW MEXICO - Dona Ana County. (p. 202). A WHITEFLY (Aleurochiton forbesi) - NEW JERSEY - Morris County. (p. 201). A WHITEFLY (Aleuroplatus berbericolus) - NEW MEXICO - Chaves County. (p. 200).

New County Records

GULF WIREWORM (Conoderus amplicollis) - TEXAS - Adult taken in blacklight trap at El Paso, El Paso County, June 3, 1972, by J. Green. Determined by T.J. Spilman. (PPQ).

WESTERN BOXELDER BUG (Leptocoris rubrolineatus) - NEVADA - Collected at Yerington, Lyon County, October 26, 1973, by J.H. Pursel. Determined by R.C. Bechtel. (Bechtel).

BLUEGRASS BILBUB (Sphenophorus parvulus) UTAH - Grand (p. 197). EASTERN TENT CATERPILLAR (Malacosoma americanum) SOUTH CAROLINA - Marlboro (p. 201). GRASSHOPPERS - NEVADA - Trimerotropis cincta - Lincoln County. T. latisfasciata - Pershing County. (p. 203). LESSER PEACHTREE BORER (Synanthedon pictipes) SOUTH CAROLINA - Pickens (p. 199). AN OLETHREUTID MOTH (Rhyacionia neomexicana) NEW MEXICO - Lincoln (p. 201). A SOFT SCALE (Ceroplastes ceriferus) SOUTH CAROLINA - Marlboro (p. 200).

CORRECTIONS

CEIR 24(12):132 - MISCELLANEOUS WILD PLANTS - AN APHID (Dactynotus russellae) - Last line: Robisnon ... should read Robinson ...

CEIR 24(12):134 - DETECTION - New County Records - Line 3: (Diabrotica longicornis) NORTH DAKOTA ... (p.) should read (p. 148).

CEIR 24(13):164 - A NOCTUID MOTH (Leucania loreyi) - HAWAII - Line 6 - Portluck Road should read Portlock Road. Last line should read "... known to damage corn, sorghum, sugarcane, and other grasses."

CEIR 24(13):167 - SAY STINK BUG (Chlorochroa sayi) - HAWAII - This is not a new State record. It has been determined that the mixed produce involved was shipped in from out of State. Also delete this new record from "Detection" on pages 161 and 171. (PPQ).

LIGHT TRAP COLLECTIONS

ARIZONA - Mesa, 3/18-24, BL, ARMY CUTWORM (Euxoa auxiliaris) 6, BEET ARMYWORM (Spodoptera exigua) 65, BLACK CUTWORM (Agrotis ipsilon) 19, CABBAGE LOOPER (Trichoplusia ni) 7, VARIEGATED CUTWORM (Peridroma saucia) 60. FLORIDA - Gainesville, 3/22-28, BL, beet armyworm 4, GRANULATE CUTWORM (Feltia subterranea) 28, SALTMARSH CATERPILLAR (Estigmene acrea) 1. MISSISSIPPI - Stoneville, 3/22-28, temp. 28-71 F., precip. 0.24 inch, 2BL, ARMYWORM (Pseudaletia unipuncta) 578, black cutworm 39, BOLLWORM (Heliothis zea) 3, variegated cutworm 63, saltmarsh caterpillar 2. TENNESSEE - Hardeman County, 3/25-29, BL, armyworm 193, black cutworm 4, bollworm 1, variegated cutworm 4, YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) 1.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1973
(Continued from page 191)

COTTON

Highlights:

BOLL WEEVIL was more damaging to cotton in South Carolina than in 1972, and resulted in a lower cotton yield in Alabama than in 1972. Boll weevil infestations were the lightest in many years in Arkansas. COTTON FLEAHOPPER infestations were much heavier and more persistent on cotton in southeast Arkansas than probably ever observed, and were heavy in the Blacklands area of Texas. BOLLWORMS were heavy in some areas but adequate controls were effective.

Overwintering BOLL WEEVIL (*Anthonomus grandis*) began emerging the last week of April in the northern and southern Coastal Plain of NORTH CAROLINA. About 2,205 fields were surveyed weekly in Scotland, Northampton, Halifax, Edgecombe, Nash, and Cleveland Counties, the major cotton-growing area of the State. Damage peaked twice during the period June 24 to August 25. During the week ending July 7, about 35.6 percent of all fields in the scouting programs reached the threshold injury level. The percent of fields at threshold level for individual counties ranged from 63.7 percent in Edgecombe County to 6.4 percent in Scotland County. Controls brought the number of fields at threshold to 13 percent by July 14 and 11.6 percent by July 21. The weevil population increased generally during the last week of July and early August, and peaked again August 12-17, with 33 percent of the fields reaching threshold injury levels. The percent of fields at threshold injury levels for individual areas ranged from 84.2 percent in the Scotland Neck area of Halifax County to 6.6 percent in Scotland County.

Woods trash examinations for live hibernating boll weevils were conducted in SOUTH CAROLINA in the spring of 1973. Populations in Orangeburg, Bamberg, Dorchester, and Florence Counties were heavier than in 1972. Greenville County populations remained the same. Populations in Darlington, Marlboro, Anderson, and Spartanburg Counties decreased. The heaviest population was 20,175 per acre at one Florence County location. Generally, infestations were more damaging in 1973 than 1972. Peak populations occurred near the last of June, the first of July, and again in mid-September.

Counts of live boll weevils on presquare cotton on 38 farms in 10 counties revealed a high number had successfully overwintered and entered cotton fields throughout ALABAMA. Trapping revealed weevil movement during all months of the year. Leggett trap counts April 27 at three locations in cotton fields in Macon and Lee Counties, showed an average of 2.1, 10.3, and 7.5 weevils per trap per week, respectively. Numbers trapped in 10 widely separated counties continued to increase weekly until fruiting cotton became more attractive in June and July. First weevils on young cotton plants were reported in Covington County May 18. Weevil populations began at a high level and continued so during the season. Controls were very successful but growers generally stopped controls 7-15 days

too early at the end of the season. It is estimated that an average of 10 control applications were used statewide on 533,000 harvested acres of cotton with an average yield of 423 pounds per acre, a decrease of 47 pounds from the 1972 yield. With boll weevil counts high at the end of the season in Alabama and with only an occasional diapause control effort made, it must be assumed that heavy numbers have again entered hibernation statewide.

About 283 boll weevils per acre survived the winter in MISSISSIPPI. This compares with a 5-year average of 645. Percent survival was 18.92. Catches in Leggett traps in Grenada, Yalobusha, and Webster Counties averaged one weevil per trap during the week ending April 21. In Webster County, beginning with the week of May 10 and for the next 6 weeks, an average of 27 weevils were caught per trap per week. The first report of feeding punctures came the week ending June 23 when 2-3 percent could be found in Noxubee County cotton and up to 11 percent on cotton in Rankin County. A second generation of weevils began to emerge the week ending July 20 in Rankin, Noxubee, and Madison Counties. By mid-August, punctured squares averaged 4 percent in treated cotton in Noxubee and Issaquena Counties and up to 16 percent in Rankin County.

Overwintered boll weevil adults began emerging in late May with peak emergence occurring in mid-June in TENNESSEE. Due to late planting of cotton, the first square counts were not taken until mid-July. These counts ranged 1-12 per 100 squares. First-generation weevils were observed during the last week of July. By the first of August, square counts ranged 2-30 percent. At mid-August, peak emergence of the second-generation was underway and counts ranged 6-68 percent punctured squares. The third generation emerged the last week of August when migration was heavy and small boll damage evident. This damage continued throughout September.

Boll weevil infestations were the lightest they have been in many years in ARKANSAS. Leggett trap catches showed large numbers emerged from hibernation prior to square set in the late crop. The inability of overwintering weevils to reproduce no doubt contributed to light summer populations. Ten Leggett traps were operated at each of nine locations. Average counts per trap per week for the season by county were as follows: Clay 39.6, Mississippi 2.6, Craighead 10.1, St. Francis 2.1, Phillips 15.7, Pulaski 2.1, Conway 2.7, Chicot 3.8, and 4.7 in Lafayette and Miller Counties. These traps were operated during the period May 17 through June 26. It is significant to note that in general, populations were heavier in the northern areas than in the southern areas. This results from a longtime practice of better control, including diapause control, in the southern area.

The first boll weevils of the season in OKLAHOMA were taken in Leggett traps in several southwest and west-central counties in late May, but punctured squares were not reported until the second week of July. Counts averaged 20 percent or less in all areas except Caddo County through mid-August. In late August and September, counts reached 25-30 percent in isolated cotton fields in a few counties and 50 percent in some fields in Caddo and Washita Counties. The first large scale boll weevil emergence in TEXAS was reported from the lower Rio Grande Valley during the

week of June 12. Populations were also reported from "hot spots" in the south-central area during this same week. On June 20, overwintered boll weevils began to show up in older cotton in the Rolling Plains area, and by early July were increasing rapidly in most weevil-infested areas of the State. Infestations increased in several counties below the Caprock near Lubbock in August. The heaviest infestations in that area were found in Dickens and Kent Counties.

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) was much heavier and more persistent on cotton than it had probably ever been in southeast ARKANSAS, an area of normally light numbers. An organo-phosphate was the principal control material. Though not 100 percent effective at 0.1 lb. per acre, this dosage reduced numbers sufficiently for cotton to set fruit and was not as harmful to beneficial insects as a higher dosage. Neither was it as harmful as other commonly used materials. During the week of June 19 infestations increased in many Blacklands counties of TEXAS. Heavy infestations ranged up to 70 per 100 terminals in this area. It continued to be the predominant pest in the Blacklands during the remainder of the month. In mid-July, P. seriatus was a problem in the north-central and Rolling Plains areas.

BOLLWORM (Heliothis zea) and TOBACCO BUDWORM (H. virescens) eggs and young larvae were observed on cotton terminals in Scotland County, NORTH CAROLINA, the week ending July 7. Populations remained light until the week ending August 11, when 36 percent of the 2,205 fields scouted weekly had infestations of economic importance. The percent of fields at threshold levels for individual counties ranged from 63.8 percent in Northampton and Bertie Counties to 13.2 percent in Edgecombe County. The peak number of fields at threshold level was observed during the week of August 12-18 with 61.9 percent of the fields at threshold. The percent of fields at threshold for individual scouting areas during the period ranged from 80.5 percent in the Scotland Neck area of Halifax County to 48.6 percent in Nash County. Although bollworms were very heavy this year, controls were adequate to prevent excessive loss in fields managed under the community insect control programs. Preliminary estimates indicate an increase in average yield per acre this year in North Carolina.

Adult catches of H. zea and H. virescens in SOUTH CAROLINA light traps peaked about the second week in July and heavy egg deposition was apparent in the lower Coastal Plain. By early August, the peak egg deposition had reached across the State and large numbers of small larvae were present in most fields. By the second week in August, Heliothis spp. populations were heavy in all counties and 75 percent of a 400-acre cotton planting was destroyed in Sumter County. Egg deposition had increased significantly by the end of August and early September and 14 days later damaged squares increased greatly. Infestations were more damaging in South Carolina than in 1972. H. zea and H. virescens were pests of cotton throughout ALABAMA following a buildup of 2 or more generations on clovers, vetch, and corn. Damaging populations were held to a minimum through a more proper use of controls resulting from increased surveys.

In general, Heliothis spp. infestations were lighter and more spotty than the previous year in MISSISSIPPI. The first generation on cotton appeared the second week of June with a range of 10-15 eggs and 2-3 larvae per 100 terminals. Populations of 25 eggs and 3-5 larvae per 100 terminals were found in Noxubee and Lowndes Counties. At this time, most of the cotton acreage had yet to receive its first application of insecticide which allowed spiders, Geocoris spp. (big-eyed bugs), Nabis spp. (damselfly bugs), and other beneficial species to effectively control this generation. The second generation began the third week in July and was very spotty and not of economic importance in some areas. Another moth flight began with the week ending August 24. At this time egg counts were heavy in some areas of Rankin, Coahoma, Sunflower, and Tallahatchie Counties. Heavy egg deposits continued into the first week in September. Surveys at this time showed 20-40 percent of terminals with eggs in Coahoma, Bolivar, Noxubee, Sharkey, and Lowndes Counties.

H. zea larval and egg counts were below control levels in most fields in TENNESSEE until the third week of August, at which time more treatments were applied. In those fields where treatments were applied, larval damage increased rapidly. Heavy damage to late cotton occurred in those fields where no larval treatments were applied. H. virescens and H. zea were much lighter on cotton in ARKANSAS than in most years. Reasons for this are unknown. As usual, H. virescens populations became heavy in late season and were very difficult to control. Of importance in control of both species was a widely used new ovicide. Species determinations totaled 872 H. zea and 307 H. virescens for 26 percent H. virescens. Determinations for September totaled 68 H. zea and 226 H. virescens for 77 percent H. virescens. Use of sugarlines in Heliothis spp. moth survey was expanded to include 12 locations. The two survey methods compliment each other. The sugarline is more effective until early to mid-August, whereas the light trap is more effective after this date.

H. zea eggs began hatching in cotton the last few days of June in OKLAHOMA. Numbers increased during July and damaged square counts ranged up to 10 percent in the southwest area and up to 22 percent in the east-central area by the end of July. During August and early September damaged square counts ranged 5-20 percent in most areas checked. During late September damaged boll counts of 5-15 percent were found in most areas. The first H. virescens of the season in Oklahoma was noted in Caddo County in late July. Larvae collected from cotton in several areas in September ranged 70-90 percent this species in most collections.

H. zea and H. virescens were detected on cotton throughout TEXAS. Populations of H. virescens increased in the lower Rio Grande Valley in early July. By mid-July, populations of this species were noted throughout the Rio Grande Valley as well as in the south-central area. A general increase in H. zea activity was noted in most cotton-growing areas of the State during this same period, with the exception of the South and High Plains. Generally, heavy H. zea populations were noted throughout most areas of the State in early August. The lightest activity during 1973 was reported from the High Plains. H. zea was at low ebb in cotton this year in CALIFORNIA and required few treatments. The population this year was the lowest in 15 years.

BEET ARMYWORM (Spodoptera exigua) heavily damaged approximately 1,900 acres of seedling cotton in Nye County, NEVADA, in late May and early June. Treatments were required. Damaging populations of YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) occurred in cotton in many Delta counties of MISSISSIPPI during the second and third weeks of June. More problems from this pest in 1973, compared to 1972, were contributed to heavy spring flooding.

Heavy populations of TARNISHED PLANT BUG (Lygus lineolaris) developed on legumes in fields and along roadsides throughout ALABAMA. Heavy infestations were first noted April 20 when counts of 2-10 per sweep were found on several hundred acres of crimson clover surveyed in Lee, Macon, Montgomery, and Autauga Counties. By the week ending July 14, counts ranged 25-80 per 100 stalks in several thousand acres of cotton in western Madison and Limestone Counties. Infestations were heavier than usual in more than 500,000 acres of cotton statewide. Some controls were underway during that period. Damage by this pest along with the lateness of the crop, unfavorable weather, and unknown factors caused heavy damage to cotton in the northern area where 65-70 percent of the crop is grown in the State.

Generally wet spring and summer weather held populations of TWOSPOTTED SPIDER MITE (Tetranychus urticae) in check on young cotton over NORTH CAROLINA. The percent of fields scouted at threshold level during June were less than 5 percent for the second consecutive year.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) damage to tobacco in June ranged light to moderate, with heavy injury spotty, in all southern counties of MARYLAND. Adults ranged 2-9 per plant in June. In July, levels increased slightly (4-15 per plant) but populations in most fields were maintained below economic levels due to controls for budworms and aphids. An estimated 16,000 acres of tobacco received flea beetle control sprays in southern Maryland. Overwintered adults and associated damage in VIRGINIA on newly transplanted tobacco were more common than in 1972. The second generation increased to relatively heavy populations in some tobacco fields and some economic damage occurred, particularly to the leaves from the lower part of the plant.

VEGETABLE WEEVIL (Listroderes costirostris obliquus) was the primary pest of cigar-wrapper shade-grown tobacco in the plant bed in FLORIDA, with infestations being more prevalent than in 1972. Good control kept damage to a minimum. This weevil caused some light damage to flue-cured tobacco in several plant beds, but infestations were effectively controlled.

GREEN PEACH APHID (Myzus persicae) alates appeared in southern MARYLAND tobacco about mid-July. An estimated 40 percent of 27,000 acres received preplant treatment for aphids and flea beetles. In late July, untreated fields varied 6-40 percent infested. An estimated 16,000 acres of tobacco received foliar aphid controls in Prince Georges, Anne Arundel, Calvert, Charles, and St. Marys Counties this season.

TOBACCO MOTH (Ephestia elutella) damage to tobacco was severe in the central Coastal Plain counties of NORTH CAROLINA. In early September, infestations were reported in curing tobacco as well as sheeted tobacco in Wake, Bladen, Duplin, and Pitt Counties. There was again limited carryover and reports of damage became less frequent as fall progressed.

SUGAR BEETS

The first SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) adults taken in IDAHO were trapped in Canyon and Elmore Counties May 9. Adults exceeded 100 per sticky-board trap by May 15 in Canyon and Owyhee Counties. In Jerome County, black sticky-lath trap boards set out at 3:30 p.m. May 15 averaged 18 gravid females by 9 a.m. May 16. Adequate soil incorporated application methods for the control of this insect have not been developed so that the few insecticides with federal registration can be properly used. The first alate was caught in a Canyon County water trap May 23. Populations in the eastern Green Peach Aphid Pest Management control area of 14 counties were generally much lighter than in 1972. Temperatures in the area dropped to 20 degrees below zero in December and again in January. These very unusual temperatures killed small peach tree limbs, the principal overwintering host plant.

T. myopaeformis was present in scattered areas in the Billings area of Yellowstone County, MONTANA, during 1973. Populations were damaging where treatments were ineffective or not applied. Sugarbeet root maggot adult emergence had not been observed in the Worland, Powell, and Heart Mountain areas of Washakie and Park Counties, WYOMING, as of May 10. Pupation was noted at 90 and 70 percent, respectively, in the Powell and Heart Mountain areas. First fly emergence occurred May 18 in the Powell area and 10 days later in the Heart Mountain area. Adults were active the first week of June in Park County. During the first week of June, fly counts ranged up to 300 per trap per day in the Powell area of Park County, and ranged 30-35 per trap per day in the Heart Mountain area. Adults ranged 0-5 per row foot of sugar beets in several Park County fields and oviposition continued. Egg masses were noted in soil at base of many plants. Some treatment was applied for adult control. T. myopaeformis adult populations decreased slightly at Powell. At Heart Mountain, the population was heavy, up to 2,000 being observed per 3-day trap catch. Mating and oviposition continued in both areas. Many eggs hatched a week or more earlier; larvae caused damage to sugar beets. Larvae were heavier in Washakie County than in previous years. By the end of June, larval damage was observed in Park, Big Horn, and Washakie Counties.

BEET ARMYWORM (Spodoptera exigua) was a major pest in all sugar beet fields of CALIFORNIA, causing much damage to young plants. This pest was present practically all year in sugar beet plantings in the State. BERTHA ARMYWORM (Mamestra configurata) larvae severely defoliated sugar beets nearing harvest in Canyon County, IDAHO, but controls were not applied. BEET WEBWORM (Loxostege sticticalis) caused above normal damage to numerous sugar beet fields in the Bothwell area of Box Elder County, UTAH, and in the Layton and Syracuse areas of Davis County. PAINTED LADY (Cynthia cardui) larvae, moving from weeds, damaged sugar beets in some Salt Lake County, UTAH, fields.

TARNISHED PLANT BUG (Lygus lineolaris) caused much damage to sugar beets in the Saginaw Valley and Thumb areas of MICHIGAN in August. Damage was caused by direct feeding that lowered plant vigor and resulted in curling, bronzing, and blasting of new growth, as well as oviposition scars in the petioles. This species has caused scattered damage to sugar beets in the south-eastern area in years past, but this is the first time it has been a problem in the main sugar beet-production area of Michigan.

MISCELLANEOUS FIELD CROPS

PAINTED LADY (Cynthia cardui) larvae were reported as early as June 15 in some scattered areas of south-central MINNESOTA on sunflowers and soybeans. By the third week of June, significant damage was reported in Traverse, Big Stone, Stevens, Grant, Lac qui Parle, and Yellow Medicine Counties. The first-generation peaked the third and fourth weeks of June, and by July 1, many chrysalises were hanging from skeletonized plants. Although feeding seemed severe it was not as damaging as it appeared. These plants can tolerate heavy amounts of leaf destruction before there is an appreciable reduction in yield.

Painted lady adult migrations were noted in southwestern NORTH DAKOTA May 25. Larvae and feeding were evident on sunflowers by June 22 as far north as Pembina County. Infestations and damage were widespread in Cass, Richland, Traill, and La Moure Counties by July 6, when larvae averaged 29 per 100 plants. About 30 percent of the acreage had been treated by this date. In many cases populations did not justify controls. Painted lady larvae infested sunflower fields in eastern SOUTH DAKOTA. Where economic damage occurred, treatments were applied to sunflower fields in Codington, Deuel, Brookings, Moody, Brown, Roberts, Day, Marshall, Grant, and Spink Counties. Some second-generation larval damage to sunflower was noted in July.

REDBACKED CUTWORM (Euxoa ochrogaster) caused economic losses to central OREGON peppermint for the third consecutive year. Larvae were noted in more plantings but damage was concentrated in Jefferson County. The heaviest populations and losses occurred south of Madras and in the Culver City area. Populations in Crook and Deschutes Counties were noneconomic. Hatch in Jefferson County began in April and by the latter part of the month, first to third instars averaged 8 per square foot. Larvae were noted in most fields by early May. Larvae (3-6 per square foot), commonly 4-5, were found around weak spots in these fields. Larval densities increased. In one field, 38 acres were completely destroyed and 100+ immatures per square foot were noted. The first pupae were observed May 20, and by mid-June most larvae had pupated and early emerging adults were flying. Heavy populations of ovipositing females were present in fields during early August.

VARIEGATED CUTWORM (Peridroma saucia) eggs and first to second-instar larvae were first noted in OREGON peppermint fields June 14 near Junction City, Lane County. By early July economic counts up to 4 per sweep or 5-6 per square foot were noted in Willamette Valley fields and growers were advised to check mint for damage. Subsequent to this warning many fields were treated. Heavy populations also developed in the central area, with many larvae noted in early August during cutting. Good control was generally attained if treatments were applied correctly and properly timed.

ALFALFA LOOPER (Autographa californica) populations were generally very heavy throughout OREGON and economic populations developed in many Willamette Valley peppermint fields. Infestations ranged 1-3 per sweep in the central valley during early June. The combined feeding damage of this species and Peridroma saucia (variegated cutworm) resulted in control applications over a substantial acreage.

BEET ARMYWORM (Spodoptera exigua) and Trichoplusia ni (cabbage looper) developed economic infestations on 300 acres of mint in Nye County, NEVADA, in late May. Treatments were required.

SUNFLOWER MOTH (Homoeosoma electellum) caused extensive damage to sunflower heads in late July and early August in Faulk, Spink, and Brown Counties, SOUTH DAKOTA. Populations of 10-18 larvae per head were common. A second generation was suspected in the eastern area as larvae ranged 1-2 per head in 5 Moody County sunflower fields the third week of August.

SUNFLOWER BEETLE (Zygogramma exclamationis) adults were active in sunflower fields of Walsh, Pembina, Grand Forks, and Traill Counties, NORTH DAKOTA, by June 15. Larvae and damage were evident in Grand Forks County July 13. Treatments were still being applied August 3 in Pembina County. The economic threshold of this species is not known, but 30-50 larvae per plant had to be present to cause noticeable damage.

POTATOES, TOMATOES, PEPPERS

Highlights:

EUROPEAN CORN BORER damaged peppers in Indiana, Delaware, and North Carolina. TOMATO PINWORM was a problem on eggplant, tomatoes, and potatoes at some Florida locations. COLORADO POTATO BEETLE increased on potatoes in Maine, was a problem in southern and Eastern Shore areas of Maryland, but was less of a problem in Virginia.

EUROPEAN CORN BORER (Ostrinia nubilalis) larvae damaged sweet peppers in southern INDIANA during August. Infestations in untreated sweet peppers were very heavy in DELAWARE, especially during late August and September. The first eggs were noted on potatoes in late May, with some fields having heavily infested vines. Population levels on potatoes on the Eastern Shore of MARYLAND during mid-June were slightly above normal with 300 acres in the 20-30 percent damage range. Damage potential on peppers was above normal; however, most growers avoided losses with scheduled spray programs. Damage by this pest should again be above normal in 1974 due to the heavy population carryover in corn during the winter of 1973 and 1974. Applications for European corn borer larval control in NORTH CAROLINA are made annually to potatoes in the north-eastern counties. Controls were adequate during the 1973 season, resulting in an insignificant yield reduction in potatoes. However, larval damage was worse than in 1971 and 1972 in commercial bell peppers in the Harnett and Sampson County area.

CABBAGE LOOPER (Trichoplusia ni) infested potatoes in Humboldt and Lyon Counties, NEVADA, from late June through August, with counts of 10+ larvae per three row feet. About 3,200 acres were treated in Humboldt County and 65 acres in Lyon County. Cabbage looper larval infestations in NORTH DAKOTA appeared on potatoes during late August in Cass, Traill, Grand Forks, and Walsh Counties. Treatments were applied to late maturing varieties.

GRANULATE CUTWORM (Feltia subterranea) infestations increased over those of 1972 on tomato and bell pepper in FLORIDA. Losses were heavy to unstaked tomato fruits during spring at Bradenton and Immokalee where larvae ranged 10-15 per 20 row feet. Counts ranged 0-1 per row foot on tomato during fall in these same areas. Spotty infestations of VARIEGATED CUTWORM (Peridroma saucia) were present in potatoes throughout MICHIGAN. This is in sharp contrast to the widespread damage incurred in 1972. Some damage to potato tubers was reported from the southeast area.

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) was locally heavy in potato plantings in the Merrill area of Klamath County in the lower Klamath Basin. Good control was achieved by chemicals applied against Myzus persicae (green peach aphid). A posttreatment survey showed larval populations of 20-40 per linear row foot in heavily infested fields.

BEET ARMYWORM (Spodoptera exigua) was light in spring and very heavy in fall at Bradenton, FLORIDA, on tomato, causing foliar injury to early nonfruit bearing vines. This noctuid was generally heavy on bell pepper in eastern Palm Beach County, but controls were applied frequently enough to maintain control. FALL ARMYWORM (Spodoptera frugiperda) larvae were unusually heavy in sweet peppers during late August and early September in several areas of DELAWARE.

TOMATO PINWORM (Keiferia lycopersicella) was the most persistent and difficult pest to control on tomatoes in the Tampa Bay and southwestern areas of FLORIDA. No material gave good kill but season-long treatments of several materials gave control. In spring, tomato pinworm ranged 1-5 per plant (light) on potato in the Immokalee area of Collier County and 5-10 per plant (moderate) on eggplant at Dover, Hillsborough County, and Bradenton, Manatee County. Counts ranged 10-15 per plant (heavy) on eggplant at Immokalee. At Bradenton and Immokalee, this pest was heavy in fall on tomato. A seedling infestation in greenhouses of several large growers in Manatee County during September led to field plant damage in several south Florida counties. Vegetative and fruiting parts of tomato were heavily damaged. By late season, 50-60 percent of the larvae were parasitized.

Heavy TOMATO HORNWORM (Manduca quinquemaculata) populations were reported feeding on tomato during late July in NEW YORK. Many tomato plants were defoliated during early August in Nassau County. This pest was also active on tomatoes at Rockland, Sullivan County, in mid-August.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) populations and number of infested areas increased over 1972 in all untreated potatoes in MAINE. Unsatisfactory controls in treated potatoes appeared to be due to improper timing rather than resistance to

materials used. Many potato fields in Suffolk County, NEW YORK, were 100 percent defoliated by Leptinotarsa decemlineata during 1973. Heavy populations on potatoes were reported from Orange, Albany, Steuben, and Erie Counties during June and July. Good control with chemical treatments was reported in Steuben County. Potatoes, peppers, and tomatoes in southern MARYLAND and on the Eastern Shore required an average of 3 sprays during the growing season to insure stand survival due to infestations of Colorado potato beetle. Uncontrolled infestations ranged 30-100 larvae per yard of row in these areas.

Colorado potato beetle was much less of a problem on truck crops than usual in spring and early summer in VIRGINIA. Relatively heavy populations did develop in fall, however, and should form the basis for a potentially heavy spring infestation in 1974. There were no apparent special control problems in 1973. Colorado potato beetle larval infestations in NORTH DAKOTA appeared on potatoes during late August in Cass, Traill, Grand Forks, and Walsh Counties. Treatments were applied to late maturing varieties. L. decemlineata damaged potato and tomato fields and home gardens in Box Elder, Weber, Davis, Cache, and Salt Lake Counties, UTAH. Populations and damage were above normal this season.

TOBACCO FLEA BEETLE (Epitrix hirtipennis) caused severe damage to young tomatoes and eggplants and was present in fields and plantings throughout most of the growing season in CALIFORNIA. POTATO FLEA BEETLE (Epitrix cucumeris) adults were rather heavy on tomatoes in New Castle County, DELAWARE, during mid-May, and in some potato fields.

PEPPER WEEVIL (Anthonomus eugeni) began to appear in one percent of pepper fruit by April 12 in FLORIDA. Infestation was heavy, 1-3 per fruit, in late spring harvest on pepper at Immokalee and Dover, and light on pepper at Dover in fall. Overall the population was slightly less than in 1972 along the gulf coast areas of the State. This pest continued active in eastern Palm Beach County throughout the pepper-growing season.

GREAT BASIN WIREWORM (Ctenicera pruinina) infested more than 95 percent of potato seed pieces in a 6,000-acre tract of sagebrush and cheatgrass range in Sailer Creek area of Owyhee County, IDAHO, that had been plowed in 1972 and planted to potatoes April 13, 1973. Controls were required.

GREEN PEACH APHID (Myzus persicae) was found on potatoes at Presque Isle, MAINE, July 16 and in other areas of Aroostook County the following week, about the same time as in 1972. Populations increased to a high of 20 percent of plants infested at Houlton by August 10 and an average of 11 percent for Aroostook County. The first alates were noted the week of August 4, about one week later than in 1972. Topkilling of seed potatoes, tuber size permitting, was advised by August 17, about one week earlier than 1972. A green peach aphid alert helped locate the pest in greenhouses and on potted plants offered for sale. This trained many individuals how to identify this pest and suggested when controls were advisable to avoid leaf roll. This program was considered quite effective to avoid the spread of leaf roll. Fall migrant alates were trapped in yellow-pan traps in Maine up to September 7.

Myzus persicae and Macrosiphum euphorbiae (potato aphid) were adequately controlled in commercial pepper, tomato, and potato acreages of MARYLAND. M. persicae ranged moderate in small unsprayed garden pepper and potato plots (50-100 percent infested plants). Commercial peppers ranged 5-20 percent infested before spray schedules were implemented in July. Preplant systemic insecticides on commercial potatoes gave good early season control of both species on the lower Eastern Shore. Control costs for these aphids were estimated at over \$32,000.

A few colonies of green peach aphid were observed on potato at Hastings, St. Johns County, FLORIDA, during February and March. Populations became negligible in April and May. Flights were heavy on pepper and tomato by April 12 in the Bradenton area of Manatee County. Populations were lighter, 5-10 per leaf, but persistent during spring on pepper. Populations in eastern Palm Beach County during the 1972-1973 season developed about 6 weeks later than during the previous season with a consequent delay of virus infection in most pepper plantings. M. persicae and Frankliniella occidentalis (western flower thrips) heavily infested seedling tomato plants in Clark County, NEVADA, in May and required treatments.

POTATO APHID (Macrosiphum euphorbiae) infested all untreated potato check plots in MAINE by July 2, but alates were present at Preque Isle. The maximum infestation by August 10 was 94 percent of plants near Houlton.

Economic populations of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) proved difficult to control on greenhouse tomatoes around Bernalillo County, NEW MEXICO, during the 1973 season.

BEANS AND PEAS

Overwintered MEXICAN BEAN BEETLE (Epilachna varivestis) adults caused some moderate feeding injury to snap and lima beans in Dorchester, Caroline, and Wicomico Counties, MARYLAND. In June, adult counts on the lower Eastern Shore varied 2-15 per 10 row feet in 1,500 acres. During July and August, larvae increased rapidly on the Eastern Shore. Sprays for E. varivestis and earworms ranged 3-4 per field during July and increased to 5-7 sprays per field in August and September. Applications in central Maryland varied 2-4 per field during the same periods. Mexican bean beetle became a serious and damaging pest of lima and pole beans throughout ALABAMA. To a lesser extent, it was a pest of southern field peas. Populations were heavy and about the same as the past 5 years. E. varivestis commonly damaged beans in UTAH home gardens. Control was often needed in commercial fields.

Pea plants in IDAHO emerged early in May. PEA LEAF WEEVIL (Sitona lineatus) infestations moved to spring seeded pea plants from alfalfa and other perennial legumes May 14 in most low elevation areas of Latah and Nez Perce Counties. Some large fields were entirely infested. A number of nondamaging populations in Clearwater and Lewis Counties were noted. Treatment was general in the Genesee area of Latah County. About 6,000 acres in northern Latah County had been treated by May 18. In other areas, the population remained spotted and adults had damaged 50 percent of emerging pea plants by May 24. By June 1, virtually all adult movement from perennial plants to legumes had ended. By June 8, most pea plants had outgrown feeding damage.

Outbreak populations of ALFALFA LOOPER (Autographa californica) caused severe damage to pea fields in Canyon, Idaho, Clearwater, Nez Perce, Latah, Benewah, and Kootenai Counties, IDAHO, for the first time in 20 years. Lentil fields were also damaged. Infestations were spotted and populations ranged 3-50+ larvae per sweep. Damage usually resulted in larvae feeding and skeletonizing leaves. Where pea plants were wilted, pods were destroyed by notching. Often the terminals were severed. Pupation of the first generation was noted in Lewis County June 25 and Latah County June 28. Organophosphorous insecticides were ineffective in the control of larvae over 1 inch long. More than 10,000 acres required treatment. There was some evidence of disease among the Canyon County larval population.

The LESSER CORNSTALK BORER (Elasmopalpus lignosellus) incidence during 1973 in NORTH CAROLINA was about 3 times that of 1972. Snap beans, field peas, and butter beans in garden and commercial plantings had stand losses up to 50 percent in scattered fields throughout the eastern Piedmont and Coastal Plain. Damage reports indicated that the period from late July through September was the most active period for this pest.

Feeding by TARNISHED PLANT BUG (Lygus lineolaris) on the green pod stage of dry beans causes a hardened spot on the bean called "dimple blemish." This damage has been increasing over the past few years in MICHIGAN and was heavy in some fields in the Saginaw Valley area during 1973.

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) was easily found in many cabbage fields at Geneva, Ontario County, NEW YORK, during late July. Heavy adult populations were observed in some cabbage fields in the Rochester area of Monroe County in early July. Imported cabbageworm was the most destructive pest of commercial and home plantings of cabbage, collards, and other cole crops and occurred throughout ALABAMA. This pest was prevalent early in the season in CALIFORNIA and caused much damage. Cabbage, turnips, radish, broccoli, and kohlrabi in many home gardens were lost.

DIAMONDBACK MOTH (Plutella xylostella) was a principal pest of cabbage in the Everglades area of FLORIDA, with larvae becoming very abundant by early April and causing severe damage unless adequate control measures were applied.

CABBAGE MAGGOT (Hylemya brassicae) severely damaged crucifer crops in all areas of MAINE. Single applications of a certain organic phosphate failed to control some second and third-generation larval infestations. Damage in 1973 is estimated to be above average. Control of cabbage maggot larvae is essential to cabbage production in western NORTH CAROLINA. Failure of effective control measures for this pest and club root resulted in an 80-percent loss for several producers in 1973.

The first adult CABBAGE LOOPER (Trichoplusia ni) in MICHIGAN was collected June 9 in an Oceana County light trap. This was 3-4 weeks earlier than normal. This pest caused very serious damage to all cole crops throughout the summer. Extensive feeding on

potatoes, tomatoes, and other crops was also observed. Concern arose over its presence on potatoes. Control of this pest on potatoes was generally not necessary because it feeds only on foliage and populations did not build up until mid-August. Oviposition on cabbage was underway and heavy August 6 in Monroe County, NEW YORK. Adults were active in cabbage fields during the period August 7-20 in the Geneva area of Ontario County. In Onondaga, Cayuga, Madison, and Oswego Counties, infestations in lettuce fields were the most severe ever witnessed by many growers. Chemical treatments were effective for controlling T. ni on young lettuce and procuded a good kill on lettuce near harvest.

Fall infestations of cabbage looper in unsprayed cabbage, broccoli, and kale in Wicomico, Dorchester, Baltimore, Anne Arundel, and Caroline Counties, MARYLAND, ranged 60-100 percent. However, 90 percent of the commercial acreage achieved 80 percent control or better with schedule sprays. Cabbage looper populations occurred early and were heavy in eastern and western NORTH CAROLINA cabbage areas. Several weekly applications were necessary to maintain quality heads for fresh market. This noctuid and Pseudoplusia includens (soybean looper) occurred in mixed populations and damaged cabbage, collards, and other cole crops throughout ALABAMA, with T. ni the more important.

Cabbage looper was one of the principal pests of cabbage in the Everglades area of FLORIDA. It caused heavy ragging of collar leaves in this area, but a polyhedrosis virus brought larvae under sufficient control that only minimum injury occurred directly on heads. Heavy populations were present on cabbage in the Hastings area from March to May when damage was potentially severe, but these populations were eliminated in May by a polyhedrosis virus. Heavy cabbage looper infestations caused serious damage to garden cabbages and broccoli in Shawnee and Riley Counties, KANSAS, during mid-June.

Cabbage looper adults were active very early in the Willamette Valley of OREGON. The first moths were taken in blacklight traps May 17-20 in Clackamas and Linn Counties. This collection was about 2.5 months earlier than normal. This early appearance may have been due to the species overwintering in the area. Larvae were economic by early June in Marion County broccoli plantings and the successive generations increased population levels which resulted in foliar damage to cole crops. This damage is significant as T. ni is generally regarded as a problem only as a contaminant. Moths were taken in blacklight and pheromone traps every week from late June to early October in Marion and Linn Counties. Peak populations varied with trap location.

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) remained troublesome in all melon and cucumber plantings in MARYLAND this season. Most damage occurred between late May and early June when adults damaged seedlings. The heaviest counts ranged 3-6 adults per seedling in several hundred acres in Dorchester, Wicomico, Caroline, Baltimore, Anne Arundel, and Prince Georges Counties. Most commercial acreages required 1-3 sprays to protect seedlings from damage and the transmission of wilt disease. Striped cucumber

beetle adults ranged 6-8 per transplant, especially on cantaloup, by May 18 in INDIANA. They were especially difficult to control due to cold, windy weather which made treatment difficult or ineffective.

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) was difficult to control in Yuma County, ARIZONA, due to adverse weather conditions which made it difficult for growers to schedule control treatments in early January. Treatments were required from January through March, and again from September through December. A general buildup began in Maricopa County during early March with first and third-instar larvae present. Cochise County fields were infested in late August. Treatments were necessary on fall and winter lettuce crops statewide. Cabbage looper was one of the more important pests causing economic damage to celery in the Everglades area of FLORIDA, and was a pest of lettuce throughout most of the growing season in this area.

ALFALFA LOOPER (Autographa californica) adults taken in northwest WASHINGTON pheromone traps generally ranged 10+ times as numerous as in the 1972 season. Some larvae were found in pea fields near traps. The heaviest larval infestations were in seed crops of spinach, beets, and flowers. Damage was severe in corn. FALL ARMYWORM (Spodoptera frugiperda) caused damage to celery plantings in Orange County, CALIFORNIA. SOYBEAN LOOPER (Pseudoplusia includens) was one of the more important pests causing economic damage to celery in the Everglades area of FLORIDA.

TOMATO PINWORM (Keiferia lycopersicella) ranged moderate to heavy on eggplant from Hillsborough to Collier Counties, FLORIDA, during spring. Several light to heavy infestations damaged tomatoes in scattered locations of TEXAS during 1973. The heaviest infestations were noted in Brazos and Burleson Counties.

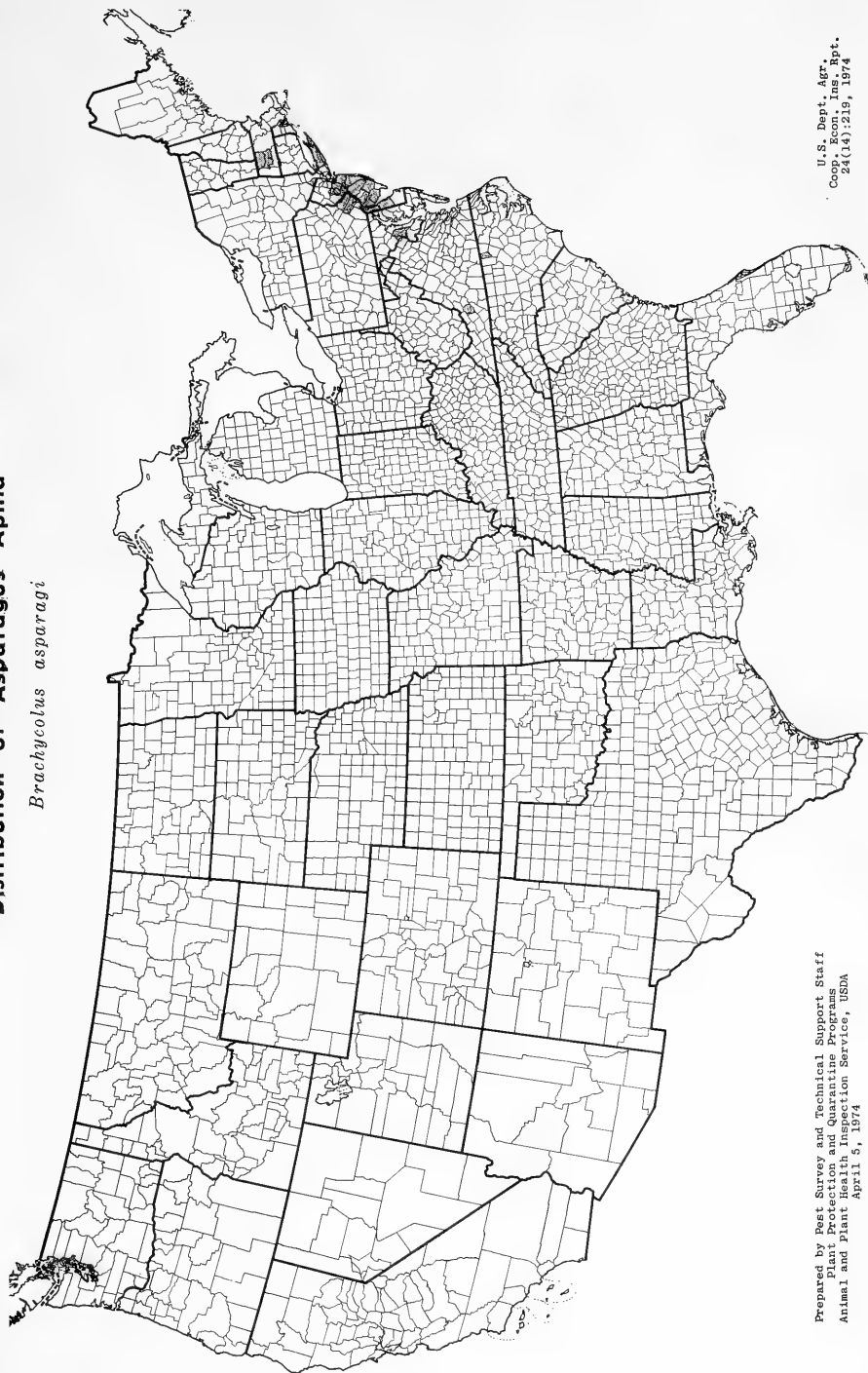
SPOTTED ASPARAGUS (Crioceris duodecimpunctata) and ASPARAGUS BEETLE (C. asparagi) adults were feeding and C. asparagi was depositing eggs on asparagus in Hampshire County, MASSACHUSETTS, by May 4. C. asparagi infestations on 2,600 acres of asparagus in Kent and Cecil Counties, MARYLAND, required 2-4 treatments to achieve control. The remaining 1,000 acres scattered throughout the State required 1-2 treatments.

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) adults damaged lettuce in the Everglades area of FLORIDA during the spring and fall of 1973.

GREEN PEACH APHID (Myzus persicae) ranged light to heavy in WYOMING on tomatoes, peppers, and some garden flowers in Albany, Goshen, and Laramie Counties by the end of May. Light to moderate infestations were observed on peppers and some garden flowers in Park, Big Horn, and Washakie Counties.

Distribution of Asparagus Aphid

Brachycolus asparagi



Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
April 5, 1974

U. S. Dept. Agr.
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Weather of the week continued from page 194.

At midweek, thunderstorms triggered by a front stretching across the gulf coast occurred from Louisiana to Alabama and reached north into Arkansas and Tennessee. Nearly 2.50 inches of rain soaked McComb, Mississippi, and isolated storms dumping as much as 5 inches of rain caused local flooding in Louisiana. Thursday, another frontal system moved inland from off the Washington coast producing more rain in the Pacific Northwest and northern California. Salinas, California, reported nearly 1.50 inches of rain within 6 hours. Late Thursday evening a tornado roared through Ruston, Louisiana, causing much damage and personal injury. Another tornado was sighted near Tuscaloosa, Alabama, accompanied by baseball size hail. Midday Friday, high winds howled across the central and southern Plains with gusts topping 60 m.p.h. at Laramie, Wyoming. Windstorms were also occurring in the South. Two tornadoes were reported near Claxton, Georgia, and 60 m.p.h. winds swept through Jefferson, Georgia. Later in the day, as tornadoes and severe thunderstorms moved rapidly northeastward across a portion of the Ohio and Tennessee Valleys, egg-size hail pelted Mendoria, Illinois, and Bolivar, Tennessee, reported golf ball-size hail. Wind gusts reached 54 m.p.h. at Springfield, Illinois. By the weekend an Atlantic coast storm had intensified and moved northeastward whipping winds and water into the northeast coasts. Before the northeastern storm dimished, Atlantic City, New Jersey, measured over 1 inch of rain and Scranton, Pennsylvania, added 2 inches of snow to the ground.

TEMPERATURE: A large section of the Nation on both sides of a line from Grand Forks, North Dakota, to Goodland, Kansas, and southward to Lubbock, Texas, recorded temperatures well above normal. Sheridan, Wyoming, and Lubbock, Texas, reported average temperatures 12 degrees above normal. The opposite situation prevailed in the Lakes area and Northeast where temperatures were below normal. Albany, New York, reported an average temperature for the week of 12 degrees below normal. Monday, a record cold arctic air mass for this late in March wedged between the Great Lakes and Ohio Valley. Temperatures plummeted to record lows at Toledo, Ohio, with 6 degrees below zero; Detroit, Michigan, 4 degrees, and Indianapolis, Indiana, 5 degrees. At midweek, a cold front passed through the Northeast leaving behind cooler temperatures. The coolest spots were in the northern sections of North Dakota, Minnesota, Michigan, and Maine where the mercury held in the 20's. Temperatures over the southern and central Plains warmed to above seasonal levels Wednesday afternoon with temperatures in the low 80's common in much of Texas into southwestern Kansas. Thursday, the warmest temperature in the Nation was 91 degrees recorded at Clewiston, Florida, and Cotulla and Del Rio, Texas. A record low for Thursday was set shortly before midnight at Portland, Maine, with a reading of 12 degrees above zero. Friday, the extreme Northeastern United States was fair and quite cool with readings in the teens common in New York and New England, with a few spots dipping below zero. Temperatures reached record highs on Friday in southeast Texas and Louisiana. Alexandria, Louisiana reached 90 degrees, Victor, Texas, 93 degrees, and on Galveston Island, Texas, a record 81 degrees was reported. Sunday, weather remained warm in Texas and the Southeast after highs of the upper 80's and 90's on Saturday, but below freezing temperatures spread through the upper Plains and into the central Great Lakes.

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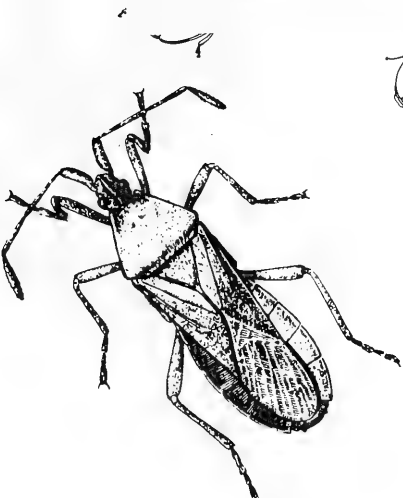
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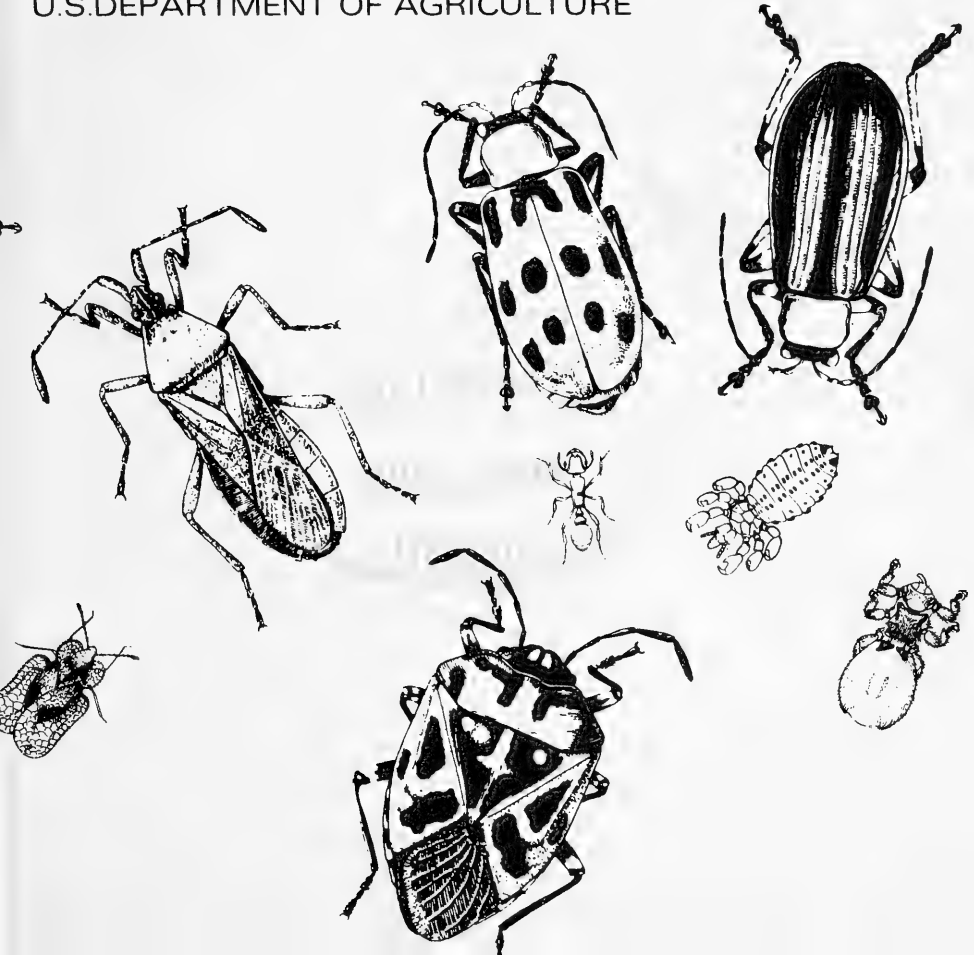
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Cooperative Economic Insect Report

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



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

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United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG damaged barley in central and Northern Neck areas of Virginia in late March. WINTER GRAIN MITE heavy on wheat in west-central Oklahoma. (p. 223).

ALFALFA WEEVIL activity continues at low level due to cool weather in several Midwest States. (pp. 224-225).

First CEREAL LEAF BEETLE adults of season observed on wheat in western West Virginia. (p. 229).

Detection

New State records include an APHID from Vermont (p. 227), a CERAMBYCID BEETLE and a EULOPHID WASP (p. 230) from Idaho, a NOTODONTID MOTH (p. 227) and a SPHINGID MOTH (p. 226) from West Virginia, and a SATURNIID MOTH from South Carolina (p. 227).

Special Reports

Summary of Insect Conditions in the United States - 1973
Deciduous Fruits and Nuts. (pp. 231-237).
Citrus. (p. 237).
Small Fruits. (pp. 237-239).

Distribution of San Jose Scale. Map. (p. 234).

NOTE: "Distribution of Plant Parasitic Nematodes in California" is available upon request from California Department of Food and Agriculture, Supply Service, 1220 N Street, Sacramento, California 95814. There is no charge for this publication, but \$1.00 in check or money order payable to "Department of Food and Agriculture" should be included for each copy requested to cover handling and mailing.

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

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WEATHER OF THE WEEK ENDING APRIL 1

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

HIGHLIGHTS: Nearly 100 devastating tornadoes roared through 11 States in an area extending from Georgia to Canada last week claiming over 320 lives. Thousands were left homeless and millions of dollars in property destroyed, as an unusually deep Low pressure system triggered the worst tornadoes in 49 years. Meanwhile, the southwestern sections of the country remained dry as Texas, Oklahoma, New Mexico, and Arizona received only traces of precipitation during the week. Most of the Nation enjoyed mild temperatures with eastern seaboard States recording temperatures over 5 degrees above normal for a week while North Dakota averaged as much as 6 degrees below normal.

PRECIPITATION: Heavy precipitation accompanied severe thunderstorms and tornadoes drenching the entire Southeast. Tallahassee, Florida, recorded 3.29 inches of precipitation, and Knoxville, Tennessee, got 3.42 inches of precipitation during the week. Sections of the Pacific Northwest received heavy showers: Port Angeles, Washington, had 4.28 inches. Early in the week, a Low pressure center moving eastward across the Mississippi Valley pumped moisture northward triggering widespread precipitation followed by severe thunderstorms over the lower Mississippi Valley and along the mid-Atlantic coast. Rainfall totals included: Vero Beach, Florida, 2.02 inches and Cocoa Beach 1.34 on Tuesday and 28 tornadoes swirled through the Ohio Valley to the central Gulf States. At midweek, a very intense Low pressure center moved northwest into Missouri. Ahead of the Low, thunderstorms spread from Illinois and the Ohio Valley into Tennessee and northern Alabama. Behind the Low, winds gusted to 50 m.p.h. whipping and blowing snow across the western portions of the central Plains causing near-blizzard conditions locally. The intense thunderstorms spawned over 80 destructive tornadoes stretching from the Ohio Valley to the central Gulf States Wednesday and early Thursday demolishing everything in their path and causing numerous casualties. Weather of the week continued on page 240.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Populations present but decreasing in Washita County wheat. (Okla. Coop. Sur.). KANSAS - Some damaging infestations in wheat reported in Wallace and Greeley Counties; some treatment made in latter county. (Bell). NEBRASKA - Averaged 5 and 15 per square foot in two Dundy County wheat fields examined March 15. Ranged 5-10 (average 7) per square foot in 3 fields of alfalfa near Benkelman same date. (Campbell). SOUTH DAKOTA - Infestations observed in most Tripp County wheat fields week ending March 29. Ranged from occasional larva in some fields up to 8-10 larvae per linear row foot in other fields. (Kantack). MONTANA - Larvae ranged 3-5 per square foot in wheat north of Broadus in Powder River County. Extent of infested area undetermined. (Pratt).

ARMYWORM (Pseudaletia unipuncta) - FLORIDA - Larvae per 100 sweeps averaged 3 on oats and one on rye at Gainesville, Alachua County. (Fla. Coop. Sur.).

ASTER LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - Adults per 100 sweeps averaged 9 (males and females) in oats and 2 in rye at Gainesville, Alachua County. (Fla. Coop. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Weather during past winter ideal for C. tenellus in San Joaquin Valley. Sporadic rain, sufficient to germinate annuals on all breeding grounds, and warmer and milder than average temperatures induced widespread breeding. Egg laying occurred over longer than normal period and hatch slow in reaching peak. Appears controls may be successful in reducing populations in Fresno and Kings Counties. Some reproduction occurred on wastelands near cultivated areas on valley floor. If area subjected to drying winds and temperatures before controls completed, much heavier than normal adult population may move to cultivated lands. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - VIRGINIA - Caused heavy damage to barley in Cumberland County by March 27. (Seay). Ranged up to 75 per square foot of small grain at Dogue, King George County, March 25. (Surles). Damage to small grains in Westmoreland County has been widespread and apparently affected barley yield in parts of many fields. About 1,000+ acres treated in county; control results fair. Predators and parasites appearing in Westmoreland County small grains. (Allen). TEXAS - Light, less than 10 per row foot reported on small grains in Archer, Baylor, Hardeman, Knox, Haskell, Throckmorton, Wilbarger, and Wichita Counties. Parasitic wasps, lady beetles, nabids, and spiders continued to prey heavily on S. graminum in fields throughout Rolling Plains area. (Boring). Populations on grain sorghum decreased in most south-central counties. (Cole). ARKANSAS - Survey continues negative in wheat in northwest area. (Boyer). COLORADO - Damage noted in winter wheat in southeast Baca County. None found north of Two Buttes. Alates being formed. (Hantsbarger).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Heavy, ranged 200-300 per linear foot in Washita County wheat. (Okla. Coop. Sur.). TEXAS - Ranged 4-25 per row foot in small grains in Harde- man, Knox, Haskell, and Throckmorton Counties. Ranged 30-100 per row foot in few fields in Archer, Baylor, and Wilbarger Counties. (Boring).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Ranged medium to heavy on 250 acres of wheat at Lovelock, Pershing County. Field has brownish appearance. (Martinelli, Stitt). NEW MEXICO - Common in dryland wheat in Dora area of Roosevelt County. Minimal damage noted on foliage. Very light in areas where rain showers occurred. (N.M. Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - FLORIDA - Averaged 209 nymphs and adults per 100 sweeps each of oats and rye at Gainesville, Alachua County. (Fla. Coop. Sur.).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Light in some grain sorghum in south-central area. Most numerous on Johnson grass in Brazos, Burleson, and Robertson Counties. Purple discoloration of Johnson grass observed in areas with established population. (Cole).

AN APHID (Rhopalosiphum padi) - CALIFORNIA - This aphid and Myzus persicae (green peach aphid) infested wheat at El Centro, Imperial County. R. padi severe on wheat in San Luis Obispo County, required treatment. Lysiphlebus testaceipes (a braconid wasp) observed at both locations. (Cal. Coop. Rpt.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - FLORIDA - Adults per 100 sweeps averaged 5 in oats and one in rye at Gainesville, Alachua County. (Fla. Coop. Sur.).

BLACKFACED LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Adults per 100 sweeps averaged 30 in oats and 15 in rye at Gainesville, Alachua County. (Fla. Coop. Sur.).

A WIREWORM (Ctenicera resplendens) - IDAHO - Found in area where wheat was damaged in Nez Perce County. (Kambitsch).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - DELAWARE - First-instar larvae present in alfalfa in Sussex County; damage very light. (Burbutis). VIRGINIA - Number of alfalfa tips infested per 50 tips examined ranged from zero in one Rockbridge County field to 49 in one field each in Bedford, Botetourt, and Charlotte Counties. Percent infestation ranged from zero in one Rockbridge County field to 98 in one field each in Bedford, Botetourt, and Charlotte Counties. Larvae per tip ranged from zero in Rockbridge County to 7.2 in Charlotte County. Based on 19 fields sampled (191 acres), 53.7 percent of tips infested. Average estimated defoliation 5.6 percent. Larvae averaged 2.5 per tip based on 950 tips sampled. Infestation exceeded recommended control level in 11 fields. Damage noneconomic at present. (Blakeslee et al.).

SOUTH CAROLINA - Alfalfa weevil infestations ranged 50-100 percent of tips on all established alfalfa plantings across State. Percent tips infested ranged 10-40 on newly established stands. (Thomas). TENNESSEE - Number of alfalfa tips infested per 50 tips examined in 13 fields checked in 9 counties ranged from 11 in one Tipton County field to 48 in one Henry County field. Number of larvae per 50 tips examined in these counties ranged from 11 in one Tipton County field to 102 in one Henry County field. (Gordon et al.). KENTUCKY - Eggs averaged 13.4, 27.8, 82.4, 9.0, 11.8, 15.8, 17.6, and 3.6 per square foot in various alfalfa fields in Fayette County. Eggs averaged 84.5 per square foot in Barren County. (Barnett, Parr).

OHIO - Alfalfa weevil eggs averaged 2 per square foot of alfalfa at Columbus March 4 and 14 per square foot at Wooster March 8. Probably overwintering eggs. (Horn). INDIANA - In 30 southern area alfalfa fields observed, mean percent infestation ranged 22-69 and mean number of larvae per stem ranged 1.1-3.4. Alfalfa averaged 5 inches tall in districts involved. Low temperatures, in some instances nearly to zero degrees Fahrenheit, slowed growth and in few instances destroyed entire plants which were weakened by disease, excess moisture, or heaving. Some dead larvae found; nearly all were early instars. (Meyer). ILLINOIS - Development slow due to cool temperatures. Some tip feeding noted in most fields sampled. Sweep counts generally low except for occasional fields in Washington and Massac Counties where counts up to 10 and 7 per sweep, respectively, found. (Ill. Ins. Rpt.). MISSOURI - Light on alfalfa in southeast area. Larvae ranged 1-5 per plant in south-central area. Alfalfa will be slow growing because of freeze damage and moderate H. postica populations. (Munson).

KANSAS - Alfalfa weevil economic in Cowley and Sumner County alfalfa surveyed. Significant freeze damage occurred 14 days ago in Cowley County field; much regrowth eaten back by larvae not killed by freeze. First, second, and third instars found in about equal numbers, some fourth instars in most fields. Treatment may be needed in many fields in southern two tiers of counties in southeast and south-central districts and possibly Clark and Meade Counties. Frequent damage checks in more northern fields including some in eastern counties of central district and as far north as the Kaw Valley of east-central district will be needed next 14 days. Larvae averaged 4.1 per terminal in one Kaw Valley field in Wabaunsee County; most larvae still small, foliar damage not very noticeable. Some treating done in Sumner County; pupation began in Clark County. One Crawford County field with 0.9 larva per terminal; freeze 14 days ago killed about 50 percent of green terminals back to ground level. All larval instars in about equal numbers. One Ellsworth County field showed 13 percent terminal damage. (Bell).

ARKANSAS - Development of alfalfa slowed by cold weather; however, alfalfa weevil larvae on increase. Treatments which had been stopped or slowed have increased, especially in southern and central areas. Treatments in more northern areas expected to increase next period. (Boyer). OKLAHOMA - Infested terminals ranged 40-100 percent in Tulsa and Muskogee Counties and 20-90 percent in Wagoner County. Larvae ranged 3-4 per terminal in Washita County; moderate to heavy in Comanche County and moderate in Pawnee and Grady Counties. Damage observed in panhandle counties. Some fields treated in Woodward, Harper, and Beaver Counties. (Okla. Coop. Sur.). NEW MEXICO - Averaged one larva per 25 sweeps in north valley of Bernalillo County. (N.M. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Averaged 20 per sweep of alfalfa at Holtville, Imperial County. (Cal. Coop. Rpt.). ARIZONA - Ranged 10-15 per 100 sweeps of alfalfa at Safford Valley, Graham County. (Ariz. Coop. Sur.). OKLAHOMA - Moderate on forage legumes in Wagoner and Muskogee Counties. (Okla. Coop. Sur.). ARKANSAS - Counts on alfalfa continued to fluctuate with changing temperatures. Numbers expected to increase as temperatures rise. (Boyer).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Ranged 10-20 per 100 sweeps of alfalfa at Safford Valley, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 1-3 per 10 sweeps in alfalfa in Dona Ana, Socorro, Bernalillo, and Eddy Counties. Lygus spp. (lygus bugs) ranged 0-4 per 10 sweeps in these counties. Some fields at first cutting. (N.M. Coop. Rpt.). ALABAMA - Overwintered adults averaged 10 per 10 sweeps of blooming crimson clover in Lee County. More numerous than most years. (McQueen).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - Eight forage legume fields in Harrison County averaged 11 percent infested with early instar nymphs. Four fields in Washington County averaged 13 percent infested. Few infestations found in other areas. (Meyer).

BROWN STINK BUG (Euschistus servus) - ALABAMA - Overwintered adults averaged 6 per 10 sweeps of blooming crimson clover in Lee County. Counts heavier than most years. (McQueen).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Larvae averaged 15 per 10 sweeps of blooming crimson clover in Lee County; 20 percent of larvae full grown. Larval development more advanced and counts heavier than same period in 1973. (McQueen).

COTTON

COTTON APHID (Aphis gossypii) - WEST VIRGINIA - Collected from Gossypium hirsutum in Kanawha County. Collected by M. Weiden. Determined by L.M. Russell. This is a new county record. (Coffman).

DECIDUOUS FRUITS AND NUTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TENNESSEE - Populations heavy in some areas. Infested peach, pear, apple, and wild cherry trees in lower eastern area. Also heavy in localized western areas. Webs unusually heavy. (Gordon, Bruer). KANSAS - Hatching on peach in Riley County. (Bell). OKLAHOMA - Moderate on plum and cherry trees in Muskogee County and wild plum in Wagoner County. (Okla. Coop. Sur.).

PEACHTREE BORER (Sanninoidea exitiosa) - IDAHO - Infestation 95 percent of 6-acre nectarine orchard, 100 percent of 3-acre peach orchard, and 100 percent of 6-acre Italian prune orchard in Canyon County. (Homan).

A SPHINGID MOTH (Paonias excaecatus) - WEST VIRGINIA - Larvae collected on apple tree in Ritchie County September 10, 1973, by J. Szeliga. Determined by D.M. Weisman. This is a new State record. (Hacker).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Adults observed on pear at East Lyme April 1. Adults and eggs found at New Haven and Storrs. (Savos). UTAH - Active on pear throughout Orem area of Utah County since mid-March (Barlow) and in Salt Lake and Davis County localities (Davis, Burningham). IDAHO - Adults active in Caldwell area of Canyon County, March 15. No eggs deposited yet. (Homan). WASHINGTON - Eggs laid on green tips of pear buds in early prepink stage at Sawyer, Yakima County, March 18; first-instar nymphs found on pear buds March 25. (Harwood et al.).

GRAPE MEALYBUG (Pseudococcus maritimus) - WASHINGTON - First-instar nymphs found feeding on green tips of pear buds in early prepink stage at Buena, Yakima County, March 27. (Harwood et al.).

CITRUS

CITRUS RED MITE (Panonychus citri) - FLORIDA - Severe on 1,000 citrus seedlings at Gainesville, Alachua County, March 28. (Fla. Coop. Sur.).

ORNAMENTALS

AN APHID (Dactynotus ambrosiae) - VERMONT - Collected on Aster sp. in Township of Ferdinand, Essex County, August 9, 1972, by L.L. Pechuman. Determined by A.G. Robinson. This is a new State record. (Leonard).

MINING SCALE (Howardia biclavis) - FLORIDA - Nymphs and adults collected from Star of India (Grewia caffra) at nursery in Miami, Dade County, March 27, 1974, by R. Clark. This is a new host record for State. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VIRGINIA - Larvae appeared in Goochland County April 3. Web counts light. (Allen). NORTH CAROLINA - Webbing very heavy in Harnett, Sampson, Johnson, Wilson, Wake, Nash, and Franklin Counties. Webs ranged up to 15 per tree on 70 percent of wild cherry trees observed. Webs numerous on crab apple, peach, and other ornamental trees in yards throughout area. Webs averaged about two per 15-foot tall wild cherry on 30 percent of trees checked in Person, Durham, Orange, Granville, and Alamance Counties. (Hunt). MISSISSIPPI - Webs and young larvae evident statewide. Some heavy defoliation observed on plum and cherry. (Robinson). ARKANSAS - Infestations continued to develop in most areas of State. Infestations expected to appear in extreme northwest area soon. (Boyer).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Larvae appearing on Siberian elm and apple in Riley County. (Bell).

LARCH CASEBEARER (Coleophora laricella) - MONTANA - Heavily infested larch in Porcupine Creek drainage area near Seely Lake, Missoula County. (Pratt).

A SATURNIID MOTH (Anisota consularis) - SOUTH CAROLINA - Larvae collected from blackjack oak (Quercus marilandica) at Six Mile, Pickens County, during September 1973 by R. Peigler. Determined by J.C.E. Riotte. This is a new State record. (McAlister).

A NOTODONTID MOTH (Heterocampa umbrata) - WEST VIRGINIA - Larvae collected on red oak in Grant County September 15, 1973, by A.R. Miller. Determined by D.M. Weisman. This is a new State record. (Hacker).

POPLAR TENTMAKER (Ichthyura inclusa) - WEST VIRGINIA - Larvae collected from yellow poplar in Raleigh County, May 30, 1973, by G. Gibson. Determined by D.M. Weisman. This is a new county record. (Hacker).

A NOCTUID MOTH (Morrisonia confusa) - WEST VIRGINIA - Larvae collected from pin oak in Wood County June 27, 1973, by T.N. McKissic. Determined by D.M. Weisman. This is a new county record. (Hacker).

EASTERN PINESHOOT BORER (Eucosma gloriola) - WEST VIRGINIA - Larvae collected from white pine and Scotch pine in Wood County June 27, 1973, by T.N. McKissic. Determined by D.M. Weisman. This is a new county record. (Hacker).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Adults active at lights in Socorro, Socorro County. (N.M. Coop. Rpt.).

ELM CALLIGRAPHA (Calligrapha scalaris) - OKLAHOMA - First adult of season taken at Stillwater, Payne County. (Okla. Coop. Sur.).

A MELANDRYID BEETLE (Synchroa punctata) - WEST VIRGINIA - Larvae collected from under the bark of sycamore firewood in Kanawha County March 3, 1974, by C.C. Coffman. Determined by C.C. Coffman. This is a new county record. (Hacker).

PYROCHROID BEETLES (Dendroides spp.) - WEST VIRGINIA - D. ephemeroides and D. picipes larvae collected from under dead bark of sycamore firewood in Kanawha County March 3, 1974, and determined by C.C. Coffman. These are new records for Kanawha County. (Hacker).

OAK LECANIUM (Lecanium quercifex) - MISSISSIPPI - Adults present on some oaks in Oktibbeha and Choctaw Counties. Crawlers have not appeared. (Robinson).

AN ARGID SAWFLY (Arge scapularis) - WEST VIRGINIA - Larvae collected from black oak in Pendleton County August 3, 1973, by H.R. Wilson. Determined by D.R. Smith. This is a new county record. (Hacker).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 51 cases reported from continental U.S. during period March 17-30, all from Texas. Total of 239 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 181,950,600 as follows: Texas 178,710,600; Arizona 3,240,000. Total of 235,524,600 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 1.2 per animal on backs of 150 Holstein dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - H. lineatum (common cattle grub) adult activity noted in Garvin County. Occasional grub still found in backs of cattle in Payne County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Averaged one per face on Angus cattle in one herd in Monroe County. Overwintering females currently laying first-generation eggs. (Robinson).

HORN FLY (Haematobia irritans) - FLORIDA - Counts per side averaged 250 on cows and 2,500 on bulls at ranch in southeastern Okeechobee County. Ranged up to 5,000+ per side on some bulls. Collected and determined by J.F. Butler. (Fla. Coop. Sur.).

ALABAMA - Haematobia irritans ranged 5-100 per head on most of 100 beef cows in Lee County pasture. Counts heavier on black cows than on red or brown animals. (McQueen). MISSISSIPPI - Averaged 100+ per head on beef cattle in Oktibbeha County and 50+ per head on cattle in Chickasaw and Monroe Counties. (Robinson). OKLAHOMA - Ranged up to 50 per head on Payne County cattle. Heavy in Atoka County, light in Comanche County. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - OKLAHOMA - Heavy on dogs in some Payne County areas. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

CASEMAKING CLOTHES MOTH (Tinea pellionella) - SOUTH CAROLINA - Collected from residence in Fairfield County March 28, 1974, by M.H. Lynn. Determined by C.A. Thomas. This is a new county record. (McCaskill).

STORED PRODUCTS

MERCHANT GRAIN BEETLE (Oryzaephilus mercator) - NEVADA - Collected from cheese cracker sandwiches in vending machine at Reno, Washoe County, January 24, 1974, by A.A. Alcorn. Determined by R.C. Bechtel. This is a new county record. (Bechtel).

BENEFICIAL INSECTS

A BLACK BLISTER BEETLE (Meloe niger) - WASHINGTON - Overwintering adults first noted emerging from Nomia melanderi (alkali bee) beds in Lowden and Touchet areas, Walla Walla County, February 13. Emergence nearly complete March 31. Adults observed March 23 near Othello, Adams County, and Pasco, Franklin County, emerging from bee beds started with cores obtained from Touchet. (Mayer, Johansen).

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARIZONA - Ranged 30-40 per 100 sweeps of alfalfa at Safford Valley, Graham County. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - First adults observed in winter wheat in Mason County March 27. Adults feeding, but damage negligible. (Hacker).

DETECTION

New State Records

A CERAMBYCID BEETLE (Phymatodes maculicollis) - IDAHO - Single specimen taken on flight trap in forested area 4.5 miles northeast of Potlach, Latah County, August 18, 1972, by H.L. Osborne. Determined by T.J. Spilman. (PPQ).

A EULOPHID WASP (Coccophagus scutellaris) - IDAHO - Collected in field of rye near Ketchum, Blaine County, August 28, 1973, by J. Eakin. Determined by B.D. Burks. C. scutellaris is known from California, Montana, and Oregon in the United States and has a worldwide distribution. (PPQ).

AN APHID (Dactynotus ambrosiae) - VERMONT - Essex County. (p. 227)
A NOTODONTID MOTH (Heterocampa umbrata) - WEST VIRGINIA - Grant County. (p. 227). A SATURNIID MOTH (Anisota consularis) - SOUTH CAROLINA - Pickens County. (p. 227). A SPHINGID MOTH (Paonias excaecatus) - WEST VIRGINIA - Ritchie County. (p. 226).

New County Records - AN ARGID SAWFLY (Arge scapularis) WEST VIRGINIA - Pendleton (p. 228). CASEMAKING CLOTHES MOTH (Tinea pellionella) SOUTH CAROLINA - Fairfield (p. 229). COTTON APHID (Aphis gossypii) WEST VIRGINIA - Kanawha (p. 226). EASTERN PINE-SHOOT BORER (Eucosma gloriola) WEST VIRGINIA - Wood (p. 228). A MELANDRYID BEETLE (Synchroa punctata) WEST VIRGINIA - Kanawha (p. 228). MERCHANT GRAIN BEETLE (Oryzaephilus mercator) NEVADA - Washoe (p. 229). A NOCTUID MOTH (Morrisonia confusa) WEST VIRGINIA - Wood (p. 228). POPLAR TENTMAKER (Ichthyura inclusa) WEST VIRGINIA - Raleigh (p. 227). PYROCHROID BEETLES (Dendroides ephemeroides, D. picipes) WEST VIRGINIA - Kanawha (p. 228).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/29-4/4, BL, ARMYWORM (Pseudaletia unipuncta) 1, BEET ARMYWORM (Spodoptera exigua) 1, GRANULATE CUTWORM (Feltia subterranea) 8. KENTUCKY - Lexington, 4/2-5, BL, armyworm 1, VARIEGATED CUTWORM (Peridroma saucia) 3, YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) 1. MISSISSIPPI - Stoneville 3/29-4/4, temp. 49-86 F., precip. 3.13 inches, 2BL, armyworm 458, BLACK CUTWORM (Agrotis ipsilon) 81, BOLLWORM (Heliothis zea) 2, SALTMARSH CATERPILLAR (Estigmene acrea) 6, variegated cutworm 162. OHIO - Wooster, 3/30-4/5, BL, black cutworm 1, variegated cutworm 1. TENNESSEE - Hardeman County, 4/1-5, BL, armyworm 176, black cutworm 26, variegated cutworm 21. Henry County, 4/1-5, BL, armyworm 24, black cutworm 1, variegated cutworm 1.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1973
(Continued from page 218)

DECIDUOUS FRUITS AND NUTS

Highlights:

PEACH TWIG BORER was severe on peaches, nectarines, and almonds in northern California. PLUM CURCULIO was a threat to fruit trees in Michigan, was a problem in Massachusetts, and caused more damage than usual in Maine. GREEN PEACH APHID was heavy on peach in Oregon and young fruit in New York. SAN JOSE SCALE was a major pest of fruit trees in California and Alabama. EUROPEAN RED MITE increased and caused some leaf bronzing during July and August in Michigan and Ohio. WALNUT CATERPILLAR was heavy and damaged walnut and pecan in Oklahoma, Texas, and New Mexico.

Seasonal abundance of CODLING MOTH (Laspeyresia pomonella) adults was monitored for the third consecutive year in a Wilkes County, NORTH CAROLINA, apple orchard. Spring emergence peaked about mid-May. The first generation peaked in late June and the second generation during early August. The total catch remained about equal during 1971 and 1972, but tripled during 1973. First codling moth adults of the season in MASSACHUSETTS were captured in pheromone traps May 17 in abandoned orchards of Hampshire County. Adults taken in pheromone traps peaked about June 13 in this county with an average of 6.3 per trap in treated orchards and 12.4 per trap in abandoned orchards. Codling moth populations increased slowly all season in MAINE, but were never very serious in sprayed orchards.

First-generation codling moth adults were captured in pheromone traps in OHIO May 1 at Wooster, Wayne County, about 10 days earlier than in 1972. Peak emergence occurred during late May and the first week of June. Adult populations had rapidly declined by June 12. Blacklight trap catches indicated that second-generation adults began flying at Wooster June 14-16. The week ending July 26 represented the period of peak emergence in Wayne County. Due to unusual warm weather in IDAHO, codling moth oviposition was noted by mid-May. Some apple damage resulted from the lack of control from standard timing of chemical treatments. Pheromone traps have been quite accurate in timing of the first-cover spray treatments.

First adult REDBANDED LEAFROLLER (Argyrotaenia velutinana) males of the season in MASSACHUSETTS were taken in pheromone traps April 14 and first emergence peaked about May 11. Second-generation emergence peaked July 20-27. Seasonal abundance of redbanded leafroller was again monitored in an apple orchard in Wilkes County, NORTH CAROLINA. Moth catches this year were the same as for 1971 and 1972. Three periods of adult activity (mating and egg production) occurred as follows: Spring emergence, mid-April; first generation, late June; second generation, early September. Although more traps were used in 1973 than previously, the total number of moths captured per year has decreased from 1,582 to 435. Redbanded leafroller larvae threatened fruit and foliage in poorly sprayed, maintained, or managed orchards in MICHIGAN. They were first reported from Berrien County April 27. Rolling, webbing, and feeding on opening leaf and fruit buds were noted May 18. Full-grown larvae and damaged fruit were found into late June. This insect was not of significant concern for most growers.

GREEN FRUITWORM (Lithophane antennata) became very abundant in MAINE due to an early spring. Larvae were noted on fruit buds of apple and many were observed boring into the flower buds by May 4. A large amount of injured fruit was evident during grading operations. It is estimated this pest caused a 2-percent loss to apple growers in Maine valued at \$96,000.

STALK BORER (Papaipema nebris) larvae were found July 9 in a young unsprayed apple orchard in Wayne County, NEW YORK, and July 23 in young early apples on a marginal spray program in Ulster County.

PEACH TWIG BORER (Anarsia lineatella) continued to be a severe pest of peaches, nectarines, and almonds in the northern half of CALIFORNIA. Due to poor fruit set in Gem County, IDAHO, orchards in 1971 and 1972, treatments were not applied for this pest. Heavy populations seriously damaged the plum and peach crops. There was no peach crop in southern Idaho in 1973 and few, if any, of these orchards were sprayed.

EASTERN TENT CATERPILLAR (Malacosoma americanum) was active from mid-March to early May in OKLAHOMA. Damage to wild plum was somewhat lighter than usual in most areas but damage to fruit trees was reported more often than usual. Peach, apricot, apple, plum, flowering peach, and crab apple were damaged in various areas. Eastern tent caterpillar egg hatch on fruit trees was complete in INDIANA as far north as Indianapolis by April 6.

PLUM CURCULIO (Conotrachelus nenuphar) threatened many tree fruits in MICHIGAN, especially in orchards close to brushy fencerows and farm woodlots. Specimens were leaving hibernation to feed on fruit trees by April 20 from Berrien to Mason Counties. An unusual number of warm, damp, cloudy days between petal fall and second cover proved ideal for feeding, mating, and oviposition. These conditions intensified activity that made prompt treatment at petal fall and 7 days later of utmost importance. Oviposition scars were noted on plums and cherries May 18 and were easily found on apples, pears, and other stone fruits by June 11.

The first plum curculio adult of the season in MASSACHUSETTS was taken May 30 in Hampshire County. Large numbers were never sampled, however activity was noticed for at least 30 days, and unprotected fruits were badly scarred in Middlesex, Hampshire, Hampden, and Worcester Counties. The first plum curculio adults in MAINE were seen on apple trees May 30, and first cutting of fruit was observed June 8, about one week later than usual. Although cool weather further delayed activity, plum curculio developed into a very important pest, causing more fruit damage than usual and more than in 1972. It is estimated that this insect caused a 3 percent loss to Maine apple growers valued at \$142,000.

An ALFALFA WEEVIL COMPLEX (Hypera spp.), including H. postica (alfalfa weevil), in CALIFORNIA entered cherry and apricot orchards for the first time known. Adults mining in the fruits and frass sticking to other fruits resulted in heavy cullage at harvest.

GREEN PEACH APHID (Myzus persicae) was very heavy on peach trees in Malheur County, OREGON, and unusually heavy early season movement occurred. The application of newer chemicals provided good control and populations in the eastern area, the northern Willamette Valley, and the Klamath Basin were kept subeconomic. Wingless forms of green peach aphid were observed on peach trees April 20 in Yakima and Grant Counties, WASHINGTON. Infestations were reported entering potato fields in Yakima County May 14. Yellow pan catches May 15 through June 1 in Adams, Franklin, and Grant Counties were 30 times the level of 1972. Catches in traps during July were quite low, indicating that either early trap counts were not indicative of the aphid situation or natural control along with chemical treatment greatly suppressed the population. In late May 1973, green peach aphid populations were heavy and injurious to developing terminals of young fruit trees in Monroe and Orleans Counties, NEW YORK. M. persicae populations increased greatly and were very heavy in many orchards in Monroe and Orleans Counties during June and July. Populations increased noticeably on terminals and secondary shoots of apple in Clinton County during early July and in Wayne County during mid-August.

SAN JOSE SCALE (Quadraspidiotus perniciosus) was still one of the major pests of deciduous fruit trees in CALIFORNIA. Where treatment was omitted severe damage occurred. San Jose scale continued to be the most important scale insect affecting peach, apple, plum, and pear in central and northern ALABAMA. WHITE PEACH SCALE (Pseudaulacaspis pentagona) infestations on peach trees were very heavy in northern FLORIDA.

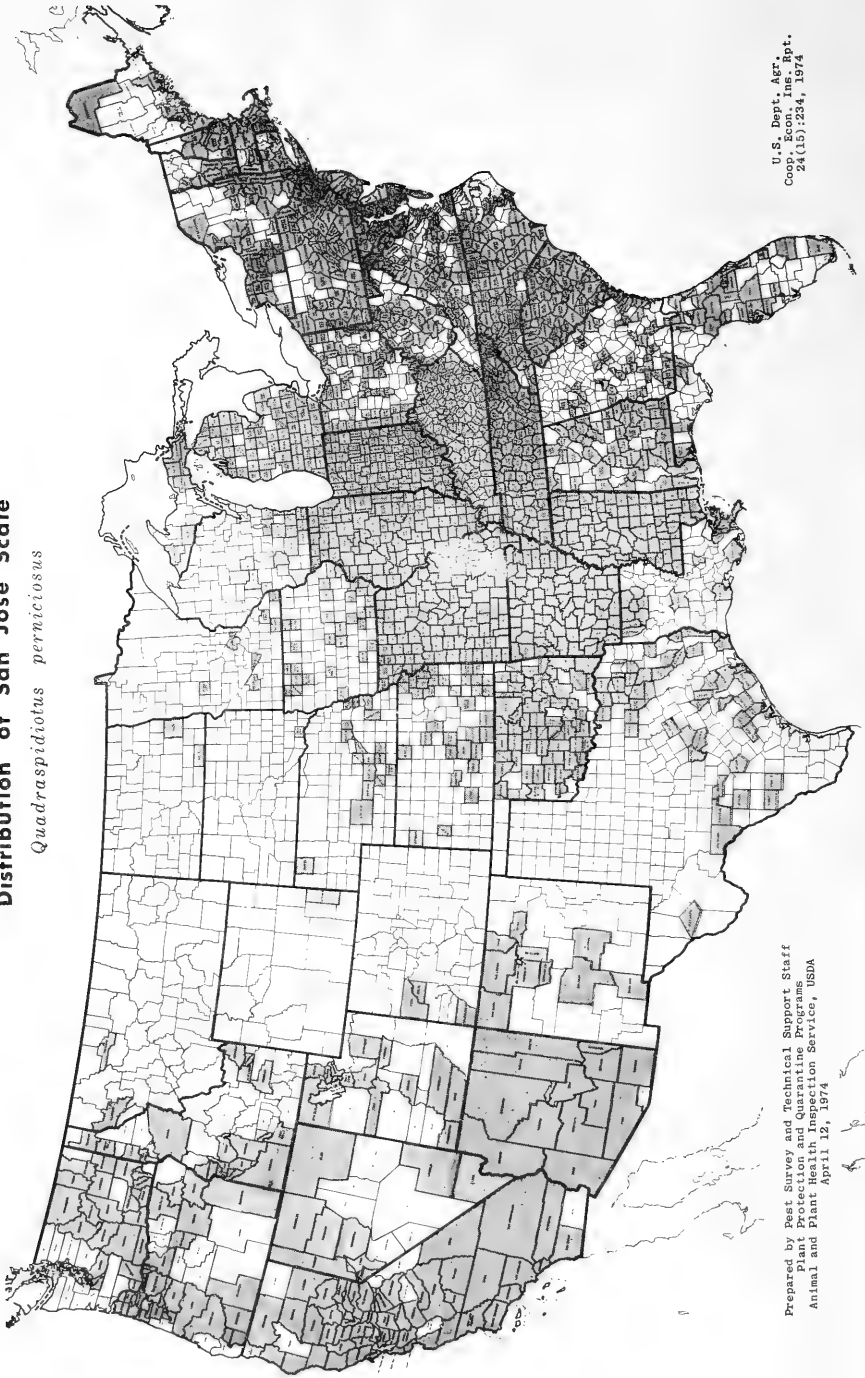
PEAR PSYLLA (Psylla pyricola) now occurs in most orchards from Utah County northward in UTAH. Spring outbreaks were largely reduced by natural control by mid-June where treatments were not applied.

TARNISHED PLANT BUG (Lygus lineolaris) feeding injury was observed on many fruit buds during late April in Clinton and Essex Counties, NEW YORK. Heavy populations were reported from Columbia County in late April, in Monroe and Orleans Counties in early May, and on Erie County cucumbers in mid-July. Injury to peach was reported at Rockland, Sullivan County, in early August.

The first APPLE MAGGOT (Rhagoletis pomonella) adults were trapped July 9 in MAINE, two days earlier than in 1972. Trap and cage counts indicated erratic and delayed activity. Generally, larval pressure through early September did not occur during 1973. However, the McIntosh apple crop was very light in the Monmouth and Winthrop area of Kennebec County, and although larval populations seemed lighter than usual, the apples that were left or available were probably subjected to relatively heavy larval pressure. In two orchards, a count on about 100 fungicide-treated apples revealed about 1.5-2.2 oviposition punctures per apple in early September. The estimated 3 percent loss to the Maine apple industry is valued at \$142,000. The first apple maggot adults of the season in MASSACHUSETTS were taken in Worcester County in the Northboro area June 14. No adults were taken in central western Massachusetts until July 13 in Hampshire County. The largest number in Hampshire County (10 for 15 traps) was taken August 8 in an abandoned orchard. Apple maggot adults trapped in all treated orchards were relatively light.

Distribution of San Jose Scale

Quadraspidiotus perniciosus



U.S. Dept. Agr.
Coop. Econ. Insect. Spt.
24 (10) 234, 1974

Prepared by Pest Survey and Technical Support Staff
Quarantine and Inspection Programs
Animal and Plant Health Inspection Service, USDA
April 12, 1974

PEASLUG (Caliroa cerasi) caused moderate damage to pears, sweet cherries, and hawthorn in Santa Fe and Bernalillo Counties, NEW MEXICO, during 1973. Controls may have been practical in some cases. Pearslug larvae were more common than usual in central and southern MAINE in 1973 and caused noticeable feeding damage, especially to cherry in mid-July.

EUROPEAN RED MITE (Panonychus ulmi) populations in MICHIGAN orchards were basically nonexistent until late July. Many growers applied only two treatments to keep mites within safe and acceptable tolerances for the season. Overwintering eggs began hatching April 26 in Berrien County and May 5 in Oceana County. Immatures were active from the southern counties north to Benzie County by May 11. Second-generation eggs appeared on leaves May 25, adults appeared June 15. Populations averaged less than 5 mites per leaf in most cases from June 22 until July 15. Warm, humid weather stimulated development to levels of 10-15 mites per leaf in numerous orchards after July 15. Populations increased gradually to cause pronounced foliar bronzing in certain locations. The first egg deposits in the calyx end of fruit were noted August 17.

European red mite egg hatch was first noted in central OHIO May 19 on Red Delicious and Jonathan cultivars and at Wooster, Wayne County. Cool, wet weather in northeast Ohio May 24 inhibited adult activity despite heavy overwintering egg populations. These climatic conditions were probably responsible for the unseasonably light statewide populations up to June 14. However, P. ulmi rapidly increased from one per leaf June 8 to 18 per leaf June 25 in Fairfield County. Red Delicious apples in central Ohio hosted 25 per leaf by July 8 and light leaf bronzing was apparent. Mites increased steadily in unsprayed orchards. Certain cultivars in Wayne and Geauga Counties contained infestations exceeding 50 mites per leaf. P. ulmi populations "exploded" in Wayne County during mid-August, causing leaf bronzing in some commercial orchards, much later than in 1972.

European red mite did very little damage to apples in Clarke and Frederick Counties, VIRGINIA. Heavy rains in April and cloudy days and high humidity in May and June inhibited the buildup of mites during this critical time. There was no dry weather, which favors high mite populations, until September, then it was too late for a buildup. Minimum treatment was required, with few exceptions. A better selection of spray materials, reduced rates of chemicals used, and the use of alternate row spraying procedures also helped reduce problems. Overwintering European red mite eggs began to hatch May 3 in MAINE and summer eggs June 14. This pest remained a minor problem in commercial apple orchards until populations suddenly reached damaging levels at the end of July and in early September. The estimated 4 percent loss to the Maine apple industry is valued at \$192,000.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) and Panonychus ulmi (European red mite) were very prevalent and caused severe damage and leaf drop in some peach, prune, and almond orchards of CALIFORNIA. Earlier treatments for other pests were omitted due to a wet winter, and mite problems resulted. Buildups of MCDANIEL SPIDER MITE (Tetranychus mcdanieli) appeared in late September on apples and some treatments were necessary in Otero and Lincoln Counties, NEW MEXICO, prior to frost.

PEAR RUST MITE (Epitrimeris pyri) was exceptionally heavy and widespread this season in CALIFORNIA and caused some fresh market pears to go to canneries. This pest has been increasing in pear-growing areas of the State the last two years. Pear rust mite became increasingly heavy in Hood River County, OREGON. Some commercial damage was noted in some orchards for the first time in several years. The extensive use of a chlordimephoren (a new miticide with ovicidal action and some insectidal action) for Psylla pyricola (pear psylla) and spider mite control is resulting in a gradual increase of E. pyri populations. PEARLEAF BLISTER MITE (Phytoptus pyri) caused severe damage to pears in pear-growing areas of CALIFORNIA.

WALNUT CATERPILLAR (Datana integerrima) first-generation populations ranged moderate to heavy on pecan and walnut over most of the eastern half of OKLAHOMA in late June and July. Damage was especially heavy in Garvin and Murray Counties where many pecan trees were 80-100 percent defoliated. Scattered second-generation damage was reported in September and early October. Heavy walnut caterpillar infestations defoliated most of the pecan acreage in south-central and east TEXAS during 1973. Up to 3 generations of this pest were noted in some areas. Extensive damage to pecans was reported throughout this area. The pecan crop was only one third of the 1972 crop. Walnut caterpillar and D. ministra (yellownecked caterpillar) were active in Chaves and Eddy Counties, NEW MEXICO, in native walnut, Juglans microcarpa, and caused extensive defoliation in pecan trees during August and September in these two counties. Hyphantria cunea (fall webworm) replaced this pest about October 15. Results were up to 50 percent defoliation in northern Eddy County pecans.

FALL WEBWORM (Hyphantria cunea) adults were active by late May and egg laying was noted by the first of June in OKLAHOMA. First-generation damage ranged moderate to heavy on pecans, walnut, hickory, and persimmon over most of the southeastern two-thirds of the State. The second generation was not as heavy in many areas but scattered damage was reported in September and early October. Fall webworm was noted on walnut, pecan, hickory, and persimmon in KANSAS from late July through August with heavy damage concentrated in the southeast district. Fall webworm required treatment on pecans in White County, ARKANSAS.

The first PECAN NUT CASEBEARER (Acrobasis caryae) pupae from the spring brood were observed in mid-April in Maverick County, TEXAS. Emergence of spring brood adults continued and by late May was essentially completed across the State. Considerable damage occurred in Texas when control measures were not applied. First pecan nut casebearer eggs of the season in OKLAHOMA were found in Love County May 24. Hatching began in early June but eggs were present in most areas through mid-June. The first generation was light in most areas with only a few scattered reports of moderate infestations. Second-generation damage was not serious in most areas but some damage by third-generation larvae was noted in a few areas of Payne County in late August.

PECAN SPITTLEBUG (Clastoptera achatina) was heavier than normal in southern ARKANSAS in late July and required treatment. No loss was suffered other than treatment cost. Pecan spittlebug was moderate on pecans from mid to late June in Quitman and Tallahatchie Counties of MISSISSIPPI. In early July, 92 masses were occurring in 117 terminals counted in a 70-acre orchard in Lowndes County. Treatments were applied.

BLACK PECAN APHID (Tinocallis caryaefoliae), with Monellia costalis (black margined aphid) and Monellia nigropuncta were serious pests of pecans in southern and central ALABAMA. The combined effects of damage to foliage by aphids, mites, and dry weather, along with several related diseases, were a major problem to the 925,000 pecan trees in the State. Quantity and quality of nuts were reduced although production is estimated at 35,000,000 pounds compared to 20,000,000 pounds in 1973, 37,000,000 pounds in 1971, 15,000,000 pounds in 1970, and 33,500,000 pounds in 1969.

Light adult populations of PECAN WEEVIL (Curculio caryae) began emerging in early August in OKLAHOMA, but the main period of emergence did not occur until the first week of September following general rains. Infestations were variable but many areas reported only light or moderate infestations in 1973. Heavy infestations were reported from four scattered counties--Choctaw, Pontotoc, Oklahoma, and Rogers. Larvae were emerging from the nuts by late October. Pecan weevil adults began emerging from the ground the third week of August in Lowndes County, MISSISSIPPI, and continued through the first week in October. Peak emergence of adults came in early September. Grubs began falling from nuts the first week in November in this county. This weevil was also a problem on pecans in Newton and Hinds Counties and to a lesser degree in Oktibbeha County. About 20 million pounds of pecans were harvested the fall of 1973, which represents the largest harvest in Mississippi since 1963.

CITRUS

CITRUS RUST MITE (Phyllocoptruta oleivora) is the most important pest of citrus in FLORIDA. Damage and control costs during 1973 were estimated at \$50,000,000, an increase over that of 1972.

CITRUS SNOW SCALE (Unaspis citri) was the second most important citrus pest in FLORIDA. Damage and control costs were estimated at \$15,000,000 during 1973, also an increase over that of 1972. Attempts at biological control at Lake Alfred include the release of about 250,000 adults of Aphytis spp. (chalcoid wasps).

SMALL FRUIT

GRAPE ROOT BORER (Vitacea polistformis) surveys were conducted to establish the geographic and seasonal distribution of this pest in the major Muscadine grape area of NORTH CAROLINA. Every county with 20+ acres of muscadine grapes and not known to be infested was surveyed. Seasonal distribution data were also collected. These surveys revealed that widespread infestations occur in the Coastal Plain and eastern Piedmont counties. Grape root borer was found for the first time in 7 new counties, bringing the total known infested counties to 16. Peak emergence corresponded very closely in Cleveland and Onslow Counties with adult activity occurring primarily during mid-August.

Several lepidopterous pests were of some concern in several Western States. STRAWBERRY CROWN MOTH (Synanthedon bibionipennis) caused losses up to 80 percent in several strawberry plantings near Green Bluffs, Spokane County, WASHINGTON. GRAPE LEAFFOLDER (Desmia funeralis) has been increasing in the past few years in CALIFORNIA and populations were much heavier this season and required more treatment than previously. A TORTRICID MOTH (Platynota stultana) has now reached the major pest status and required control on

grapes in almost all grape-growing areas of CALIFORNIA. WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) infestations and damage were heavy as usual in the areas of Clark County, NEVADA, where it occurs and is the limiting factor in grape growing there.

STRAWBERRY WEEVIL (Anthonomus signatus) is becoming costly and the cause of much concern for MICHIGAN strawberry producers. This species entered strawberry plantings from woodlands and overwintered in mulch, duff, and litter. Bud punctures and stem clipping, starting soon after spring plant growth began, caused 75 percent reduction in berry production on about 1,000 of the 3,000 acres allotted to strawberries in Berrien and Van Buren Counties. The remainder of the acreage had a 25 to 30-percent loss. Losses in Manistee County ranged 50-90 percent on 200 acres and 15-20 percent for the other 500. Population densities and damage in the Upper Peninsula strawberry-producing counties of Michigan equalled those on the Lower Peninsula at 30-80 percent. Normal yields averaged 5 tons per acre. Chemical treatment well ahead of bloom is the only control alternative offering reasonable results. Strawberry weevil fruit-bud clipping on strawberries was double that of 1972 in MAINE.

Adults of an ALFALFA WEEVIL COMPLEX (Hypera spp.) damaged ripening strawberries in the field in several areas of CALIFORNIA for the first time known.

Requests for control of RASPBERRY CANE BORER (Oberea bimaculata) on raspberries in MAINE were about 5 times those of any of the 8 previous years.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) was heavier on strawberries in western WASHINGTON than normal, probably due to a warm, dry spring. Counts in one field each in Clark, Cowlitz, Skagit, and Whatcom Counties in early May averaged 34, 21, 7, and 66 mites per trifoliate leaf, respectively. Twospotted spider mite continued to be a major pest of strawberries and required much control in CALIFORNIA. Twospotted spider mite ranged 0-1 per leaf (light) in fall and 50-100 per leaf (heavy) in spring on strawberry in Hillsborough and Manatee Counties, FLORIDA. Populations increased gradually from January to June and caused severe foliar damage.

EUROPEAN RED MITE (Panonychus ulmi) was observed at North East, Erie County, PENNSYLVANIA, on Concord grapes from late July through September. Populations peaked in early August and there was an average of 26 (range 4-92) mites per leaf. Several vineyards were heavily bronzed with up to 1.5 percent reduction in sugar content of grapes. Predatory mites (Amblyseius spp. and Zetzellia mali (Phytoseiid mites)) were also present on Concord grapes during the same period. At the population peak in late August, there was an average of 1.5 per leaf. These predators caused a sharp decline in the P. ulmi populations in late August and early September in untreated vineyards.

BLUEBERRY BUD MITE (Acalitus vaccinii) damage in cultivated Wolcott blueberries was generally lighter in 1973 than in 1972 or 1971 in Pender and Bladen Counties, NORTH CAROLINA. Samplings in Duplin County fields indicated a slight increase in the ratio of potential berries present to the optimum number of berries.

Spot checks and grower reports indicated severe damage by blue-berry bud mite in some localized spots. Some growers reported some fields in Duplin County with 50 percent yield reduction from that of 1972. This damage survey has been repeated for 3 years in the same fields.

Weather of the week continued from page 222.

Along with the thunderstorms, over 3 inches of rain soaked the southern and central Appalachian Mountain Range and heavy rains produced some flooding in the southern Appalachians. By the end of the week, the storm that triggered the devastating storms on Wednesday continued to cause some severe weather from Alabama to Florida into Virginia. By Friday, severe weather subsided in the southeastern United States with only mild thunderstorms continuing from the middle Atlantic coast to the eastern gulf coast. However, rains of 3 to 4 inches caused flooding on some rivers in North Carolina. Meanwhile, a cold front moved off the east coast. A new system entered the Pacific Northwest producing scattered showers as far inland as the northern Rockies. During the weekend a storm in the central Rockies spread showers and snow from the upper Rockies into the upper Plains. A Low over Lake Superior trailed a cold front into the upper Plains bringing scattered showers to the Mississippi Valley and central Great Lakes. Finally, by Sunday, precipitation fell along a broad bank from northern New England between the Great Lakes and Ohio River, Mississippi Valley and continuing between the Missouri River and the Rocky Mountains.

TEMPERATURE: Near-normal temperatures were experienced in the northern third of the country with readings milder than expected elsewhere. Early in the week temperatures continued to be warm for the southern Plains reaching the 70-degree mark following last week's exceptionally warm weather. Midweek, as a cold front passed through the middle Mississippi Valley heading toward the southern Plains temperatures fell sharply. Ahead of the front pleasant temperatures prevailed along most of the Atlantic coast. Daytona Beach, Florida, set a new record high for the date with a midsummerlike 93 degrees. Meanwhile, most of the Nation's mid-section experienced cooler temperatures. Even southern Texas only reached the 70's when only a few days earlier readings were in the 90's. Thursday night, freezing temperatures reached as far south as the southwestern Plains. Saturday morning an unseasonably cold air mass covered the gulf coast region. In Brownsville, Texas, the thermometer dipped to 47 degrees and Fort Myer, Florida, recorded only 56 degrees, and an invasion of cold air in the northern Plains kept temperatures below freezing in North Dakota. Early Sunday morning, frost and freezing temperatures gripped portions of West Virginia, Maryland, and Virginia. Meanwhile a cold air mass sliding off the southern Atlantic coast produced early morning frost in portions of Dixie. Record lows were recorded at Charleston, South Carolina, 34 degrees, and Tallahassee Florida, 33 degrees.

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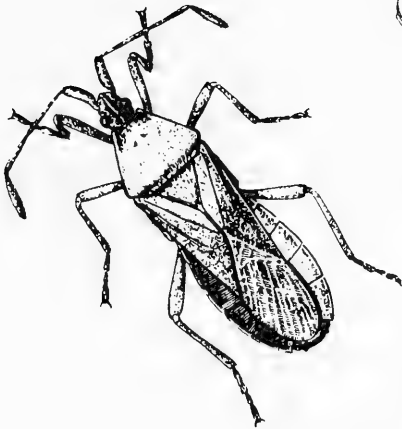
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Cooperative Economic Insect Report

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

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Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
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Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

BEEF LEAFHOPPER spring survey in Texas indicates increase again this year; heaviest in El Paso and Trans-Pecos areas. Population light in High Plains, main sugar beet growing area of State. (p. 243).

WINTER GRAIN MITE populations and number of infested small grain infested increased in Rolling Plains of Texas. (p. 244).

Predictions

SOUTHERN PINE BEETLE outbreak in South Carolina expected to continue at high level in 1974. Due to mild winter, early population buildup anticipated. **NANTUCKET PINE TIP MOTH** expected to be above normal in southern and Eastern Shore areas of Maryland. (p. 249).

Detection

● A **LYGAEID BUG** reported from Hawaii (p. 253) and a **WEEVIL** reported from Florida (p. 251) are new United States records. The Lygaeid Bug is not known to occur in continental U.S.

New State records include a **LEAFHOPPER**, a **SYRPHID FLY**, and a **CARABID BEETLE** from Hawaii. (p. 253).

For new county records see page 252.

Special Reports

Beet Leafhopper Survey in Texas, Spring 1974. (p. 243).

Boll Weevil Spring Survival Survey in Washington County, Mississippi. (pp. 246-247).

Summary of Insect Conditions in the United States - 1973
Man and Animals. (pp. 254-262).

Distribution of Face Fly. Map. (p. 257).

Reports in this issue are for the week ending April 12 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-APRIL TO MID-MAY 1974

The National Weather Service's 30-day outlook for mid-April to mid-May calls for cooler temperatures than normal in the central and southern Rockies and Great Plains and in the lower Mississippi Valley. Warmer weather than normal is expected only in the West Coast States and southern Florida. Temperatures should average near normal elsewhere. Less precipitation than the climatic median is expected west of the Rockies, east of the Appalachians, in Minnesota and the eastern Dakotas, and in the Rio Grande Valley. The remaining area between the Appalachians and Rockies should receive more precipitation than the climatic median.

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

For Weather of the week see page 263

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Beet Leafhopper Survey in Texas

BEET LEAFHOPPER (Circulifer tenellus) survey in Texas was conducted during period February 19 through March 8. Thirty-two counties were included with a total of 68 stops. Host plants were present at 87 percent of these stops. Beet leafhoppers averaged 97 per 100 square feet, and were found at 35 percent of the stops.

Significant Observations: Beet leafhopper counts were higher this year. The largest increase was evident in the El Paso Valley. Current population counts in other sections of the State were slightly heavier than in 1973. Host plants were scattered and only in fair condition. The entire area is under stress of drought. Beet leafhoppers thrive under hot, dry, desert conditions. These conditions also concentrate beet leafhoppers on a smaller number of host plants, and are conducive to population buildups and a larger percentage of the population being carriers of curly top disease.

Current Conditions: Beet leafhopper counts increased again in 1974, averaging 97 per 100 square feet of hosts sampled. The largest increase was in the El Paso and Trans-Pecos Area. Counts in other sections of the State were only slightly heavier than those of 1973. Beet leafhoppers were light in the High Plains area, which is the sugar beet growing area of the State. Beet leafhopper was not found in this area during the 1973 survey. (PPQ and cooperating agencies).

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Heavy infestation in wheat reported in western Hodgeman County. Treatment planned. (Bell). NEBRASKA - Infestations of 2-3 per square foot common in Cheyenne County wheat fields. Activity also noted in alfalfa fields, pasture roads, and lawns in area. Damage still light as of March 27. (Hagen). WYOMING - Larvae active in weedy areas of Thermopolis, Hot Springs County, March 8 and in lawns April 8; on rangeland in Fremont County March 21. Larvae infested seedings of rye and alfalfa in Washakie County March 27. Ranged 2-4 per square foot on winter wheat in Goshen County March 28, but not damage reported. (Spackman). SOUTH DAKOTA - Still active on winter wheat in Tripp, Meade, Mellette, and Jones Counties. Ranged from 0-1 to 8-10 per linear foot. Larvae ranged from one-eighth inch to one inch in length. Damage evident in more heavily infested fields. (Kantack et al.). MONTANA - Economic in Dawson, Rosebud, Custer, Powder River, Fallon, and Yellowstone Counties. Crops not specified. (Pratt).

ARMYWORM (Pseudaletia unipuncta) - ALABAMA - Larvae (about mature) ranged 100-200 per 15 square feet and destroyed 250 acres of 300-acre Mobile County wheat field. Controls applied April 6. First report of season. (Vickery, Weeks).

GREENBUG (Schizaphis graminum) - TEXAS - Less than 10 per linear row foot reported in small grains in Archer, Baylor, Hardeman, Knox, Haskell, Throckmorton, Wichita, and Wilbarger Counties. Beneficial species (parasitic wasps, lady beetles, nabids, big-eyed bugs, and spiders) continued to keep populations under control in

most fields. (Boring). ARKANSAS - Survey still negative in north-west area small grains. (Boyer). MISSOURI - Light to moderate in small grains in southeast and south-central areas. Ranged 0-16 per row foot. (Munson). KANSAS - Greenbug survey negative in wheat in Wilson and Finney Counties. (Bell).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Abundant in potatoes at Queen Creek, Maricopa County. Growers alerted for possible buildups as psyllids migrate from desert areas overnight. It appears infestations potentially serious this year. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Light in alfalfa in Jackson and Harmon Counties. (Okla. Coop. Sur.). ARKANSAS - Survey continued negative in northwest area alfalfa (Boyer).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - WISCONSIN - Dissection of cornstalks indicated overwintering larval survival above average. Fields checked in Dane, Sauk, and Columbia Counties showed 90 percent survival. Total mortality much higher due to fall and early spring plowing, stalk shredding, stalk crushing by spreaders, and predators. (Wis. Ins. Sur.). DELAWARE - Pupation of overwintered larvae about 5 percent in Sussex County. (Burbutis).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ILLINOIS - Three live larvae found April 9 in 50 infested cornstalks in one Massac County field. Insect not known to overwinter in State and this is latest live larvae have been reported in State. (Ill. Ins. Rpt.).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 15-45 per row foot in small grain fields in Archer, Baylor, Hardeman, Knox, Haskell, and Wilbarger Counties. About 100 per linear row foot noted in one Baylor County field. Ranged 10-150 per row foot in Throckmorton County. Populations and number of fields infested increased in Rolling Plains area; still well below damaging levels in most fields. (Boring).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged 50-200 per linear foot in wheat checked in Greer and Kiowa Counties and 50-100 per linear foot in Jackson County. (Okla. Coop. Sur.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Larvae ranged 2-4 per square foot in Greeley County wheat; infestations caused only minor damage. (Bell).

HESSIAN FLY (Mayetiola destructor) - MICHIGAN - Populations increased in wheat planted before "fly-free" date of fall 1973. As no registered insecticides available this spring, growers should anticipate possible losses. (Sauer). ALABAMA - Light infestation occurred on wheat in field south of Dothan, Houston County. (Roney, Tew).

AN APHID (Rhopalosiphum padi) - TEXAS - Light infestation observed in one Haskell County small grain field. (Boring). CALIFORNIA - This aphid and Myzus persicae (green peach aphid) infested wheat, barley, and oat plantings statewide. Degree of infestation varied. Some earlier treatment necessary and currently local treatment applied. Wet weather caused some yellowing and lodging. (Cal. Coop. Rpt.).

TURF, PASTURES, RANGELAND

A SOD WEBWORM (Crambus trisectus) - MARYLAND - First spring activity noted in 60 acres of bluegrass in Harford County and 20 acres of sod in Prince Georges County week ending April 5. Larvae ranged 1-2 per square yard of sod in Prince Georges County. (U. Md., Ent. Dept.).

TEXAS LEAFCUTTING ANT (Atta texana) - TEXAS - Damaged lawns in Bexar and Lee Counties. (Green).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - Not expected to be troublesome in alfalfa this year, but growers advised to watch for possible buildups during April and May. (Ins.-Dis. Newsltr.). VIRGINIA - Based on 16 fields sampled (139 acres), 56.9 percent of tips infested. Average estimated defoliation 7.8 percent. Most larvae small with average of 2.3 per tip based on 800 tips sampled. Eight fields passed infestation levels recommended for control. Based on total acreage sampled, figure was 48 percent of all acres above recommended treatment level. Where majority of larvae very small, retreatment should be delayed to get larvae from unhatched eggs. Damage noneconomic to date in most areas. Severe damage and pupation reported from Charlotte County. (Allen). WEST VIRGINIA - Infestation in alfalfa averaged 10 percent of 50 tips sampled in Ohio County and 20 percent of 50 tips in Hancock County. (Hacker).

KENTUCKY - Average alfalfa weevil larval counts per alfalfa tip by county as follows: Warren 1.8, Barren 2.0, Hart 2.1, and Nelson 2.0. Larvae mostly third and fourth instars. Eggs per square foot averaged 12.2, 4.4, 30.0, 4.2, and 24.7 in various Fayette County fields. (Barnett, Parr). TENNESSEE - Number of alfalfa tips infested per 50 tips examined in 5 fields checked in 5 counties ranged from 11 in Chester County to 29 in Dyer County. Number of larvae per 50 tips examined in these counties ranged from 11 in Chester County to 47 in Dyer County. (Gordon et al.). Populations decreased in Trousdale County, first hay cutting expected to be good. (Webster). ALABAMA - Population explosion of second to third instar larvae damaged all alfalfa in De Kalb County. (Alverson, Burns).

ARKANSAS - Alfalfa weevil larvae still light in northwest area alfalfa. Populations not yet reached level attained before recent cold weather. Infestations at or near treatment level in southern and eastern areas. (Boyer). OKLAHOMA - Terminal infestations ranged 60-90 percent in Muskogee County, 10-70 percent in Wagoner County, and 20-25 percent in Kiowa, Greer, Jackson, and Harmon Counties. Larvae ranged 60-150 per square foot in Alfalfa County. Moderate to heavy in Pawnee and Comanche Counties, moderate in Woods, Kay, Noble, and Garvin Counties, and light to moderate in Tulsa County. Light numbers of pupae and newly emerged adults noted in alfalfa in Kay and Osage Counties. (Okla. Coop. Sur.).

KANSAS - Damaging H. postica infestations probably common in alfalfa in eastern half of State, including most of south-central district. Scattered heavy infestations believed present or will be present in near future in north-central and northeast districts, especially in fields with noticeable damage in 1973. Larvae currently mostly first through third instars and damage expected to increase rapidly as more larvae become third and fourth instars. (Bell).

MISSOURI - Feeding damage by alfalfa weevil larvae observed on 62-100 percent of alfalfa terminals in fields checked in south-central and southeast areas. Chemical control underway. (Munson). IOWA - Eggs averaged 80 per square foot in Lee County alfalfa. About 90 percent of eggs recently oviposited; remaining 10 percent (overwintered) seem nonviable. (DeWitt). ILLINOIS - Populations increased very little during past week. Occasional fields in southern third of State averaged up to 10 per sweep (economic threshold). One Massac County field averaged 17 per sweep and fields in Washington and Jersey Counties averaged 12 per sweep. (Ill. Ins. Rpt.). INDIANA - In 35 southern area alfalfa fields observed, mean percent infestation ranged 12-79 and mean number of larvae per stem ranged 1.1-4. Alfalfa ranged 6-7 inches tall except fields in Jennings, Ripley, and Dearborn Counties where alfalfa averaged about 5 inches. Observed fields included those on which controls have been used. (Meyer).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Decreasing in most alfalfa fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

ALFALFA WEEVIL COMPLEX (Hypera spp.) - CALIFORNIA - Prevalent in most alfalfa. Treatment underway with some heavy weevil concentrations reported. Most of first cuttings of alfalfa made and second cutting underway in desert areas. Much treatment in 1973 applied too early and resulted in worst infestation experienced. Proper timing and material may reduce problem in 1974. (Cal. Coop Rpt.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Moderate in Pawnee County alfalfa. Ranged 5-10 per 10 sweeps of alfalfa in Wagoner and Muskogee Counties, 0-70 per 10 sweeps in Noble, Kay, Osage, and Washington Counties. (Okla. Coop. Sur.). MISSOURI - Light in several alfalfa fields observed in southeast and south-central areas. Ranged 5-83 per 10 sweeps. (Munson). ILLINOIS - Averaged 250 per 100 sweeps of alfalfa in southern third of State. (Ill. Ins. Rpt.). WEST VIRGINIA - Nymphs ranged 3-5 per stem throughout alfalfa stand in Ohio County. Damage undetectable. (Hacker).

COTTON

Boll Weevil Survival Survey - Spring 1974 Washington County, Mississippi

Spring collections of surface ground trash samples (two square yards per sample) were made March 4 and 5 in Washington County, Mississippi, to determine the number of boll weevil (Anthonomus grandis) adults per acre of ground trash examined and the percent survival. For the purposes of this survey, 3 samples were taken

from each of 8 locations in the county that were sampled in fall 1973. The number of weevils per acre and the percent survival, zero, have been equaled only in two previous years, 1970 and 1963, since these records were begun in Washington County in 1955.

The winter of 1973-1974 has been relatively mild. The low temperature was 21 degrees F. on December 21, 1973, and on January 1 and 2, 1974. Soil moisture has been more than adequate to prevent desiccation.

The above survey does not present the complete picture for Washington County as evidenced by the following: Ground trash samples were collected from an additional 10 locations in the county March 6 and 7. A total of 9 live boll weevils was found for an average of 726 per acre. These samples were collected from areas known to have had moderate to heavy boll weevil infestations in nearby cotton fields in fall 1973. (Pfrimmer).

MISCELLANEOUS FIELD CROPS

SPOTTED CUTWORM (Amathes c-nigrum) - IDAHO - Light, with minor damage to peppermint near Notus, Canyon County. (Homan).

REBACKED CUTWORM (Euxoa ochrogaster) - IDAHO - Light on peppermint and spearmint, caused minor stand reduction near Caldwell, Canyon County. (Homan).

POTATOES, TOMATOES, PEPPERS

TOMATO PINWORM (Keiferia lycopersicella) - FLORIDA - Heavy in some tomato fields in Hendry, Lee, and Collier Counties since March 25. Mines often range 8-10 per leaf; some fields abandoned due to excessive infestation. Observed migrating from tomato to eggplant in one 40-acre Hendry County field. (Fla. Coop. Sur.)..

POTATO APHID (Macrosiphum euphorbiae) - FLORIDA - Adults and nymphs severely infested leaves on 45 of 50 potato plants examined at Dover, Hillsborough County, April 3. (Fla. Coop. Sur.).

A LEAFMINER FLY (Liriomyza sp.) - FLORIDA - Averaged 10-15 mines per leaf on lower tomato foliage in 2 fields totaling 120 acres; controls only partially effective. Has been problem in Hendry, Lee, and Collier Counties since March 25 and still economic. (Fla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - NEW MEXICO - Two adults taken in light traps and 6 adults in sex lure traps at Las Cruces, Dona Ana County. (N.M. Coop. Rpt.). CALIFORNIA - Emergence began first week of April. Pheromone traps catching sizable populations. First cover sprays will be necessary next 7-10 days. (Cal. Coop. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - First male moths of season taken in sex pheromone traps at Parker and Buena, Yakima County, April 18. (Harwood).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Larvae heavy on apple in a Riley County orchard. Treatment applied. (Bell).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Very heavy in Atoka County on fruit and other trees and in lawns and homes. Moderate to heavy in Muskogee, Wagoner, and Bryan Counties on wild plum, wild cherry, and other trees. (Okla. Coop. Sur.).

A NOCTUID MOTH (Orthosia hibisci) - CALIFORNIA - Larvae feeding on plum, prune, and pear foliage about half grown. Fruit not scarred. Some treatment necessary in northern and coastal areas. (Cal. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Some early instar larvae fed on new growth pecan tree buds just prior to entering new stem growth on one tree at Auburn, Lee County. This is first report of season. (Hagler et al.).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - PENNSYLVANIA - Total of 113 adults taken in pheromone traps in apple orchards at 2 locations in Adams County during period March 28 through April 8. (Asquith).

A TORTRICID MOTH (Platynota stultana) - CALIFORNIA - Some larvae noted in deciduous fruit orchards. Becoming more serious to agricultural crops. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Eggs hatched and nymphs present on pear spurs and buds in Parker, Wapata, Buena, and Zillah areas of Yakima County, and Prosser area of Benton County April 2. (Harwood).

EUROPEAN RED MITE (Panonychus ulmi) - WASHINGTON - First nymphs of season noted on pear spurs April 2 at Prosser, Benton County. (Harwood).

ORNAMENTALS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Survey of Gresham pine nursery, Multnomah County, infested in 1972 failed to reveal infestations. Inspection conducted this period is third negative one in two years and pines now released from seizure. No current infestations known in western area. Extensive pheromone trapping program in pine producing nurseries of northwestern area planned for late May. (Larson et al.).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - ARKANSAS - Continued to increase on ornamental and shade trees in southern and eastern area. Egg hatch just begun in northwest area. (Boyer).

NATIVE HOLLY LEAFMINER (*Phytomyza ilicicola*) - MARYLAND - Heavy overwintering populations noted in Prince Georges, Anne Arundel, Montgomery, and Howard Counties week ending April 5. All larvae pupated in these areas. (U. Md., Ent. Dept.).

SPIDER MITES (*Tetranychus* spp.) - ALABAMA - Heavy populations bronzing all leaves of 50 round-leaf hollies at Troy, Pike County. Many plants at Lanett, Chambers County, hosted lighter but damaging infestations. (Lemons, Dulaney).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - NORTH CAROLINA - Volumes of salvaged timber due to attack by this species increased 100+ percent from 1973 to 1974. Total timber salvaged during period June 30, 1973, through January 31, 1974, equaled 20.5 million board feet. For same period one year earlier, total timber salvage equaled 9.2 million board feet. In addition, 46,500 cords of pulpwood salvaged during period June 30, 1973, through January 31, 1974, as compared to 9,944 cords one year earlier. (Forest Pest Mgt., USFS). SOUTH CAROLINA - Salvage of infested pine in State declined and prospects of salvage poor as pulpwood producers now under quotas. Total salvage during period July 1973 through February 1974 estimated at 107,156 cords and 4,708,152 board feet. Aerial surveys in 22 outbreak counties revealed 2,425 spots of overwintering beetles involving estimated 322,686 trees. Beetle activity noticeably increased in Oconee and Pickens Counties. Difficulty of salvage during late winter and early spring will badly hamper control efforts. Beetle outbreak may continue at high level during 1974. Surveys indicate large number of infested trees in 22-county outbreak area. Beetle occurrence described in broad terms as follows: Heavy in Abbeville, Anderson, Greenville, Greenwood, Laurens, Oconee, Pickens, and Spartanburg Counties; medium in Cherokee, Lancaster, Union, and York Counties; light in Berkeley, Charleston, Chester, Fairfield, Georgetown, Horry, Lexington, McCormick, Newberry, and Richland Counties. As winter of 1973-1974 was mild, early buildup anticipated in 1974. Periodic aerial detection surveys planned so salvage control efforts can be promptly applied. Landowners encouraged to salvage or treat current infested trees. Greenville, McCormick, Lexington, and Horry Counties are new county records. (McCaskill).

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - MARYLAND - Adults emerged in southern area and on lower Eastern Shore week ending April 5. Above normal populations expected in 1974. (U. Md., Ent. Dept.).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - MARYLAND - Eggs hatching in central and southern areas week ending April 5. Lowest population levels in past 3 years expected. (U. Md., Ent. Dept.). KENTUCKY - Egg hatch about 80 percent complete in central area and 95-100 percent complete in southern area. (Barnett). TENNESSEE - Active in all areas of State. (Gordon, Bruer). NEVADA - Heavy on cottonwood; treatment required at Mesquite, Clark County. (Williams).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MONTANA - Heavily infested spruce at Townsend, Broadwater County. (Pratt).

A CONIFER SAWFLY (Neodiprion taedae linearis) - MISSISSIPPI - Defoliation moderate to heavy in tops of loblolly pine in Lowndes and Oktibbeha Counties. This is first generation, treatment applied in some areas. (Robinson).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 12 cases reported from continental U.S. during period March 31-April 6 as follows: Texas 10, Arizona 1, California 1. Total of 106 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 80,631,600 as follows: Texas 78,741,600; Arizona 1,890,000. Total of 112,638,600 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 1.2 per animal on backs of 150 Holstein dairy cows of various ages in Fayette County. (Barnett).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 150 per side of untreated red beef animals, 180 per side of black beef cattle, and up to 1,500 per side on bulls at ranch in Basinger area of Okeechobee County. (Fla. Coop. Sur.). MISSISSIPPI - Still light in Oktibbeha, Clay, Monroe, and Chickasaw Counties. (Robinson). OKLAHOMA - Ranged 50-100 per head on cows and 200-300 per head on bulls in Major County. Light in Comanche, Garvin, and Payne Counties. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 2 per head on dairy cattle in Payne County. First report of season. (Okla. Coop. Sur.).

MOSQUITOES - CALIFORNIA - Nuisance decreased temporarily due to cold winds and rains. Heavy populations may result due to flooding and standing water. (Cal. Coop. Rpt.). MISSISSIPPI - Culex restuans adults active, breeding in small isolated pools in Oktibbeha County. (Robinson).

CATTLE LICE - VIRGINIA - Infestations during week ending April 5 in Fluvanna County appear worse on untreated cattle than for several years. (Watts). OKLAHOMA - Haematopinus eurysternus (short-nosed cattle louse) very heavy on cattle checked in Major County. (Okla. Coop. Sur.).

STICKTIGHT FLEA (Echidnophaga gallinacea) - COLORADO - Noted on dogs and cats at Fruita, Mesa County. Humans also attacked. This is a new county record. (Hantsbarger).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Populations decreased on layer hens in caged operation in Oktibbeha County. (Robinson).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - OKLAHOMA - Winged reproductives continued swarming in some areas when weather conditions favorable. (Okla. Coop. Sur.). TEXAS - Major reproductive flights of R. flavipes (eastern subterranean termite) noted in Brazos and other southeastern counties. (Hamman et al.). ALABAMA - R. flavipes winged mating flights common and widespread in State. Three flights occurred from homes during week in Montgomery and Lee Counties. (McCabe et al.). OHIO - R. flavipes swarming observed in Hamilton, Wayne, and Clinton Counties. First extended warm period should induce peak swarming statewide. (Connor).

MISCELLANEOUS WILD PLANTS

A WEEVIL (Anthonomus flavus Boheman) - FLORIDA - Adults swept from Barbados cherry tree (Malpighia glabra) at residence in Hialeah, Dade County, July 25, 1972, by C.E. Stegmaier. Determined by R.E. Warner. This is a new United States record and first report from North America. (Stegmaier). A. flavus is a pest of Malpighia spp. on Puerto Rico, St. Croix, St. Thomas, and St. John Islands. Type locality is Guadeloupe. Damage caused by development of immature stages in fruit resembles that of Conotrechelus nenuphar (plum curculio) - a crescentic russetting scar on the skin and puckering of flesh underneath. The larva confines feeding to one area, and pupa is formed in a chamber close to the seed. Also found in Puerto Rico on leaves of Scirpus validus (bulrush) and reared from fruit of Faramea occidentalis (false-coffee). (ARS).

BENEFICIAL INSECTS

LADY BEETLES - KANSAS - Adults of Hippodamia convergens (convergent lady beetle) light and active in alfalfa in Crawford and Wabaunsee Counties. (Bell). WASHINGTON - Coccinella transversoguttata (transverse lady beetle) adults active in urban lawns and rural orchards at Prosser, Benton County, and at Buena, Yakima County, April 1. (Harwood).

DAMSEL BUGS (Nabis spp.) - KANSAS - Adults averaged one per square foot in Wilson County wheat. (Bell).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Populations spotty since collapse due to extremely hot, dry weather during latter half of June 1971. Buildup since has been erratic. (Sauer). WEST VIRGINIA - First adults of season observed on winter wheat in Hancock County April 12. (Hacker).

GRASSHOPPERS - OKLAHOMA - Surveys indicate general hatch underway in rangeland areas of Dewey, Woodward, Woods, Harper, Beaver, and Texas Counties. First and second-instar nymphs of Ageneotettix deorum, Amphitornus coloradus, and Melanoplus spp. observed. (Okla. Coop. Sur.).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Grubs active in most areas of State week ending April 5. Counts variable, ranged 1-2 grubs per square yard in most untreated turf. Heaviest, ranged 2-3 per square foot, in 10 acres of pasture sod in Montgomery County. (U. Md., Ent. Dept.)

MORMON CRICKET (Anabrus simplex) - NEVADA - Nymphs, first and second instar, ranged 4-20 (average 7) per square yard on about 3,000 acres in Egbert Canyon area, Pershing County. Hatch possibly not complete, survey made under poor weather conditions. Infestations possibly heavier and more widespread. (Rowe).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae destroyed 3-4 acres of wheat at Rehoboth, Houston County. (Roney).

DETECTION

New United States Records - A LYGAEID BUG (Cligenes marianensis) - HAWAII - Oahu Island. (p. 253). A WEEVIL (Anthomus flavus) - FLORIDA - Dade County. (p. 251).

New State Records - HAWAII - Oahu Island. A LEAFHOPPER (Zygina penapacha). A SYRPHID FLY (Scaeva pyrastris). A CARABID BEETLE (Selenophorus sp.). (p. 253).

New County Record - STICKTIGHT FLEA (Echidnophaga gallinacea) COLORADO - Mesa. (p. 250).

CORRECTIONS

CEIR 24(11):115 - Second paragraph, lines 10 and 11: ... The loss to sorghum in Arkansas was estimated at \$360,000 excluding control ... should read ... \$36,000 excluding controls ... (Boyer).

LIGHT TRAP COLLECTIONS

ARIZONA - Mesa, 4/1-7, BL, ARMY CUTWORM (Euxoa auxiliaris) 3, BLACK CUTWORM (Agrotis ipsilon) 3, VARIEGATED CUTWORM (Peridroma saucia) 23. FLORIDA - Gainesville, 4/5-11, BL, ARMYWORM (Pseudaletia unipuncta) 1, GRANULATE CUTWORM (Feltia subterranea) 1. KENTUCKY - Lexington, 4/9-12, BL, armyworm 11, black cutworm 1. MISSISSIPPI - Stoneville, 4/5-11, temp. 37-74, precip. trace, 2BL, armyworm 47, black cutworm 5, granulate cutworm 2, variegated cutworm 12. OHIO - Wooster, 4/6-12, BL, armyworm 2, black cutworm 1. TENNESSEE - Hardeman County, 4/8-11, BL, armyworm 40, black cutworm 14, variegated cutworm 3, YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) 1. Henry County, 4/8-11, BL, armyworm 41, black cutworm 1, variegated cutworm 3.

HAWAII INSECT REPORT

New State Records - Three specimens of a LYGAEID BUG (Cligenes marianensis Usinger) found in light trap catches from Honolulu International Airport, Oahu, during January 1974. Determined by J.W. Beardsley. This is a new United States record, but this lygaeid is not known to occur in the continental U.S. This small species was described from Guam and is known from other islands in the Marianas also. (Mau).

Single specimen of a SYRPHID FLY (Scaeva pyrastris) collected at Pearl City, Oahu, May 15, 1973, by R. Onzuka. Determined by F.C. Thompson. This species reported to be an aphid predator. S. pyrastris was described from Europe. In North America its range extends from Alaska to Alberta, Canada, and south to California, New Mexico, and Arkansas. S. pyrastris is also found in Eurasia and northern and western Africa. (Mau).

Several specimens of a LEAFHOPPER (Zygina penapacha) collected in light trap at Honolulu International Airport, Oahu, January 21 and 31, 1974, by L. Kaichi. Determined by J.P. Kramer. Z. penapacha previously reported only from Brownsville and Victoria, Texas. Nothing is known concerning biology or economic importance of this leafhopper. (Kaichi).

Twenty specimens of a CARABID BEETLE (Selenophorus sp.) taken in light trap at Animal Quarantine Station, Halawa, Oahu, during January 1974. Determined by T.L. Erwin. This is the first record of this genus in the State. This genus occurs in the New World, ranging from the tropics of South America to the cool temperate portions of the United States. Species of Selenophorus are usually found in dry places which support sparse vegetation. (Mau).

General Vegetables - BEAN FLY (Melanagromyza phaseoli) heavy in backyard planting of snap bean seedlings at Honokaa, Hawaii; 80+ percent seedling mortality attributed to damage. (Yoshioka, Apr. 5).

Fruits and Nuts - Damage due to larval feeding of BANANA SKIPPER (Erionota thrax) ranged from about 20 percent of leaves surveyed in small banana plantings at Honouliuli, Iroquis Point, and Pearl City, Oahu, to less than one percent in several acres of banana at Waimanalo. Adults seen with increasing regularity by one banana farmer at Waimanalo. (Kumashiro et al., Apr. 5).

Beneficial Insects - Recoveries of an ENCYRTID WASP (Ooencyrtus erionotae), an egg parasite, and a BRACONID WASP (Apanteles erionotae), a larval parasite, of Erionota thrax (banana skipper) have been made at several release points and are considered established. Of 42 E. thrax egg clusters collected at Honouliuli, Oahu, during March, 90.4 percent parasitized by O. erionotae; however, only 60.9 percent of total number of eggs (282) parasitized. A. erionotae pupal cases collected from banana rolls on numerous occasions. (Kumashiro et al., Apr. 5).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1973
(Continued from page 239)

MAN AND ANIMALS

Highlights:

SCREWWORM was not as serious during 1973 as in 1972. FACE FLY was slightly heavier on cattle in Michigan than usual and was serious on pastured cattle in Iowa. This fly was a major and widespread pest of cattle in Alabama for the first time. HORN FLY was annoying to cattle in several areas and caused some losses. MOSQUITOES were annoying as usual in several parts of the Nation, being above normal in areas where rains were heavy.

During 1973, there were 14,976 confirmed cases of SCREWWORM (*Cochliomyia hominivorax*) reported in the United States as follows: Texas 8,913; Arizona 4,714; New Mexico 1,103; California 235; Nevada 6; and one case each in Colorado, Iowa, Louisiana, Oklahoma, and Utah.

The effect of screwworm was not as drastic in 1973 as during the outbreak during 1972 when 95,642 cases were found. The 14,976 cases reported during 1973 ranked the year as the third most serious in respect to screwworm incidence in the United States since the inception of the eradication program in 1962, which was the second most serious year.

The focus of attention during the early months of 1973 was on Arizona which maintained the heaviest cumulative case total for 7 months. During the last 5 months of the year the total was heaviest in Texas. Arizona had its worst year of screwworm infestation in the history of the program with a total of 4,714 screwworm cases, twice the number during 1972. Infestations occurred in all of the 17 counties in the State, but 25 percent of the counties accounted for 60 percent of the total cases as follows: Yavapai 832, Cochise 815, Maricopa 546, and Gila 525. This outbreak was primarily a result of screwworm fly migrations from the State of Sonora, Mexico, directly south of Arizona.

In Texas, the case load was concentrated within a 12-county area in the southern part of the State. Of the total 8,913 laboratory confirmed cases, 7,338, or 82 percent, originated in this area. Of the 12-county case total, 2,094, or nearly 30 percent, were discovered in Brooks County alone.

California broke any past records in regards to final yearly screwworm confirmations with 235 cases for 1973. San Diego County accounted for about half of this figure with 120 cases. Formerly, the greatest number of cases had occurred in 1968 with 135.

New Mexico fared slightly better than neighboring States in 1973. Although there was not much variation from last year's 1,269 cases, it secured the fourth position in yearly screwworm totals of the program. Grant County with 424 identifications and Hidalgo County with 176 retained more than half the 1,103 annual total.

Isolated cases of screwworm were located in Nevada with 6 and a single case each was reported in Colorado, Iowa, Louisiana, Oklahoma, and Utah.

Only 4 percent of the 14,976 screwworm confirmations during 1973 were located within counties in the region north of the United States barrier zone.

Progress toward eliminating the destructive screwworm parasite in 1974 is evident when comparing the ratio of screwworm cases to non-screwworm cases which stands at 3.5:1.0 at the end of 1973; whereas, in 1972 the ratio was 18.9:1.0. Non-screwworm cases totaled 4,322 in 1973.

COMMON CATTLE GRUB (Hypoderma lineatum) infestations in 1973 throughout KENTUCKY were moderate. Populations in the central area seemed slightly lighter than in 1972. Larval emergence on dairy cows in central Kentucky reached a plateau in early February and did not decline until March. Although common cattle grub occurred statewide and was especially important as a beef cattle pest in ALABAMA, populations and damage were about the same as for the past 3 years. Infestations ranged light to medium, probably due to better and more widespread use of proper pesticides. Common cattle grub ranged moderate to heavy in the backs of cattle in most areas of OKLAHOMA in January and early February. Adult activity was noted in some areas by mid-February and continued through March. Grubs were again appearing in the backs of cattle by early November and moderate populations were reported in most areas by the first of December.

Infestations of CATTLE GRUBS (Hypoderma spp.) increased slightly in NORTH DAKOTA during 1973. Surveys conducted at Dickinson, Mandan, Minot, Rugby, and Turtle Lake showed 21 percent of the cattle infested with 1-41 (average 7.4) grubs per animal. More cattlemen in MONTANA are applying treatment for cattle grubs each year with excellent results for the treated animals. Very little gadding was noticed in some areas of the State during 1973. NORTHERN CATTLE GRUB (H. bovis) ranged 3-16 (average 7) on untreated yearling heifers, 1-13 (average 3) on cows, and 1-13 (average 5.6) on untreated calves in Campbell and Laramie Counties, WYOMING, the fourth week in April. Common cattle grub was present in CALIFORNIA cattle late in the season due to moisture. The incidence was heavier than normal and resulted in many infested animals.

FACE FLY (Musca autumnalis) adults averaged up to 25 per animal on the faces of horses and cattle July 4 in Montgomery County, VIRGINIA. By July 17, counts had decreased to 3-14 per horse at a single farm in Goochland County. A survey conducted July 18 through October 6 in NORTH CAROLINA revealed that flies meeting the habitual and physical characteristics of face fly were present in 27 of 30 herds checked west of Person, Durham, Chatham, Lee, Moore, and Montgomery Counties. Sweep collections were positive in 8 counties which had no previous record of face fly. Nine herds were observed in Granville, Wake, Johnston, Scotland, and Sampson Counties with animals having 1-10 suspicious flies on their faces. However, sweep collections were negative. Light infestations of face fly probably occur as far east in North Carolina as Warren, Franklin, Wilson, Wayne, Sampson, and Bladen Counties. Face fly was

generally heavier in the mountains and western Piedmont in 1973. However, a herd in Durham County and one in Person County averaged 35+ flies per head. The heaviest infestation observed averaged 65+ flies per head on a Holstein herd in Buncombe County.

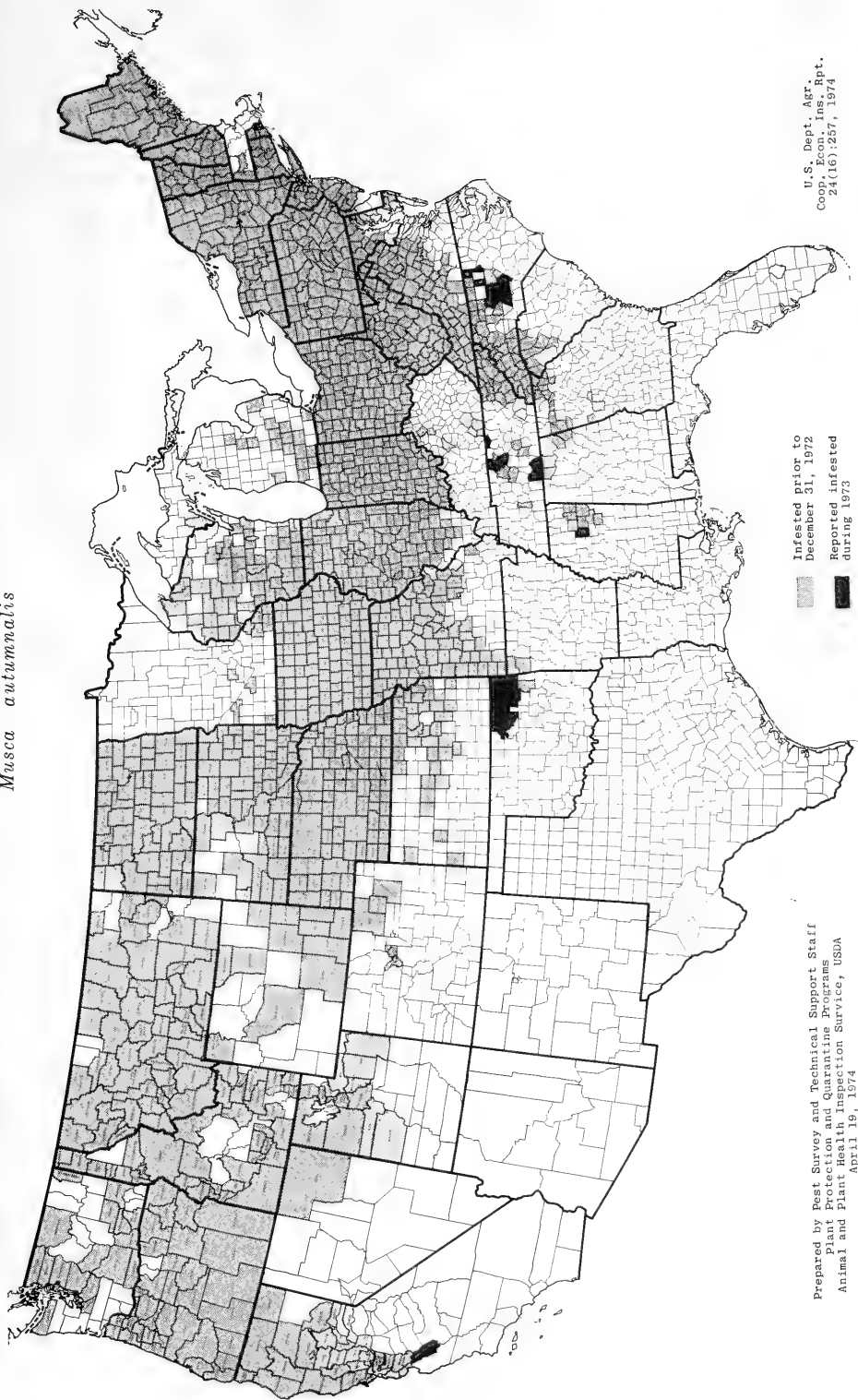
Face fly infestations in KENTUCKY had reached 15 per animal on horses and 25 per animal on cattle in Pulaski County by mid-May. Heavy populations, 40-50 per animal, were recorded in the central area by July. The heaviest counts, 50-75 per animal, were recorded in Nelson County September 14. Populations began to decline throughout the State shortly after mid-September. The first oviposition by face fly in fresh dung in OHIO was observed May 14 in Franklin County. Light adult counts ranged 0-9 per face on beef and dairy cattle statewide until May 30. During the first week of June counts ranged up to 19 per face on Charolais and Black Angus steers in Clinton and Belmont Counties, and 22 per face 5 days later. Counts of 35+ per face caused much annoyance to cattle in many counties by July 19, and persisted through August. Pinkeye was generally most prevalent statewide during late August, correlating with high counts on face fly. The incidence of pinkeye in the Butler County area was reportedly greater than for the last several years. Face fly counts began to decline throughout Ohio by September 13 and counts on cattle were very light by September 20.

Face fly was slightly heavier than usual in MICHIGAN. Once an effective means of applying chemical treatment to the faces of animals is devised, the incidence of pinkeye will decline rapidly. Inquiries and incidence of pinkeye indicate that face fly populations were heavy in INDIANA. Face fly was a serious and increased problem on pastured cattle in IOWA in 1973. Flies were not observed in Story County prior to the end of April, but ranged 1-3 per head on cattle in Boone County by the week ending May 18. Numbers increased slowly through June until the second week in July when Story County herds averaged 35 per head with up to 120 per head. By the week ending July 27, counts remained at about 26 per head in Story County. By the week ending August 10, populations ranged 0-150 (average 21) per head on Story County herds. By September 1, face fly averaged 12 per head on cattle in Polk County. Statewide populations remained heavy through September into October.

For the first time, face fly became a major and widespread pest of cattle throughout much of northern ALABAMA. Damaging populations were first reported in May in Madison and Limestone Counties. Face fly adults were found overwintering in Chickasaw County, MISSISSIPPI, in late February. This was the first record of overwintering flies within the State. The first flies of the season on cattle were found in Chickasaw County March 16. Average infestations were 2 per head on 50 cattle. Populations on cattle remained at 2-3 per face during April and May in Monroe, Chickasaw, and Lee Counties. By mid-June, the population exploded to an averages of 25-30 per head in these counties. Infestations remained at 20+ on cattle in these areas through July but in August, infestations decreased to 10-15 per face. The population continued to decline and on October 1 an average of less than one adult could be found on cattle in these counties. Adults were reported in Clay and Oktibbeha Counties for first time since 1969.

Distribution of Face Fly

Musca autumnalis



Infested prior to
December 31, 1972
Reported infested
during 1973

U. S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(16):257, 1974

Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
April 19, 1974

Face fly was heavy on cattle in northeastern OKLAHOMA from mid-June to early July. Surveys during July confirmed their presence in 8 new counties in this area. Scattered, heavy populations continued in these counties until mid-September. Face fly was much heavier in Ellis County, KANSAS, than ever before noted and also heavy on some range cattle in Riley County along with a high incidence of pinkeye. Face fly averaged 25 per face the first 14 days of July on range cows and calves in NEBRASKA. Populations increased through the summer to an average of 100 per head on untreated animals in Keith, Arthur, McPherson, and Lincoln Counties the last of August.

Face fly populations increased to very high levels in eastern SOUTH DAKOTA in June. In mid-June, infestations ranged 5-35 per head on untreated stock in Charles Mix and Moody Counties. By late June, up to 100 per head were noted on untreated cattle in Charles Mix County and ranged 27-75 per head in northern Moody County. Individual cattle in this latter herd had 150-200 per face by early July. These populations were the heaviest recorded since M. autumnalis became established in the State. A very high incidence of pinkeye was noted. Relief from face fly in MONTANA during 1973 became more noticeable on cattle as natural and introduced parasites and predators became established. Face fly continued to increase its range in CALIFORNIA and now occurs in 32 northern counties. Ranchers depend on dust-bag control which is now indicating some resistance is developing.

HORN FLY (Haematobia irritans) populations in Alachua County, FLORIDA, were above economic levels of 100 per animal by May and continued with maximum numbers as high as 1,000 per animal in June. Average counts for June ranged 800-900 per animal. In July, counts decreased to 600 per animal while August counts dropped to 500. Adult numbers decreased to near the economic threshold of 100-200 per head in September, remaining at this level into October. By early November, flies ranged 100-150 per cow, stabilizing at 150 per animal during the first week of December. Horn fly counts on dairy cattle ranged 25-50 percent fewer than totals observed on beef cattle. Horn fly was annoying and damaging throughout the season in ALABAMA, beginning in late March in the southern area. Infestations were limited mainly to beef cattle herds where proper control was not applied. First emergence of horn fly adults in MISSISSIPPI was recorded March 4-10 in Forrest and Lamar Counties.

Horn fly populations in KENTUCKY were the lowest in years. Practically none were observed during spring and summer. A small population increase was observed in August and September. Adults ranged 15-37 per animal in the central area. Horn fly adult counts in Noble County, OHIO, ranged 150-300+ per side on 2 to 7-year old Charolais and Black Angus cattle by June 6. These populations were heavier than those observed at the same time in 1972. In southwest Ohio, counts commonly ranged 40-150+ per side on beef or dairy cattle by July 19, compared with 350+ per side during a comparable period in 1972. Horn fly was a moderate problem on cattle in IOWA in 1973. Flies were not observed during an early survey the week ending April 27. Numbers increased slowly after initial observations during the third week of May in Boone County. By the week ending July 13, counts ranged 25-400 (average 80) per animal on cattle in Story County. Counts increased during July and averaged 185 (range 50-400) per head in central Iowa and 133 (range 100-200)

per head on cattle in Mahaska County. Flies continued at these levels throughout August when they remained at 30-400 (average 157) per head on cattle in Story County. Counts generally peaked on most herds during late August through mid-September and occasional herds had counts as high as 333 per head as did one Story County herd in late August.

Horn fly was heavy again on untreated cattle in eastern SOUTH DAKOTA throughout the season. Counts averaged 800+ flies per side. Horn fly heavily infested untreated cattle throughout MONTANA during 1973. Horn fly populations increased rapidly in west-central NEBRASKA. Counts averaged 50 per animal in mid-May, ranged 150-250 in mid-June, and averaged 500+ per head by the end of August.

Horn fly was active by mid-March, continued until early December in the southern counties of OKLAHOMA. Counts in Payne County reached 850 per head in early June and then declined to 300-500 per head. Populations increased again in August reaching 1,400 per head by mid-August. Horn fly occurred on livestock throughout ARKANSAS and was heavy from April to frost except in occasional very dry periods. Control measures were effective but not universally applied. Loss to livestock in the State was estimated at \$12,600,000, excluding control costs. Horn fly populations increased rapidly in the south-central TEXAS area in late April. Moderate to heavy infestations were noted in many counties in the south-central, Blacklands, north-central, San Angelo, Trans-Pecos, and Rolling Plains areas throughout the summer. Increasing populations were noted in the Panhandle area of the State in late June. The heaviest infestations were reported from the Rolling Plains and Trans-Pecos areas during 1973. Counts in these areas ranged up to 3,000 per head.

STABLE FLY (Stomoxys calcitrans) annoyed beef and dairy cattle, and horses in FLORIDA. Heavy breeding was noted at a locality near Perry, Taylor County. Counts per animal ranged 10-14, about the same as the past 2 seasons. A severe outbreak occurred on cattle and horses during mid-June at Ruskin, Hillsborough County. The populations built up on tomato refuse. Stable fly in the Panhandle of Florida was about average except for an early outbreak in June. The presence of these flies on gulf beaches in June was attributed to unseasonal north winds, but populations were relatively light and remained on the beaches for a few days only. A heavier outbreak occurred in western Florida during late August, which is normal. Stable fly was active from mid-April to mid-October in OKLAHOMA. The heaviest population in Payne County was 4-8 per head in mid-August, but reports of as many as 30 per head on feedlot cattle were received from the Panhandle counties. Stable fly populations were sporadic on cattle across IOWA in 1973. A Polk County cattle herd averaged 12 per leg during the third week in July. Numbers fluctuated greatly, but by late August ranged 2-22 (average 8) per leg on these cattle.

BLACK FLIES were heavy, biting, and annoying mostly in the northern and western areas of NEVADA in June and early July with the heaviest and most widespread populations occurring in the vicinity of the Humboldt River in Humboldt County. Black flies, usually of very minor importance in KANSAS, caused much annoyance by biting residents in certain central areas. Reports of such annoyance were

received from Sumner, Reno, and Washington Counties from late May through mid-June and some treating was reported in Sumner County. One report was received in late May to the effect that some pigeon squabs were killed due to the bites of large numbers of black flies at Wellington, Barton County. Simulium spp. were reported as pests of humans and animals throughout IOWA in 1973. Annoying populations were reported from Des Moines, Dubuque, Johnson, Lee, Plymouth, and Scott Counties during June. Simulium nyssa caused much annoyance in the Penobscot Valley of MAINE from early July until late October. Coupled with Simulium venustum, which is normally troublesome during May and June, black flies appeared to be very numerous during spring, summer, and fall. The 1973 season was one of the worst in recent years as far as degree and duration of annoyance.

MOSQUITOES were above normal in most areas of MAINE. Encephalitis was detected in pheasants during September, and one horse at Readfield was found to have eastern equine encephalitis in October. Mosquitoes were not monitored to determine which species were the vectors. However, seven species within the State are known vectors of encephalitis. Five of 21 dogs tested in the Augusta area were found positive for heartworm. Mosquito populations were light early in the spring in VERMONT, but increased rapidly during the first week of June with Aedes vexans the most common.

Mosquitoes were relatively scarce in PENNSYLVANIA. During April about 400 acres were aerially treated in Moraine State Park near Prospect, Butler County. Third and fourth instar larvae of A. cinereus and A. canadensis were heavy at that time. The acreage treated was throughout the park, and 95 percent control was attained. There were reports that A. canadensis, A. stimulans, and A. communis larvae were quite numerous in the woodland pools of Hickory Run State Park in April. Aerial treatment provided 90 percent control. There also were reports that A. canadensis, A. stimulans, and A. cinereus larvae were numerous in woodland pools at Pymatuning State Park during the month. About 600 acres were aerially treated with a resulting kill of 90+ percent. A. triseriatus and A. canadensis were reported in very heavy populations from Promised Land State Park in Pike County August 15.

Mosquito infestations in KENTUCKY were less severe in 1973 than in 1972. Populations in Hopkins County were much reduced as compared to 1972. First and second-instar larvae of Aedes triseriatus, a species implicated as a vector of California encephalitis, were present in Knox County, OHIO, May 1. Culex pipiens pipiens and C. restuans were about four times as prevalent in Huron County during mid-May as Aedes vexans and A. canadensis. Wet cool weather had suppressed widespread adult emergence and second to fourth-instar larvae predominated. Light traps in the Toledo vicinity collected about six times as many females as during a comparable 1972 period. Anopheles spp. and Culex spp. were very bothersome in Highland County during late June. By September 6, most Anopheles spp. and Culex spp. were at peak densities statewide or beginning to decline; Aedes vexans populations were near maximum densities. However, mosquitoes were so numerous in Ohio this year that man and animals did not experience much relief until the third week of September when the predominant biting species underwent significant declines. Mosquitoes have not been as prevalent throughout the State since 1969.

Although complaints were no more frequent than in the past in INDIANA, mosquito adults were often observed at sites from which they were absent before. A total of 56 new county records for mosquitoes were made. First biting by woodland mosquito species in WISCONSIN occurred in the north about May 19. Relatively heavy populations caused severe annoyance until about mid-June when they subsided. Populations and biting increased again in late August. Temporary pool and flood water species were not as serious as in the past, being concentrated primarily near rivers.

Rains in MINNESOTA during late April or early May resulted in a large brood of Aedes vexans, but cool weather delayed emergence until the last week in May. Early spring Aedes species such as A. stimulans, A. punctor, A. excrucians, and A. fitchii were common in bite collections in late May and early June. Light trap collections revealed A. aberratus as an important species in early June. This species was also a significant component of bite collections. Coquillettidia perturbans first appeared in mid-June and by the end of the month was the most important pest mosquito in the Minneapolis and St. Paul metropolitan area. Populations of this species peaked the second week of July and were the heaviest recorded since the inception of the Metropolitan Mosquito Control District in 1958. Aedes triseriatus adults increased in late July in collections made in wooded areas. Going into August, mosquito counts decreased and continued to decline until heavy rains on August 22 resulted in a large hatch of A. vexans eggs with adults emerging 9 days later. Egg diapause was significant by the end of the month and continued to increase rapidly in September.

SALTMARSH MOSQUITO (Aedes sollicitans) and SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) as well as other species were ever present and annoying to man around homes, outdoor living quarters, and recreational areas throughout the season in ALABAMA, especially along the coastal areas and lakes of many river systems. Mosquitoes were common in much of OKLAHOMA due to unusually wet weather most of 1973. Most commonly reported were various species of Psorophora, including P. ciliata, P. cyanescens, P. ferox, and P. howardi. Mosquitoes were heavier in KANSAS than usual, their abundance being related to the record rainfall during 1973.

Aedes spp. larvae and some adults were found in pools in Albany County, WYOMING, west of Laramie in mid-April and May. In the first week of June, adults were active in Park and Washakie Counties. Larval control measures were taken in Albany County. Mosquitoes were a serious problem in many localities in UTAH. They were especially serious and annoying in areas of Grand, Emery, Box Elder, Tooele, Millard, Carbon, Washington, Rich, Uintah, and Duchesne Counties, plus annoyance throughout Cache County and areas in Wasatch and Summit Counties. Precipitation was above normal during August and September. Mosquito control measures were initiated in Dona Ana County, NEW MEXICO, following two confirmed cases of western encephalitis during late August. Heavy mosquito populations were also reported from De Baca, Curry, and Roosevelt Counties.

Aedes spp. and Culex tarsalis populations were generally heavy over most of NEVADA due to adequate moisture. Aedes spencerii idahoensis developed unusually heavy populations in northern Elko

County. In CALIFORNIA mosquito populations varied throughout the year, increasing late in the year when rice harvest was underway. Control was exceptional considering the resistance that mosquitoes have developed to pesticides.

A LOUSE FLY (Hippobosca longipennis) infested cheetahs at Winston, Douglas County, for a new OREGON record. This species, a native of Africa and Asia, was imported with 6 cheetahs arriving in the State in 1972. Breeding colonies are now established and a total of 10 cheetahs are known to be infested. It is not known if H. longipennis is established in native animal populations in the area. This exotic hippoboscid is still present in the cheetah compounds in the wild animal park in San Diego County, CALIFORNIA.

AMERICAN DOG TICK (Dermacentor variabilis) adults were collected in PENNSYLVANIA by dragging in Pinchot State Park in Dover Township, York County, during June and July. Populations ranged 35-40 per 100-foot drag in areas of severe infestation and 10-15 per 100-foot drag in moderately infested areas. These were areas of high grass and weeds of uniform composition, and not covered with dense vegetation. There were about 10 acres of severe infestation and 3 acres of moderate infestation. This tick was also very abundant in areas of Delaware, Chester, Bucks, and Montgomery Counties. There were 12 confirmed cases of spotted fever in Pennsylvania--8 in Chester County, 2 in Montgomery County, and 2 in Bucks County. D. variabilis and Ixodes pacificus were very common in CALIFORNIA late in the season and infested many animals as well as man.

LONE STAR TICK (Amblyomma americanum) and Dermacentor variabilis were the main vectors of the 32 cases of Rocky Mountain spotted fever reported in MISSISSIPPI during 1973. The 32 cases reported during 1973 and the 31 cases reported during the period 1969 to 1972 indicate the disease is rapidly increasing among residents of the State. The reasons for the high incidence of cases in 1973 are the fairly mild winter of 1972-1973 and greater development of and activity in previously uninhabited areas of the State. GULF COAST TICK (Amblyomma maculatum) was active in northeast OKLAHOMA from mid-March to mid-May with heavy populations found in the ears of calves in several counties.

WEATHER OF THE WEEK ENDING APRIL 8

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

HIGHLIGHTS: A series of violent thunderstorms and heavy spring rains drenched sections of the Nation's Southeast last week with as much as 15 inches of precipitation. Again the Southwestern States recorded no precipitation at all continuing a longtime drought condition for that area. Most of the Nation enjoyed mild temperatures. The only exceptions were upper New England and the central Plateau region where temperatures averaged 3-6 degrees below normal for this time of year.

PRECIPITATION: Most of the Nation experienced some precipitation during the week. However, the drought-plagued Southwest recorded no precipitation and the no rain area extended north from Arizona through Nevada and western Idaho. In the precipitation areas, some of the heaviest amounts included Tatoosh Island, Washington, 2.37 inches, the Great Lakes area 2.34 inches, Mount Washington, New Hampshire, 2 inches, and Newark, New Jersey, 2 inches. Early in the week, a Low over West Virginia produced a band of snow reaching from Ohio to southern New York. Both Cleveland, Ohio, and Bradford, Pennsylvania, received 2 inches, while Binghamton, New York, and Dayton, Ohio, got 1 inch. A cold front trailing southward from the West Virginia Low triggered thunderstorms and tornadoes from Virginia to northern Florida. One death and three injuries occurred in Lester, Georgia, and extensive damage was reported in Athens, Tennessee, Tembleton, Alabama, and Gainesville, Georgia. Three more injuries were reported in Cummings, Georgia, when one home and one mobile home were damaged by a tornado. Meanwhile, strong northeast winds piled up waters on the extreme southwest shore of Lake Erie with flooding as far as one-half mile inland at one point. On Tuesday, snow fell to the north and west of an intensifying Low pressure area that was centered off the New Jersey coast. Burlington, Vermont, received 12 inches of snow during the day, 10 inches accumulated at Albany, New York, and 6 inches at Portland, Maine. At midweek, a winterlike atmosphere returned to much of the Northeast and the central Rockies. One of the heavy snowfalls in the central Rockies dumped 12 inches around Salt Lake City, Utah, and Albany, New York, recorded a record-breaking 12 inches of snow for this late in the season. Wednesday a storm center causing wintry weather in the Northeast moved off the New England coast. Toward the end of the week, a Low pressure system over the Plains influenced much of the Nation's weather. Heavy rains and thunderstorms were reported along a cold front trailing out of a spring storm centered in western Kansas. Thunderstorms spread from Louisiana and Texas into the middle Mississippi Valley and east-central Plains. Tornadoes and damaging winds were reported near Sioux City, Iowa, Weissert, Nebraska, and Monroe, Louisiana. Late Thursday night 5-8 inches of rain had deluged central Louisiana and continued into the weekend with amounts greater than 8-12 inches over southern Mississippi causing considerable flooding. During the weekend, a spring storm dumped snow in the central Rockies and touched off tornadoes and thunderstorms over the central United States. Most of the tornado damage was in Missouri and Illinois. Easter Sunday, a cold front pushed cooler air eastward toward the Atlantic coast, preceded by numerous

showers and thundershowers spreading through the Atlantic and central Gulf Coast States.

TEMPERATURE: The Nation enjoyed mild April temperatures last week. Monday, an arctic air mass produced unseasonably cold weather over the Great Lakes area. Morning temperatures dipped into the 20's and 30's in the lower Great Lakes and into the teens near the upper Great Lakes. The coldest spot in the Nation was 3 degrees below zero at the Marquette County Airport. At midweek, a late winter storm ushered in cold air to the East sending temperatures dipping to record lows in Florida, New York, Ohio, and Pennsylvania. Record low temperatures in Florida were recorded at West Palm Beach Apalachicola, and Tallahassee. Temperatures dipped into the 20's and teens over most of Pennsylvania with records at Scranton. 22 and Pittsburgh 21. Binghamton, New York, dropped to a record 20 degrees and Youngstown, Ohio, to 18 degrees. Thursday, temperatures began warming in the Atlantic Coast States and from California to the Southwest but generally remained little below normal for the season. During the weekend, temperatures were cooler than normal from the upper Pacific coast through the central Plains into the upper Mississippi Valley and New England. The remainder of the Nation enjoyed seasonal if not warmer temperatures. The Pacific coast and many other areas enjoyed a near perfect day Easter Sunday.

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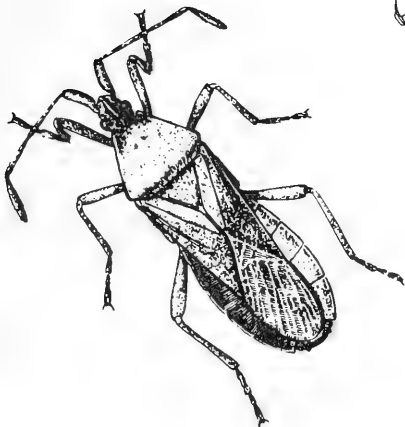
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Cooperative Economic Insect Report

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



**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMY CUTWORM damaged alfalfa and wheat in the southwest and panhandle districts of Nebraska, active on winter wheat in western South Dakota, and heavy in alfalfa and winter wheat in west-central North Dakota. Infested 120,000 acres of winter wheat in 9 eastern and southeastern counties of Montana. (p. 267).

ARMYWORM moths appearing in light traps as far north as Tennessee. (p. 267).

SOUTHERN GREEN STINK BUG adults heavy in wheat and oats in southwest Alabama. (p. 268).

ALFALFA WEEVIL active in many areas. Terminal infestations range up to 100 percent, with controls applied in some areas. (pp. 269-270). TARNISHED PLANT BUG very heavy in several thousand acres of clovers in southwest Alabama; heavier than in 1973. (p. 271).

REDBANDED LEAFROLLER adult emergence heavy in southwest Michigan. Adults emerged in Connecticut. (p. 273).

Predictions

Decline of DOUGLAS FIR BEETLE losses in Oregon expected to continue. (p. 283). DOUGLAS FIR TUSsock MOTH expected to cause additional damage on coniferous forests of Washington. (p. 284). OAK SKELETONIZER expected to be more severe in Michigan this year. (p. 289).

Detection

New State records include an ETHMIID MOTH (279), two SPIDER MITES (p. 274), and a SOFT SCALE (p. 274), all from Pennsylvania.

For new county records see page 279.

Special Reports

Summary of Insect Conditions in the United States - 1973.
Ornamentals. (pp. 280-281).
Forest and Shade Trees. (pp. 281-291).

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

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WEATHER OF THE WEEK ENDING APRIL 15

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

HIGHLIGHTS: Tornadoes, thunderstorms, and gusty winds lashed the central portions of Texas, Nebraska, Kansas, Oklahoma, Illinois, and Wisconsin causing considerable damage and personal injury as a series of storm systems moved across the country last week. Light and widely scattered precipitation fell over much of the eastern two-thirds of the Nation. More than 2 inches of rain soaked sections of Arkansas and Missouri, with 7.6 inches reported at Little Rock, Arkansas, for the week. There was no break in the drought condition of the Southwest. Temperatures slipped to more than 6 degrees below normal last week in the South and Southeast while the rest of the country enjoyed mild April readings.

PRECIPITATION: Widely scattered precipitation fell in many sections of the Nation last week. A band of over 2 inches of rainfall stretched from northern Texas through Oklahoma, Nebraska and Iowa. Similar precipitation amounts were recorded at New Orleans, Louisiana, Savannah, Georgia, and Casper, Wyoming. Early in the week, a Low drifted from eastern Missouri into northern Georgia accompanied by cloudy skies and scattered light showers and thunderstorms. Showers and thundershowers continued Tuesday across central Florida where some high winds caused personal injuries. Thursday, a Low over Nevada touched off showers and isolated thunderstorms in northern California and some rain and drizzle in Oregon. Just ahead of the storm system, thundershowers spread from the southern Plains across the middle Mississippi Valley to the Great Lakes. Late afternoon, severe thunderstorms had developed in western and southern Texas. A tornado was sighted at Big Spring and golf ball-sized hailstones hit San Antonio and Alice. Weather of the week continued on page 291.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - NEBRASKA - Light to moderate damage to alfalfa and wheat reported from southwest and panhandle districts. Averaged about 2 larvae per square foot in several fields of alfalfa examined in Hitchcock and Perkins Counties. (Lydic, Bower). SOUTH DAKOTA - Larvae active on winter wheat in 8 western counties. (Kantack et al.). NORTH DAKOTA - Heavy in alfalfa and winter wheat in Golden Valley County. Larvae (all stages) ranged up to 19 per square foot in alfalfa and up to 6 per linear foot in winter wheat. Some migration across roads occurred. Damage to winter wheat evident. Treatments being applied. (Kaatz). MONTANA - Larvae collected in McCone and Prairie Counties. These are new county records. In addition to winter wheat, alfalfa and rangeland infested in many places. To date, total of 120,000 acres of winter wheat infested in McCone, Prairie, Custer, Powder River, Dawson, Rosebud, Fallon, Wibaux, and Yellowstone Counties. (Pratt).

ARMYWORM (Pseudaletia unipuncta) - ALABAMA - Larvae destroyed 10 acres of corn in Mobile County; moved from nearby wheat. In Baldwin County, 50+ growers treated 20,000+ acres of wheat. Larvae light in 2 wheat fields in Escambia County. (Turner et al.). ARKANSAS - Survey in 35-40 fields of wheat and oats in southeast and east-central areas revealed light larval counts. Few larvae, mostly third instar, found in wheat in Chicot County and in oats in Arkansas County. Survey negative in Desha and Lincoln Counties. Moth activity very light in southeast area. Single moth taken in light trap at Kelso, Desha County. (Boyer).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Sprays applied to 4,462 acres where counts heavy; counts of 100-300 per 10 sweeps not uncommon in some of sprayed area. Unless vegetation holds longer than expected in some areas of Kern County, all infested acreage will not be sprayed. Thus, heavier than normal flights can be expected to cultivated areas, resulting in possible increased curly top virus. In area between Maricopa and Wheeler Ridge, referred to as Pentland Flats, counts ranged 1-15 per 10 sweeps over several thousand acres. This will produce heavy flight to cultivated lands. Total of 2,590 acres sprayed in Fresno County, primarily on west side of Kettleman Hills and Los Gatos Canyon. In Kings County, spraying in Kettleman Hills totaled 4,925 acres. Spray operation to continue south into Dudley and Pyramid Hills. (Cal. Coop. Rpt.). IDAHO - Populations light in overwintering sites in Washington, Payette, Canyon, Ada, Gem, and northern Owyhee Counties. Counts ranged 0-2 per 6-square-foot sample, with most samples having no leafhoppers. (Batt).

CORN EARWORM (Heliothis zea) - ALABAMA - In several hundred sweeps of crimson clover in 4 southwest counties, only 2 early instar larvae collected in Escambia County. First of season. (Knowles et al.).

GREENBUG (Schizaphis graminum) - VIRGINIA - Infestations in small grains well controlled by predators and parasites. Earlier treated fields of densely growing barley still infested. This possibly due to predator and parasite reduction without corresponding S. graminum reduction. (Allen). TEXAS - Less than 5 per row foot of small grains in Archer, Baylor, Knox, Haskell, Throckmorton, Childress, Wichita, and Wilbarger Counties. (Boring)

SPOTTED ALFALFA APHID (Therioaphis maculata) - TEXAS - Averaged 2 per sweep in Hale County alfalfa. (Latham). OKLAHOMA - Ranged 10-20 per linear foot in alfalfa in Jackson County; averaged 10 per 10 sweeps in Garvin County field. (Okla. Coop. Sur.). ILLINOIS - First of season observed on alfalfa in Effingham and Mason Counties. (Ill. Ins. Rpt.).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Heavy, ranged 75-80 percent infestation of Maryland type flue-cured tobacco on untreated farm near Live Oak, Suwanee County, April 10. H. virescens appeared about 10 days earlier than previous two years. (Fla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintering larvae ranged 20-33 percent in Sussex County. (Barbutis). WISCONSIN - Dissection of corn stubble in southern Dane, Rock, Iowa, and Grant Counties indicated 90 percent winter survival in fields checked. Corresponds to results of dissections in Dane, Sauk, and Columbia Counties previous period. (Wis. Ins. Sur.). NORTH DAKOTA - Winter mortality in untilled corn in Cass, Dickey, Ramsom, Richland, and Sargent Counties ranged 20-60 (average 42) percent. This is heavier than 32 percent mortality found in 1973. Mortality 27 percent in single irrigated untilled cornfield in La Moure County. (Brandvik).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Light on grain sorghum 6-8 inches tall in Houston County. (Bush).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MARYLAND - Moderate to heavy in about 10,000 acres of barley, wheat, and oats in Wicomico, Dorchester, Worcester, Talbot, Queen Annes, and St. Marys Counties week ending April 12. Only earliest planted fields hosted heavy populations. Light infestations noted in late-planted fields. Mild overwintering conditions allowed increase in January, February, and March. Populations currently returning to normal light levels throughout State. About 6,000 acres of wheat and barley treated in past 14 days. Most damage reported in Dorchester, Wicomico, St. Marys, and Talbot Counties. Natural and chemical controls brought pest under economic thresholds. (U. Md., Ent. Dept.). ALABAMA - Ranged light to medium in all wheat and oat fields surveyed in Baldwin, Escambia, Monroe, and Wilcox Counties. (Turner et al.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Adults very heavy in wheat and oats in southwest area; ranged 1-22 per 15 square feet in all fields in Baldwin and Escambia Counties. First-generation nymphs numerous on wheat and crimson clover. (Turner, Knowles).

PALE WESTERN CUTWORM (Agrotis orthogonia) - OKLAHOMA - Some scattered heavy infestations still found in wheat in Cimarron County. (Okla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - FLORIDA - Larvae and pupae infested 10 percent of 50-acre northern Okaloosa County wheat field. Larvae and pupae found at first and second joints of wheat in early dough stage: stems lodged. (Fla. Coop. Sur.).

ALABAMA - Surveys negative in 50 wheat fields checked in Baldwin, Escambia, Monroe, and Wilcox Counties. (Turner et al.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 2-55 per row foot in small grains in Archer, Knox, Haskell, Throckmorton, Childress, Wichita, and Wilbarger Counties. Heavier, 60-200 per row foot reported from some fields in Archer and Baylor Counties. In most cases heaviest populations well below damaging levels and control measures not applied. (Boring).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged up to 250 per linear foot in wheat checked in Jackson and Kiowa Counties. Scattered heavy infestations still found in Cimarron County. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

A GELECHIID MOTH (Chionodes psiloptera) - WASHINGTON - Based on single plant sample and verbal reports, infestation severe in seed grass fields in nonirrigated foothills area north of Spokane, Spokane County. (Law, Canode).

A SOD WEBWORM (Crambus trisectus) - MARYLAND - Larvae still active statewide week ending April 12. Damage well below economic levels. Most larvae third to fourth instar. Peak adult flight expected next 3-4 weeks in central area. (U. Md., Ent. Dept.).

CHINCH BUG (Blissus leucopterus leucopterus) - INDIANA - One specimen taken from grass samples collected in western and eastern border counties during late March and early April. (Meyer).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Larvae active in forage legumes throughout State. Damage light, heaviest ranged 10-20 percent in Frederick and Washington Counties. (U. Md., Ent. Dept.). VIRGINIA - Based on 16 fields sampled (149 acres) 63.1 percent of tips infested. Average estimated defoliation 12.3 percent. Most larvae small with average of 2.2 per tip based on 800 tips sampled. Nine fields passed infestation levels recommended for control. Based on total acreage sampled, 74 percent of all acres above recommended treatment level. Where most larvae very small, retreatment should be delayed to get larvae from unhatched eggs. Damage to date economic in many fields. (Allen). WEST VIRGINIA - Alfalfa tip infestation 80 percent in Mason County and 60 percent in Putnam County based on five 10-tip samples. (Hacker).

KENTUCKY - In Fayette County, alfalfa weevil eggs averaged 28.3, 20.0, 8.6, 11.6, 24.2, 16.0, and 4.0 per square foot in various alfalfa fields. In Barren County, eggs averaged 45.5 per square foot. Larvae at economic levels in most fields in southern and central areas. In northern areas, developing populations still

light. Some freeze damage evident in these areas. (Barnett, Parr).
TENNESSEE - Number of alfalfa tips infested per 50 tips examined in 16 fields checked in 12 counties ranged from 5 in one Sumner and 2 Gibson County fields to 40 in one Henry County field. Number of larvae per 50 tips examined in these 12 counties ranged from 2 in one field each in Carroll and Gibson Counties to 69 in Dyer County. Some older seeded alfalfa fields at or above control levels and growers should consider treating. (Gordon et al.).

INDIANA - Almost 100 percent of terminals in untreated Knox County field showed alfalfa weevil larval feeding by April 15. No feeding noted and no larvae taken by sweeping in La Porte County area alfalfa. (Hintz). ILLINOIS - Larvae ranged 5-70 per sweep in untreated alfalfa in area south of line from Pike County to Crawford County. Treatment needed or will be needed in most fields next 7 days. Heaviest in Jersey County, ranged 40-70 per sweep in all untreated fields. First pupation of season noted April 31 in Jersey County. Some treatment justified in occasional Adams County fields, populations averaged 15 per sweep. Alfalfa in southern half of State set back 14 days by cold weather in March. Alfalfa ranged 10-11 inches tall in southern counties and 9-10 in better stands in central counties. (Ill. Ins. Rpt.). MISSOURI - Larvae per 100 alfalfa stems by county as follows: Perry 81, Cape Girardeau 74, Wright 488. Treatments applied throughout southern area. (Munson).

ARKANSAS - Alfalfa weevil continued active in alfalfa and other legumes in all areas. Heavy weevil feeding on untreated alfalfa reported in Pine Bluff area, Jefferson County. Adults light where crimson clover growing and in full bloom along highways. Light numbers of weevils collected on Persian clover along highways in southeast area. Counts have not built up to high levels in these clovers as often occurs in alfalfa. (Boyer). TEXAS - Larvae averaged 50 per square foot in alfalfa field in Edmunson Community of Hale County. Terminal damage in area ranged 70-100 percent. (Latham). OKLAHOMA - Percent terminal infestations in alfalfa by county: Muskogee 20-70, Wagoner 10-80, Jackson 0-20, and Kiowa 20-75. Larval counts ranged 40-100 per 10 sweeps in Garvin, Murray, and Johnston Counties; moderate to heavy in Woodward, Kay, Pawnee, Oklahoma, Comanche, and Bryan Counties. (Okla. Coop. Sur.). UTAH - First eggs of season found on alfalfa at Logan, Cache County, April 15. (Davis).

CLOVER ROOT CURCULIO (Sitona hispidulus) - WASHINGTON - Adults noted at 2:5 per 5 sweeps in alfalfa for seed near Touchet and Walla Walla. Walla Walla County. (Alfalfa Seed Pest Mgt.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Adults ranged 2-10 per sweep of clovers in Baldwin, Escambia, Monroe, and Wilcox Counties. Counts much heavier than most years. (Turner et al.).

ALFALFA CATERPILLAR (Colias eurytheme) - OKLAHOMA - First larvae of season noted in alfalfa in Murray County. (Okla. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - First larvae of season noted in alfalfa in Murray County. (Okla. Coop. Sur.).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Adults very heavy, 2-6 per sweep, in clovers in Baldwin, Monroe, Escambia, and Wilcox Counties. (Turner et al.).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Averaged 150+ per alfalfa crown in Smith Valley, Lyon County. Plants stunted and covered with honeydew. Treatments applied or to be applied. (Adams, Clark). Ranged 5-10 per sweep at Fallon, Churchill County. (Hilbig). OKLAHOMA - Averaged 120 per 10 sweeps in Murray County; 100 in Garvin, and 30 in Johnston, Marshall, Muskogee, and Wagoner Counties. Moderate in Pawnee County. (Okla. Coop. Sur.). ARKANSAS - Present in legumes in all areas of State. Light numbers of winged forms present at some locations. No economic infestations observed. (Boyer). ILLINOIS - Averaged 10 per sweep in alfalfa in Massac and Johnson Counties. (Ill. Ins. Rpt.). WISCONSIN - Eggs hatched past few days. Nymphs averaged one per 10 stems in southern Dane County alfalfa. (Wis. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - All stages very heavy in several thousand acres of clovers, especially crimson clover, in Baldwin, Escambia, Monroe, and Wilcox Counties. Populations heavier than in 1973, which was a year of heavy populations. (Turner et al.). OKLAHOMA - Ranged 2-6 per 10 sweeps in alfalfa checked in Garvin, Murray, Jefferson, Johnston, Muskogee, and Wagoner Counties. (Okla. Coop. Sur.). KENTUCKY - Populations began to increase in alfalfa. In northern area, counts ranged 25-30 per 100 sweeps. (Barnett).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Heavy on alfalfa and required treatment in Fallon area, Churchill County. (Hilbig). NEW MEXICO - Ranged 2-5 per terminal on alfalfa in few fields near Roswell, Chaves County. (N.M. Coop. Rpt.).

COTTON

BOLLWORM (Heliothis zea) - ARKANSAS - Three moths collected this period and two last period in light trap at Kelso, Desha County. (Dean). NEW MEXICO - Female moth collected April 17 in light trap 5 miles north of Las Cruces, Dona Ana County. (N.M. Coop. Rpt.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Averaged 2.5 per cotton seedling at Safford, Graham County. (Ariz. Coop. Sur.).

CARMINE SPIDER MITE (Tetranychus cinnabarinus) - ARIZONA - Some "hot spots" noted on young cotton at Yuma, Yuma County. (Ariz. Coop. Sur.).

TOBACCO

GREEN JUNE BEETLE (Cotinis nitida) - MARYLAND - Larvae heavily infested 200 square feet of Calvert County tobacco seed bed week ending April 12. Treatments applied. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Reported infesting tobacco at several southern area locations. (Barnett).

MISCELLANEOUS FIELD CROPS

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - First and second-instar larvae damaged subterranean peppermint buds in Madras area field, Jefferson County, by April 13. Larvae numerous but reliable counts could not be made due to small size. (Berry).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - OREGON - Spot checks of peppermint fields in western Marion County from Aumsville to Jefferson negative. Several larval instars present in mint plantings in Dever area, Linn County. Population levels and infested acreages appear much lower than in 1973. Larval feeding light, very localized, and generally restricted to spearmint. Larvae present but difficult to detect in adjacent peppermint. About 25 acres of infested spearmint in area removed and planted to other crops. (Penrose).

POTATOES, TOMATOES, PEPPERS

TOMATO PINWORM (Keiferia lycopersicella) - FLORIDA - Population still economic on tomatoes in Homestead area, Dade County. (Fla. Coop. Sur.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - OHIO - Greenhouse tomato plants in Scioto County badly damaged. Up to 31 nymphs per 1.5 by 3-inch leaf underside observed. All plants infested and 60 percent of leaves yellowed and wilted. Chemical treatments gave minor control. (Fox).

BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Adults averaged up to one (range 0.1-1.4) per sweep in alfalfa and clover in Latah and Nez Perce Counties. Averaged 0.2 (range 0-0.5) per plant in 3 fields of early spring peas in Nez Perce County. Damage present on peas 20-30 percent emerged. Similar infestations observed on winter peas in area. (O'Keeffe, Antonelli).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - First adults of season light, feeding and laying eggs on beans in Escambia County. (Knowles).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - First adults of season light on crimson clover in Escambia County. (Knowles).

CUCURBITS

GRANULATE CUTWORM (Feltia subterranea) - FLORIDA - Heavy, caused serious damage. Reduced stand of young watermelon plants by cutting stems in 50-acre Levy County field. (Fla. Coop. Sur.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Larvae necessitated treatment of lettuce at Willcox, Cochise County. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - CONNECTICUT - Nineteen adults taken in perhomone trap in unsprayed tree at New Haven. (Savos, Apr. 16). MICHIGAN - Adult emergence heavy in southwest area. First adult catch at Watervleit, Berrien County, April 11; as many as 100+ in some traps by April 16. Adults averaged 51 per trap at Fennville, Allegan County, by April 17. (Nugent, Olsen).

PEACH TWIG BORER (Anarsia lineatella) - NEW MEXICO - Adult activity reported at La Mesa, Dona Ana County. (N.M. Coop. Rpt.).

EYESPOTTED BUD MOTH (Spilonota ocellana) - CONNECTICUT - Larvae active in fruit trees at Storrs. (Savos, Apr. 16).

A BLACK POLLEN BEETLE (Meligethes nigrescens) - OREGON - Adults active at Gresham, Multnomah County; caused heavy damage to pistils of prune and pear flowers at one location. (Nicoliason, Brown).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Eggs easily found on pear at East Lyme, New Haven, and Storrs. (Savos, April 16). MICHIGAN - Eggs first observed on pear in Berrien County April 3. (Tatter). WASHINGTON - Egg deposition increased 200 percent this year in plots in Yakima Valley surveyed during same period in 1973. First-instar nymphs noted on prebloom pears in upper Yakima Valley, Yakima County, April 10. Third-instar nymphs noted on pears in bloom in lower Yakima Valley April 10. (Johnson).

GREEN PEACH APHID (Myzus persicae) - UTAH - Curled peach foliage in St. George, Santa Clara, Hurricane, and Toquerville areas of Washington County. (Huber).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Eggs on terminals of many fruit trees in protected locations; no hatch noted. (Savos, Apr. 16).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Overwintered larvae pupated in pecan shucks in Pottawatomie, Johnston, Murray, and Garvin Counties. Adults emerged in Bryan County. (Okla. Coop. Sur.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Overwintered larvae active and entered branch tips of pecans in Garvin, Murray, Johnston, Bryan, and Pottawatomie Counties. (Okla. Coop. Sur.).

PECAN SPITTLEBUG (Clastoptera achatina) - ALABAMA - First nymphs of season noted on pecans in Baldwin, Escambia, and Monroe Counties. Spittle masses ranged 1-10 on each branch of 100 trees in one Escambia County orchard. (Turner et al.).

PECAN LEAF PHYLLOXERA (Phylloxera notabilis) - ALABAMA - Heavy on one of 200 large pecan trees in orchard at Ardmore, Escambia County; galls averaged 30+ per leaf. Few galls noted on few pecan trees in another orchard. First of season. (Knowles, Brown).

CITRUS

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Eggs, larvae, and adults infested lemon grove in Oxnard, Ventura County. Pest overwintered on wild hosts, building up unusually early this season. (Cal. Coop. Rpt.).

SMALL FRUITS

GRAPE FLEA BEETLE (Altica chalybea) - OHIO - Adults fed on primary grape buds in Cincinnati area, Hamilton County. Feeding can prevent buds from developing into primary grape canes and cause crop reduction. Larvae noted feeding on upper surfaces of leaves. In 1973, larvae first observed feeding on grape leaves May 24 in southern area. (Williams, Still).

VARIEGATED CUTWORM (Peridroma saucia) - IDAHO - Damaged buds and new growth in commercial strawberry fields near Eagle, Ada County, April 12. (Peterson).

IMPORTED CURRANTWORM (Nematus ribesii) - OREGON - First adult of season noted on gooseberry leaves April 12 at Croisan Gulch, South Salem, Marion County. (Westcott).

ORNAMENTALS

JUNIPER WEBWORM (Dichomeris marginella) - OREGON - Full-grown larvae active on Irish juniper in Multnomah County. Damage appeared on untreated trees. (Nicoliason).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - DELAWARE - Overwintering egg masses hatched on ornamentals throughout State. (Burbutis).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - OREGON - Cottony egg masses heavy on ornamental Douglas-fir trees in north Portland area, Multnomah County, and east Salem, Marion County. (Nicoliason, Brown). COLORADO - Galls more common on spruce in Fort Collins area, Larimer County, than in last 7 years. (Brewer).

CALICO SCALE (Lecanium cerasorum) - CALIFORNIA - Infestations on liquidamber trees have increased past 3 years. Previously not a problem. Infestations currently heavy and almost completely cover limbs; this causing dieback of lower limbs. Generally, infestations begin on lower limbs of affected trees. Liquidamber is popular street tree in State. (Cal. Coop. Rpt.).

A SOFT SCALE (Pulvinaria floccifera) - PENNSYLVANIA - Ranged 8-15 (with egg sacs) per 4-inch stem on Taxus sp. at Shillington, Berks County, June 2, 1973. Collected by L. Signarovitz. Determined by G.E. Slesman. This is a new State record. (Kim).

SPIDER MITES - PENNSYLVANIA - Oligonychus weidhassi collected on Chamaecyparis pisifera at Lyndell, Chester County, November 3, 1972, by D. Christie. Also taken on Cryptomeria japonica from Lima, Delaware County, June 28, 1973, by E. Emel and B. Lavish. Eotetranychus uncatus adults collected on Tilia americana at Equinunk, Wayne County, July 26, 1973, by A. Andreychik. Determined by R. Lehman. These are new State records. (Kim).

FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TENNESSEE - Infested variety of trees in all areas of State. Foliage feeding apparent, little damage noted to date. (Gordon et al.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - ALABAMA - Eggs hatched April 15 and first-instar larvae present on black cherry near Bath, Clinton County. Colonies scarce. (Stehr). Although population density not determinable, timber owners concerned about defoliation of water tupelo (tupelo-gum) on several thousand acres along Alabama River in Baldwin County. (Turner, Clark).

WESTERN TENT CATERPILLAR (Malacosoma californicum) - UTAH - Present in outbreak numbers in Santa Clara and St. George areas and elsewhere along Virgin River in Washington County. (Huber, Knowlton).

SOUTHWESTERN TENT CATERPILLAR (Malacosoma incurvum discoloratum) - NEVADA - Heavy on cottonwood and required treatment at Mesquite, Clark County. (Williams, Apr. 12). Replaces Nevada note under eastern tent caterpillar in CEIR 24(16):249. (PPQ).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Male moths emerged April 16 in Fargo, Cass County, compared to March 18, 1973. (Anderson).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Leaf damage from adult feeding observed in Las Cruces, Dona Ana County. (N.M. Coop. Rpt.).

A CONIFER SAWFLY (Neodiprion taedae linearis) - MISSISSIPPI - Larvae defoliated about 10 acres of old loblolly pine stand in Oktibbeha County. Currently in pupal stage in soil under trees. (Robinson).

MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 1.1 per animal on backs of 80 Holstein dairy cows of various ages in Fayette County. (Barnett). ALABAMA - First adults of season noted stampeding cattle in lower Baldwin County. (Turner et al.).

FACE FLY (Musca autumnalis) - NEW HAMPSHIRE - Emerged from hibernation, thousands of adults found resting on barns and houses April 4 at Lee, Strafford County. (Blickle). OHIO - Heaviest on southern area beef cattle. Most annoying (30+ per face, up to 25 per back) in lower regions of Lawrence, Scioto, Adams, Brown, and Cleremont Counties. Similar populations observed on Vinton County cattle. Populations represent overwintering adults and should die off next 14 days. Weather will determine rate of larval growth and adult emergence. Peak populations occurred in late July and August in 1973. (Fox). MISSISSIPPI - Occasional female seen on cattle in Chickasaw and Monroe Counties. (Robinson).

HORN FLY (Haematobia irritans) - OHIO - Observed on beef cattle in most southern counties bordering Ohio River. Very light, 14 or less per animal. (Fox). These represent new adults from overwintering pupae. Populations expected to increase steadily. (Treece). TENNESSEE - Survey negative on cattle herd in Knox

County. (Snodgrass). OKLAHOMA - Horn fly averaged 75 per head on cattle in Payne County and ranged 20-100 per head in Muskogee County. Moderate in Comanche County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 3 per head on dairy cattle in Payne County. Light in Muskogee County. (Okla. Coop. Sur.).

MOSQUITOES - WISCONSIN - Unspecified species biting out of doors in Middleton, Dane County, April 13. (Wis. Ins. Sur.). OHIO - Recent cold weather slowed larval development and prevented adult emergence. Aedes triseriatus collected in April in Richland, Knox, and Lake Counties in second to fourth instar. A. canadensis collected in Summit County. (Ohio Dept. Health). MISSISSIPPI - Aedes triseriatus larvae common in treeholes in Chickasaw County. (Robinson). ALABAMA - Overwintering adults active on warm days. Many overwintering eggs of early season species hatched, various larval stages present in most temporary water accumulations in wooded areas. (Newson).

AMERICAN DOG TICK (Dermacentor variabilis) - DELAWARE - Heavy on pets and people in northern New Castle County. (Burbutis). MINNESOTA - First activity of year noted near Stillwater, Washington County. (Minn. Pest Rpt.).

HOUSEHOLDS AND STRUCTURES

CLOVER MITE (Bryobia praetiosa) - SOUTH CAROLINA - Annual appearance in and around homes underway. Specimens collected by J.O. Donkle in Newberry County. Determined by J.B. Kissan. This is a new county record. (McCaskill).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - INDIANA - Winged reproductives reported April 10 in La Porte County and April 16 in Harrison County. (Sanders).

BENEFICIAL INSECTS

LADY BEETLES - WISCONSIN - Very light in alfalfa in southeastern Green and central Rock Counties. (Wis. Ins. Sur.). ILLINOIS - Larvae ranged 2-10 per sweep in Jersey County alfalfa. (Ill. Ins. Rpt.). ARKANSAS - Hippodamia convergens (convergent lady beetle) and Coleomegilla maculata active in green vegetation in all areas surveyed. Reproduction underway with light numbers of larvae observed. Feeding on Acyrtosiphon pisum (pea aphid) in legumes and on Macrosiphum avenae (English grain aphid) in small grains. (Boyer). OKLAHOMA - H. convergens ranged 2-8 per 10 sweeps in alfalfa in Garvin, Murray, and Johnston Counties. (Okla. Coop. Sur.). TEXAS - H. convergens adults averaged 15 per 10 sweeps in Hale County. (Latham). ARIZONA - H. convergens ranged up to 100 per 100 sweeps of alfalfa noted at Yuma, Yuma County. (Ariz. Coop. Sur.). IDAHO - Thousands of H. convergens adults migrated into Boise Valley from area of Sunny Slope, Canyon County. (Homan).

HONEY BEE (Apis mellifera) - WISCONSIN - Active as far north as Eau Claire County. Observed collecting pollen from maples. (Wis. Ins. Sur.).

AN ICHNEUMON WASP (Bathyplectes curculionis) - INDIANA - One cocoon obtained from 29 Hypera postica (alfalfa weevil) larvae taken from 3 alfalfa fields in Daviess County March 31. None obtained from 32 larvae taken from 7 Dubois County alfalfa fields April 1. (Meyer). One cocoon taken from 8 H. postica larvae collected in one Harrison County field April 1. About 50 percent emergence from overwintering cocoons occurred by April 12 in Knox County area. (Hintz). Adults swept from alfalfa in same area during week ending April 19. (Wilson).

AN ENCARTID WASP (Ooencyrtus kuwanai) - CONNECTICUT - Few adults observed on egg masses of Porthetria dispar (gypsy moth) in Simsbury, Hartford County, April 16. (Schuessler).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Adults observed feeding on wild grasses and winter wheat in Berrien County April 16. (Burger). First eggs found on wild grasses April 22 in Berrien County. (DeWitt). WEST VIRGINIA - Adults present at about one per square yard and eggs averaged one per square foot in Pleasants County winter wheat. (Tustin). Eggs averaged one per square foot in wild grasses and in winter wheat in Mason County. (Hacker).

A GRASSBUG (Labops hesperius) - NEW MEXICO - Hatch reported from Santa Fe National Forest, Rio Arriba County. Nymphal populations heavier than in 1973. (N.M. Coop. Rpt.).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Grubs ranged 6-12 per square foot in 600 acres of sod in more heavily infested fields of Montgomery, Prince Georges, and Howard Counties. (U. Md. Ent. Dept.).

WHITEFRINGED BEETLES (Graphognathus spp.) - FLORIDA - Larvae infested about 10 percent of flue-cured tobacco on 2 farms (23 acres) 5-6 miles south of Live Oak, Suwanee County. Damage spotty, mostly in lower part of one field. Plants in field 3 weeks at one location and recently set in other field. Treatment applied at both locations. This is second time in recent years these pests reported on tobacco. (Fla. Coop. Sur.).

HAWAII INSECT REPORT

General Vegetables - DIAMONDBACK MOTH (Plutella xylostella) larvae light on cauliflower on large farm at Volcano, Hawaii Island. Moderate damage to cauliflower and head cabbage and extensive damage (50 percent loss) of cauliflower reported. Intensive spray program apparently alleviated problem. Light damage to one acre of watercress observed at Pearl City, Oahu. Larvae damaged about 5 percent of terminals inspected; early instar larvae averaged 3 per damaged terminal. (Yoshioka, Mau). CARMINE SPIDER MITE (Tetranychus cinnabarinus) light on small planting of eggplant at Pearl City; less than 10 mites per square inch of leaf surface. Infestation heavy 14 days ago; 2 applications of acaricide apparently reduced population. (Mau). SOUTHERN GREEN STINK BUG (Nezara viridula) adults light in small planting of beans at Kunia, Oahu, and small mustard cabbage planting at Wailuku, Maui. Adults 31 and 7 percent parasitized at these respective locations by Trichopoda pennipes (a tachina fly). Farmers reported no control problems for N. viridula with application of organophosphate insecticides. (Miyahira et al.).

Fruits and Nuts - Larval infestations of BANANA SKIPPER (Erionota thrax) variable on Oahu. Heavy infestation found in 1.5-acre banana planting at Waianae Valley; many adults noted under dense canopy of closely spaced plants. Larvae infested 80-100 percent of plants; larvae damaged 30-50 percent of total number of leaves on these trees. Infestation ranged light to moderate in 7-acre banana plantation surveyed at Lualualei; 10-20 percent of leaves on infested trees damaged. Infestation light, less than 5 percent of trees damaged, in 15+ acres surveyed at Waimanalo. Many rolls of first-instar larvae empty throughout all areas surveyed. Predation expected, as no chemical controls applied. Pheidole megacephala (bigheaded ant) observed carrying off 2 first-instar larvae at Waimanalo. (Teramoto et al.).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Ascalapha odorata) light on monkey pod trees at Waikapu, Maui. Inspection of 10 trees showed less than one larva per square foot of bark. One larva of Melipotis indomita (a noctuid moth) found, but no larvae of Polydesma umbricola (monkeypod moth) found. (Ah Sam, Mau).

DETECTION

New State Records

AN ETHMIID MOTH (*Ethmia bipunctella*) PENNSYLVANIA - Collected in blacklight traps from April 19 to September 16, 1973, in Franklin, Dauphin, and Erie Counties by J. Stark. Collected in Centre County same period by K.C. Kim. All determined by R.W. Hodges. (Kim, Stark).

A SOFT SCALE (*Pulvinaria floccifera*) - PENNSYLVANIA - Berks County. (p. 274). SPIDER MITES - PENNSYLVANIA - *Oligonychus weidhassi* - Chester and Delaware Counties. *Eotetranychus uncatus* - Wayne County. (p. 274).

New County Records - ARMY CUTWORM (*Euxoa auxiliaris*) MONTANA - McCone, Prairie (p. 267). CLOVER MITE (*Bryobia praetiosa*) SOUTH CAROLINA - Newberry (p. 276).

CORRECTIONS

CEIR 24(14):218 - "SPOTTED ASPARAGUS ..." should read "SPOTTED ASPARAGUS BEETLE ..."

CEIR 24(15):237 - SMALL FRUIT - "GRAPE ROOT BORER (*Vitacea polistiformis* ...) should read "GRAPE ROOT BORER (*Vitacea polistiformis* ..."

CEIR 24(16):249 - EASTERN TENT CATERPILLAR (*Malacosoma americanum*) Delete NEVADA. Species involved in SOUTHWESTERN TENT CATERPILLAR (*Malacosoma incurvum discoloratum*). See page 275 of this issue.

CEIR 24(16):251 - A WEEVIL (*Anthonomus flavus*) should read (*Anthonomus flavus*). Same correction should be made under detection on page 252.

LIGHT TRAP COLLECTIONS

ARIZONA - Mesa, 4/18-14, BL, BEET ARMYWORM (*Spodoptera exigua*) 23, BLACK CUTWORM (*Agrotis ipsilon*) 5, VARIEGATED CUTWORM (*Peridroma saucia*) 7, YELLOWSTRIPED ARMYWORM (*Spodoptera ornithogalli*) 1. FLORIDA - Gainesville, 4/12-18, BL, ARMYWORM (*Pseudaletia unipuncta*) 1, beet armyworm 1, GRANULATE CUTWORM (*Feltia subterranea*) 2, yellowstriped armyworm 1. KENTUCKY - Lexington, 4/16-19, BL, armyworm 7, variegated cutworm 2. MISSISSIPPI - Stoneville, 4/12-18, precip. 4.02, 2BL, armyworm 1, black cutworm 24, SALTMARSH CATERPILLAR (*Estigmene acrea*) 13, variegated cutworm 20. OHIO - Wooster, 4/13-19, BL, armyworm 7, black cutworm 4, variegated cutworm 1. TENNESSEE - Hardeman County, 4/15-19, BL, armyworm 56, black cutworm 15, variegated cutworm 11. Henry County, 4/15-19, BL, armyworm 475, black cutworm 7, variegated cutworm 20.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1973
(Continued from page 262)

ORNAMENTALS

PAINTED LADY (Cynthia cardui) larvae damaged foliage of chrysanthemum and other ornamentals and flowering plants near homes and in gardens throughout UTAH. This was a pest of many plants following a very extensive spring migration which covered a period of several weeks. Hollyhocks and other mallows and lupines were often defoliated. Painted lady larvae infested and damaged various ornamental plants, including hollyhock, throughout NEVADA during 1973. In CALIFORNIA, migrating larvae of this nymphalid damaged many ornamental plants in yards and gardens.

SPRUCE BUDWORM (Choristoneura fumiferana) heavily infested isolated ornamental trees in NEW HAMPSHIRE, especially those that had been planted for several years. Nearly all Christmas trees examined had light infestations.

A LEAFROLLER MOTH (Choristoneura zapulata) damaged various ornamentals such as cotoneaster, pyracantha, and rose as usual in southern Washoe County, NEVADA, but infestations and damage were below that of the past several years.

MIMOSA WEBWORM (Homadaula anisocentra) continued to move northward in IOWA in 1973. This year was the first year honeylocust trees at Ames, Story County, were seriously defoliated. Prior to 1973, the infestation had been heavy in Des Moines, Polk County, and areas south, while Ames had escaped serious defoliation. Mimosa webworm continued its longtime population and damage increase to mimosa in ARKANSAS. No trees have been killed to date but trees all over the State have become increasingly more unslightly from midsummer to frost. No estimate of loss has been made. Control measures have been very limited. First-generation damage by H. anisocentra was light in most areas of OKLAHOMA. Second and third-generation larvae caused heavy damage to mimosa and honeylocust in most of the eastern half of the State from mid-July through September.

BAGWORM (Thyridopteryx ephemeraeformis) damage to evergreens in KENTUCKY in 1973 decreased significantly compared with 1972. There were almost 60 percent fewer bags. Bagworm was a serious pest on untreated junipers in eastern KANSAS. The first egg hatch in Riley County was noted in late May. Bagworm larvae had appeared in the southern areas of OKLAHOMA by the end of May. Heavy infestations were present on evergreens in many areas by mid-June and continued through July and August. Pupation was beginning by the end of August. Bagworm was taken on eastern redcedar in Moody County, SOUTH DAKOTA. This is a new county record.

A JAPANESE WEEVIL (Calomycterus setarius), a pest of ornamentals, was reported for the first time in MAINE. Hundreds to thousands were seen congregating on the side of a rural home in Belgrade on July 30.

GREEN PEACH APHID (Myzus persicae) infestations were widespread in NORTH DAKOTA greenhouses in Barnes, Cass, Richland, Walsh, Benson, Burleigh, Stark, McKenzie, Grand Forks, Pierce, Eddy, and Traill Counties. Infestations occurred on chrysanthemum, daisy, salvia, marigold, ageratum, dianthus, carnation, and celosia plants, as well as pepper, asparagus fern, and potato.

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) infestations were widespread in Burleigh, Cass, Dickey, Richland, and Stutsman Counties, NORTH DAKOTA, during 1973. Geranium, gardenia, fuchsia, lantano, chrysanthemum, aster, and poinsettia plants were infested, as well as tomato and grape. Treatments have not been effective.

FLETCHER SCALE (Lecanium fletcheri) was moderate to heavy on Taxus in Chittenden County, VERMONT. It was scattered on Taxus plantings throughout the rest of the State. On July 3, L. fletcheri varied from mature scales to young crawlers on these same Taxus plants. By August 1, crawlers were settling down. Economic controls were applied to most Taxus plantings in the State in an attempt to bring the infestation under control.

FOREST AND SHADE TREES

Highlights:

SOUTHERN PINE BEETLE damage in outbreak area in several Southern States increased over that of 1972. MOUNTAIN PINE BEETLE increased in Black Hills of South Dakota and was very serious in Oregon. WHITE PINE WEEVIL was heavier than in 1972 in Maine. NANTUCKET PINE TIP MOTH caused heavy damage in southern and Eastern Shore areas of Maryland and is expected to be heavy again in these areas in 1974. OAK LEAF TIER continued to decline in Pennsylvania. FALL WEBWORM occurred in outbreak proportions in southeastern New Hampshire and damage was common in Maine and Vermont. Defoliation by FALL CANKERWORM and SPRING CANKERWORM was heavy in localized areas. OAK SKELETONIZER expected to be more severe in Michigan in 1974. ELM LEAF BEETLE caused heavy damage in Kansas, increased in Arkansas and Oklahoma, and was heavy in Texas, and populations were the heaviest in many years in California.

SOUTHERN PINE BEETLE (Dendroctonus frontalis) appears to be spreading in WEST VIRGINIA. Larvae and pupae were collected in Boone County March 20 and in additional areas of Kanawha County. Some 60 trees infested with this insect were reported dead or dying in residential areas. Infestations remained very light on the Eastern Shore of MARYLAND. Southern pine beetle damage increased in 1973 and continued to be the most severe forest insect problem in NORTH CAROLINA. Damage was reported from counties that have had no infestations for several years. The number of infested spots increased rapidly, but in some of the older infestations the number of infested trees declined. Although the decrease in number of attacked trees is large, forest entomologists believe it indicates a leveling off of the population rather than a decline. About 7,810,000 board feet of timber and 15,853 cords of pulpwood were salvaged from June 30 through September 30 from North Carolina forests.

A survey during July by the SOUTH CAROLINA State Commission of Forestry revealed the worst documented outbreak of Southern pine beetle in the history of the State. It was indicated the outbreak existed in 20 counties involving 3,775,000 acres and a current killed volume of 121,800,000 board feet of timber. In late September, additional surveys showed the upper northwest portion of McCormick County harboring large scattered infestations. This brought the total to 21 counties covering 3,825,000 acres. Total

estimated volume killed for the July through September period was set at 125,000,000 board feet and 300,000 cords. In July, the State Commission of Forestry declared the existence of a forest pest outbreak, designated a control zone and began to coordinate a tree salvage-beetle suppression program to minimize losses. This effort will continue until the outbreak subsides. In addition to the commercial losses, large numbers of trees in residential areas were killed. This resulted in loss of value as shade and ornamental trees and also in the high cost of having them cut.

A southern pine beetle outbreak occurred in the northeast suburban area of Tallahassee, FLORIDA, where 14 acres of overmature short-leaf pine trees were destroyed near McClay Gardens State Park. The infestation was first discovered October 11. The last outbreak had been in an area south of Tallahassee in the Appalachian National Forest in 1952. The worst southern pine beetle epidemic in ALABAMA occurred during 1972 on 21.7 million acres of pine forest land. Although a very heavy and healthy beetle population went into the winter months of 1972 and 1973 with a potential for even a greater number during the 1973 growing season, populations developed slowly and were much less damaging than expected. Predators and parasites (along with diseases), and excessive rains were contributing factors to reduced beetle populations in 1973. Beetle numbers and infested areas at the close of the 1973 season were rather heavy but less than those of 1972, and again pose a major threat for 1974 in Alabama.

During the period July 1, 1972, to June 30, 1973, in MISSISSIPPI, southern pine beetle infestations occurred in Adams, Amite, Claiborne, Copiah, Franklin, Hinds, Jefferson, Lincoln, Rankin, Simpson, Wilkinson, and Yazoo Counties in the southwest area and in Clark, Kemper, Lauderdale, and Lowndes Counties in the extreme eastern area. The infestation intensities were about the same as the previous physical year. A total of 1,046 spots were detected and 64,997 trees were salvaged on 638 acres, 510 were cut and burned on 4 acres, and 2,742 were chemically treated on 50 acres. Southern pine beetle continued to damage pine in ARKANSAS. Estimated damage has been set at 75,000-100,000 board feet. To date, this pest is confined to the extreme southeast corner of State. It is a potential pest of millions of acres of pine forests in southern and western areas of Arkansas.

MOUNTAIN PINE BEETLE (*Dendroctonus ponderosae*) continued to increase in the Black Hills of SOUTH DAKOTA. During 1973, infestations spread farther west into the Moon and the State line areas of South Dakota and Wyoming. Some centers of infestation had 2,800-3,000 infested trees. In the 1972-73 season, 90,000,000 board feet of timber were killed and about 100,000,000 board feet in the 1973-74 season. The number of trees presently infested is estimated at 550,000-600,000. An estimated 250,000 to 300,000 trees are expected to be taken out during the current season, 165,000 trees were removed in the 1972-73 season. Some progress in reducing infestations was accomplished in the Harney Ranger District. *D. ponderosae* continued to cause very serious damage to lodgepole pine stands in OREGON accounting for the loss of about 35.5 million board feet. More than 50 percent of this loss occurred on the Wallowa and Whitman National Forests. Losses to western white pine continued heavy throughout the mountainous region of

Oregon with the greatest loss occurring on the Willamette National Forest. Attacks in pole-sized ponderosa pine increased slightly. Epidemic infestations have killed hundreds of lodgepole pine in the Lake Tahoe area of CALIFORNIA.

WESTERN PINE BEETLE (Dendroctonus brevicomis) infestations increased in several mature and overmature ponderosa pine stands in OREGON. The heaviest losses occurred in the central part of the State. Over 4 million board feet were killed on the Deschutes and Ochoco National Forests. DOUGLAS FIR BEETLE (Dendroctonus pseudotsugae) losses in OREGON were only about one-third those of 1972 and are expected to continue to decline for at least 1974. An estimated 5 million board feet of Douglas-fir were lost with most damage occurring in the Columbia River Gorge.

ROUNDHEADED PINE BEETLE (Dendroctonus adjunctus) remained moderate to heavy in NEW MEXICO. It infested 150,000 acres on the Lincoln National Forest, the Mescalero Apache Reservation, and on State and private lands north to the Capitan Mountains in Lincoln and Otero Counties. This area includes many overstocked stands of ponderosa pine with poor to low vigor. This factor greatly compounded the problem.

WHITE PINE WEEVIL (Pissodes strobi) populations were slightly heavier than in 1972 in MAINE, but for the most part not as heavy as they have been. In the eastern area, thorough checking revealed that current weeviling alone ran 5-30 percent on white pine and Norway spruce. In some plantations, 70-90 percent of all trees showed either current or previous damage by this weevil. P. strobi infested many pines in Providence County, RHODE ISLAND. Last-instar larvae were found in chambers in the pith of a white pine leader in Providence County July 10. Incidence of this insect was the heaviest since 1967. Adults were emerging in the laboratory by August.

Tree hazard ratings for SPRUCE BUDWORM (Choristoneura fumiferana) based on past and present defoliation, and egg mass and aerial damage surveys indicate about 430,000 acres are under consideration for control treatment in Piscataquis, Aroostook, and Washington Counties, MAINE, in 1974. The entire 470,000-acre treatment area was completed at an early date in 1973 and resulted in substantial foliage protection as well as larval mortality in most areas. Control was very good. A very large moth flight was reported off the coast of Washington County and on off-shore islands during the evening of July 17-18. Many female moths were gravid and deposited large numbers of egg masses on building surfaces. Moth depth was reported at 2-4 inches on Machias Seal Island; 20-50 moths per square foot were observed floating on the ocean surface for about 60 miles along the Maine coast and at least 14 miles out to sea from the shoreline in the Cutler and Trescott area.

Spruce budworm was still widely distributed in central PENNSYLVANIA in 1973. Overall defoliation was much less severe than in 1972. A population increase was noted only in Clearfield County. A total of 1,250 acres were heavily defoliated and 1,760 acres lightly defoliated. Several mountain gaps in Centre County showed defoliation. Larvae, pupae, and adults were observed on hemlock in the Stone Valley area of Huntingdon County on June 15, 20, and 25.

Populations were light to moderate with defoliation reaching about 10 percent. On June 15, some larvae were still feeding, but mostly pupae were present. On June 20, adults were being captured in traps baited with pheromone, and by June 25, adult flights appeared to reach a peak. Two parasites were common in the pupae, Itoplectis sp. (an ichneumonid wasp) and an unidentified chalcidoid wasp.

Spruce budworm larvae were noted to have defoliated 5 percent of a 30-acre white spruce stand in Forest County, WISCONSIN, by June 1. Larvae were about ready to pupate in Rock and Dane County June 5 and by June 11 pupation was completed in the southern area but 70 percent were still larvae in Oneida County where 5,000 acres of white spruce and balsam fir showed defoliation of 30-90 percent. A localized infestation in Columbia County remained unchanged from 1972 and comprised an area with severe defoliation on about 15,000 acres. By July 3, 80 percent of the population was adult.

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) was very abundant and caused heavy damage in several areas in the southern and Eastern Shore sections of MARYLAND. Tip damage ranged 40-90 percent during July and August statewide. Loblolly and Virginia pines hosted the heaviest populations. Heavy populations are again expected in 1974 on the Eastern Shore and in southern Maryland. Infestations of an OLETHREUTID MOTH (Rhyacionia bushnelli) took a heavy toll of Monterey and some other ornamental pines in San Diego County, CALIFORNIA, in 1973. R. bushnelli is expected to infest native pines, such as ponderosa pine, in 1974.

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) was reported from many coniferous forested areas in central and eastern WASHINGTON. About 560,342 acres in commercial forested areas, including the Blue Mountain region, the Wenatchee National Forest, the Okanogan National Forest, and the Colville Indian Reservation, were either defoliated, killed, or moderately to severely damaged. Additional damage is expected in 1974. Expected natural control of H. pseudotsugata by a polyhedrosis virus failed to materialize in OREGON and infested acreages reached epidemic levels in the northeastern forests. Most damage occurred in the Blue Mountain area where 438,450 acres were damaged to some degree. Tree mortality was 100 percent on 14,880 acres. Damage was rated one on 42,520 acres, class two on 172,120 acres, and class three on 208,950 acres. Experimental treatments, to find substitutes for banned chemical were conducted. Large numbers of larvae were killed but very heavy prespray populations of up to 400 per 1,000 square inches were not sufficiently reduced to prevent severe defoliation and tree mortality.

A MARGARODID SCALE (Matsucoccus acalyptus) continued to be a problem in northern NEW MEXICO in Rio Arriba and Taos Counties, especially where the pinyon pine type occurs in urban and recreational areas. Scale damage, characterized by yellowing foliage, reduced needle length. Premature needle loss primarily affects aesthetic values. Trees have been killed, however, by repeated scale feeding.

CONIFER SAWFLIES (Neodirpion spp.) were of some concern. N. lecontei (redheaded pine sawfly) populations increased in the northern counties of VERMONT. Oviposition was reported as heavy during the last week of June in Chittenden County. N. taedae linearis was less of a problem in KENTUCKY during 1973 than 1972. During 1972, this pest caused 50-100 percent defoliation of loblolly pines in western areas, but only 5-25 percent defoliation occurred during 1973. N. exitans, a multiple-generation pest, caused concern on pine in the Little Rock area of ARKANSAS in late July and early August. Few, if any, treatments were applied and no measureable damage occurred. The multiple-generation aspect of this pest will be watched as potential damage could be greater than with a single generation pest.

LARGE ASPEN TORTRIX (Choristoneura conflictana) caused variable defoliation of trembling and big toothaspens in Bayfield, Douglas, and Menominee Counties, WISCONSIN. Heavy populations prevailed on 15,000 acres at the latter site, and light populations in the former two counties. In Menominee County, 25 percent defoliation was noted May 30 and by June 6 defoliation had reached 50 percent. Observations made in the Lake Superior area showed 80 percent pupation on June 14 and by June 20, 60 percent were adults. Several large moth flights were reported in mid to late June in MAINE, the most notable being in the Jackman area, where moths covered the ground several inches deep beneath lights. Females laid a smattering of egg masses on objects inside and outside buildings. Infestations or damage estimates were difficult due to the sparsity of host plants.

A TORTRICID MOTH (Archips semifera) continued to decline in severity during spring in PENNSYLVANIA. About 89,000 acres of deciduous forest were heavily defoliated and 24,000 acres moderately defoliated in 1973. This compares with 385,400 acres heavily defoliated and 224,000 acres moderately defoliated in 1972. The most defoliation occurred in Elk, Cameron, Forest, Bradford, and Tioga Counties. Several other areas of defoliation were observed in central and northeastern areas but they were comparatively small. Maximum egg hatch was observed on May 2. Larvae were primarily third instar by June 1, and many fourth-instar larvae were present June 4 at Snow Shoe, Centre County.

OAK LEFTIER (Croesia albicomana) populations continued to decline in severity in PENNSYLVANIA. In 1972 there were 41,030 acres of heavy defoliation and 18,205 acres of moderate defoliation. In 1973 only 205 acres of heavy defoliation were observed, all in Lycoming County. There were also about 5,850 acres of light defoliation in this county. About 3,000 acres of light defoliation were noted in northern Dauphin and western Schuylkill Counties.

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) larvae caused severe defoliation on about 5,000 acres of scrub oak in Jackson County, WISCONSIN, in early September. Scattered reports were also received as far north as Eau Claire County. In addition, trees such as birch, basswood, and elm were being affected at Black River Falls.

FALL WEBWORM (Hyphantria cunea) defoliation and webbing were again extensive over most of southern and central MAINE in August and populations seemed slightly heavier than in 1972. Webbing also seemed to be more common on shade trees and on ornamental fruit trees. Damage by fall webworm was common throughout VERMONT.

Complete defoliation was reported in the Connecticut River Valley on wild cherry and elm, and on elm and ash in the Champlain Valley. Populations have been increasing rapidly for the last two years.

Fall webworm was observed in outbreak proportions throughout southeastern NEW HAMPSHIRE. Defoliation of cherry, especially trees under 10 feet high, was common, although some trees 40 and 50 feet tall were defoliated. As many as 50 webs were counted in one tree 50 feet tall. Cherry, hickory, and unsprayed apple were almost all damaged and webbed. Occasional elm, ash, and a few oaks were infested. A seven-mile section along State Routes 4 and 155 and an unlettered road was typical in that trees along this stretch contained thousands of webs. All small trees were defoliated, most large trees had up to 50 webs with an average of 5 webs per hickory and cherry tree. There was less than one mile of this 14-mile stretch (two sides of road) that had no trees and for the entire stretch webs were visible on one or both sides of the road.

Fall webworm was the most visible of the late season defoliators in PENNSYLVANIA. It infested numerous hardwoods in exposed areas along roadsides and was widespread and severe. Populations increased from those of 1972. Infestations were heaviest in southwest Pennsylvania from Lawrence to Blair Counties and south to Fayette and Greene Counties. Occasional trees up to 25 feet tall were entirely webbed. In west-central and northwest Pennsylvania, this arctiid was heavy in some areas and noticeable over most areas. In the south-central and southeastern areas it was much lighter but widely scattered. In north-central and north-east sections of the State, webs were conspicuous in certain areas: In Clinton County, along State Highway 120 from Lock Haven to Renovo and along State Highway 144 north and south of Renovo; in Bradford County along the Susquehanna River over about 12,000 acres; and at spots along the Delaware River in Pike County. The first web was reported on Acer negundo in Allentown, Lehigh County, July 5.

Fall webworm larvae from one egg mass in 10 had hatched at Tar Hollow, OHIO, by June 5. Adults were still present and ovipositing June 25, and all larvae had emerged from two-thirds of the egg masses. Hatch was complete by July 3. By August 3, defoliation of several tree species in east-central Ohio was conspicuous. A 2 to 6-fold population increase was evident in most infested areas compared to 1972. Fall webworm extended its range of infestation from all points of the 1972 distribution. Slightly less than half of the State now supports fall webworm populations. Up to 35+ webs per tree were common in the vicinity of New Philadelphia, Tuscarawas County, by August 30, with large oaks 50 percent defoliated. Pupation was underway by September 13.

Second-instar fall webworm larvae of the first brood were feeding on an apple tree in Warren County, VIRGINIA, June 13. Larvae were readily noticeable on various hardwoods at Cumberland (three-fourths grown) by August 6. This webworm was decidedly more evident on a variety of hardwood hosts this year throughout the State, particularly in the mountain areas. Concern by National Park personnel on the Skyline Drive invoked discussion of possible spray operations. In southwest Virginia, a survey conducted by

the Virginia Division of Forestry in Pulaski County (Hiwassee area) showed 28 infested trees per mile of roadside survey (one side) with 1-23 (average 4) webs per tree. Estimated defoliation ranged 1-60 (average 12) percent. Along one mile of road on the Blue Ridge, 35 trees were infested, averaging 11 webs per tree (range 1-40); defoliation ranged 2-100 percent (average 33). In the southwest, Grayson and Carroll Counties were also heavily infested, as were Highland, Montgomery, Giles, Roanoke, Franklin, Patrick, and Henry Counties. Second-generation larval infestations were reported widespread in the State September 14. Damage was particularly severe on sourwood, persimmon, and nut trees. Infestations were widespread but not increased over 1972 in the Portsmouth area.

A GEOMETRID MOTH (Lambdina athasaria athasaria), a late season defoliator, increased in severity over 1972 in almost all areas of PENNSYLVANIA. The only known exception was in Raccoon Creek State Park, which had very little defoliation. Hemlocks were heavily defoliated in this park in 1971 and 1972, and it was the locality where the infestation was first noticed. Defoliation ranged moderate to heavy on 5-90 percent of the hemlock at locations in Butler, Indiana, Fayette, Jefferson, Clarion, Armstrong, Lawrence, and Venango Counties. Acreages involved at these localities ranged from five to 2,000. The first adult of the season was collected at a blacklight trap in McConnells Mill State Park May 8. Twenty-eight adults were collected in the same locality May 22, and 150 in Clarion County May 25. Larvae were reported from the Allegheny River State Park in Venango County July 12. Samples of hemlock foliage up to 20 feet from the ground yielded an average of 8.8 larvae per 15 to 18-inch sample. Larvae were also reported at McConnells Mill State Park in Lawrence County July 11.

Another GEOMETRID MOTH (Hydria prunivorata) was more severe this year in PENNSYLVANIA. In northern Elk County, about 25 percent of the black cherry trees were heavily defoliated over 120,000 acres and about 2 percent of the host were lightly to moderately defoliated over 60,000 acres. Black cherry comprises about 20 percent of the stand on this 180,000 acres. In Potter and McKean Counties, black cherry was heavily defoliated on 10,000 acres and moderately defoliated on 150,000 additional acres. Noticeable defoliation to black cherry occurred on 2,145 acres near Armaugh, Indiana County. In Butler Township, Adams County, light defoliation of about 10 percent of black cherry trees was noted over about 800 acres. On June 2, several hundred moths were found in an area in a roadside ditch in Somerset County, and 110 adults were collected in one light trap July 12 at Elk State Park.

FALL CANKERWORM (Alsophila pometaria) and SPRING CANKERWORM (Paleacrita vernata) were of some concern during the 1973 season. A. pometaria increased in some areas of PENNSYLVANIA. There were 2,130 acres of heavy defoliation and 7,590 acres of light to moderate defoliation in southeastern, south-central, and southwestern Pennsylvania. Some reported hosts were white oak in York County, red oak, red maple, and black cherry in Hallam Township, York County. A. pometaria damage was very heavy in the Dolly Sods area of Grant County, WEST VIRGINIA. About 100 acres of forest land were completely defoliated except for black locust trees. A total of 844 male moths were caught November 19 in a blacklight trap in this area.

Infestations of Paleacrita vernata and Alsophila pometaria in MINNESOTA were generally light but there were many isolated cases of heavy defoliation in the Minneapolis and St. Paul areas. Extensive treatments with chemicals and biological materials were attempted by both municipalities. Many boulevard and park trees were completely defoliated, particularly in untreated areas. The prospect for reduced numbers of these pests for 1974 is not good. P. vernata male moths were active by March 18 in Cass and Ward Counties, NORTH DAKOTA. Females emerged about 7 days later. Eggs had hatched by May 18 and light larval feeding was evident. By June 1, heavy defoliation to single-row Siberian elm shelterbelt trees in Traill County had occurred. By June 8, elm trees along the Cheyenne River in Cass County were severely defoliated.

P. vernata and A. pometaria infested elms in windbreaks and shelterbelts throughout SOUTH DAKOTA. Damage on elms was reported from Jones County to Minnehaha County. Infestations in Charles Mix County ranged light (5-10 larvae per 2 feet of twig) to heavy (15-20 larvae per 2 feet of twig). Most infestations were chemically treated, but 700 acres of elms and shade trees along the Ft. Randall Reservoir were treated with a formulation of Bacillus thuringiensis. Contrary to predictions, P. vernata was much less damaging to foliage of elms and other trees in eastern KANSAS during spring of 1973 than in 1972. Early season male flights observed in Riley County were as heavy as in 1972 when heavy foliar damage was very prevalent in this county and in other eastern areas. In 1973, the first male flights were noted in Riley County in late February and continued on warmer nights until late March. The first hatching of the season was not noted until early April in the southeast district and larval counts were only light to moderate. In Riley County, hatch was not noted until mid-April. Most larvae had pupated in Riley County by May 18, and a maximum of only about 20 percent defoliation was seen on elm and hackberry, where up to 100 percent had been noted in 1972.

Unseasonably warm temperatures during the last half of March in OHIO caused diapausing first-instar larvae of EASTERN TENT CATERPILLAR (Malacosoma americanum) to emerge about March 18 in the Columbus vicinity. This was about 3 weeks earlier than 1972. Generally, larval populations were lighter statewide than in 1972. Mass larval migration was first observed May 25 in central Ohio, about 10 days later than in 1972. Unseasonably warm weather caused M. americanum eggs to hatch during mid-March in KENTUCKY. Larvae built nests and fed on breaking leaf shoots of various trees; especially wild cherry. The heaviest early activity occurred in Simpson, Logan, Barren, and Warren Counties. A road survey indicated that nest density in the eastern and south-central areas remained about the same as 1972. Nest density decreased significantly in eastern Kentucky. Average infestation in 1972 was 16.8 tents per mile and 10.2 tents per mile in 1972.

The first eggs of M. americanum hatched on wild black cherry in Cherokee County, KANSAS, about mid-March and further north in Riley County on wild plum in early April. Defoliation of black cherry in the southeast district was heavy as usual but on wild plum in Riley County, defoliation was less than normal.

FOREST TENT CATERPILLAR (Malacosoma disstria) defoliated 8,000 acres of turkey oak in southwestern Marion County, FLORIDA. Defoliation ranged 90-100 percent, but very little tree mortality resulted. The site of the 1972 M. disstria infestation in Bertie County, NORTH CAROLINA, was checked June 5, 1973. Adult emergence had begun and the population appeared to be declining. Pupal counts revealed about 75 percent parasitism.

An aerial survey in western KENTUCKY to determine the extent of damage by forest tent caterpillar in 1973 showed defoliation ranged 10-50 percent in a 310-acre area in McLean and Hopkins Counties, and that little or no defoliation occurred in Muhlenberg County. Defoliation in 1972 ranged 30-100 percent over about 1 700 acres. This population reduction is suspected due to several factors. A portion was destroyed by a nuclear polyhedrosis virus disease; a period of cool wet weather prolonged larval feeding and exposed the larvae for a longer period to the virus. In March, 1973, a short, exceptionally warm period caused eggs to hatch but larvae were then exposed to freezing temperatures. Parasitism by sarcophagid fly larvae was evident in 70-80 percent of the M. disstria pupae. Counts taken in summer indicated a reduction in the number of egg masses as compared with 1972. Populations and consequent damage in 1974 are not expected to be as heavy as in 1973.

Defoliation by forest tent caterpillar in 1973 decreased again in the Ft. Totten area of Benson County, NORTH DAKOTA. Larvae were full grown by June 24 and had caused up to 5 percent defoliation on scattered basswood trees. Forest tent caterpillar was very heavy on streets, sidewalks, parking strips, yards, and parks in Billings, Yellowstone County, MONTANA. Treatments applied to most park and city-owned trees. Trees in 16 counties reportedly were attacked.

An infestation of WESTERN TENT CATERPILLAR (Malacosoma californicum) remained active on 8,000 acres of aspen in northern NEW MEXICO during 1973. Defoliation continued to be heavy on private lands in Rio Arriba County. Repeated heavy defoliation for three years has caused scattered branch and tree mortality. SOUTHWESTERN TENT CATERPILLAR (Malacosoma incurvum) populations decreased from those of 1972 with only scattered, light damage occurring to Fremont cottonwood in southeastern Clark County, NEVADA.

MAPLE LEAFCUTTER (Paraclemensia acerifoliella) populations increased significantly in VERMONT with about 50,650 acres showing late summer browning. In 1972, some 6,000 acres, primarily sugar maples, showed late summer browning. Controls were not applied. This species was very numerous early in the season indicating possible defoliation of sugar maples in NEW HAMPSHIRE. Late-season collections and attempts to rear material showed nearly all larvae were parasitized or destroyed by disease.

Numerous reports of OAK SKELETONIZER (Bucculatrix ainsliella) larvae spinning to the ground in MICHIGAN during September and October indicate the second brood will have a successful pupation rate. This and the late mild fall weather indicate that this insect will be more severe in 1974.

Larvae of a NOTODONTID MOTH (Symmerista canicosta) continued to cause severe defoliation on burr oak in Dickinson, Lyon, and Sioux Counties, IOWA. Areas that had received 3-4 years of defoliation prior to 1973 received relatively little defoliation during 1973 due to larval starvation. However, the infestation is spreading to surrounding areas containing proper host material.

BIRCH TUBEMAKER (Acrobasis betulella) was very common in central and eastern MAINE in 1973 and caused moderate to severe defoliation of white and gray birch in some areas. Moths were very abundant in light traps in eastern and central Maine in July and indicated a potential problem for 1974.

ELM LEAF BEETLE (Pyrhalta luteola) caused heavy damage to many KANSAS Siberian elms as in 1972. Damage by the first generation was much lighter in many areas of the State than in 1972, but heavy damage by the second generation was more prevalent. The first adults of the season were seen on elms in Saline County in late April and the first eggs in Shawnee and Barton Counties in early May. Pupation of the first generation began in Riley and Shawnee Counties about mid-June and emergence began in late June in Riley County. Eggs and young second-generation larvae were reported in Riley and Shawnee Counties in early July and foliar damage became very noticeable on scattered Siberian elms by mid-July. Most larvae had pupated in these counties by late July with heavy damage on scattered trees. Heavy damage was also reported in Reno, Ellis, Barton, Russell, and Rush Counties by early August. Second-generation adults began emerging in Riley County in mid-August but emergence was not as heavy as expected due to high pupal mortality caused by unidentified bacteria and fungi. Second-generation adults were moving into hibernation from mid to late August, but a very small partial third generation was noted underway on Siberian elms in Riley County during late September with first through third instars present.

Elm leaf beetle continued its longtime increase in numbers and damage to Chinese elm in all areas of ARKANSAS. Losses due to tree mortality were not reported; however, it is feared that trees will be weakened to the point that death will occur with a continuation of present conditions. Control measures were very limited. Adults were active in OKLAHOMA on elm trees by the first of May and larvae were hatching the second week of May. First-generation damage ranged light to moderate in most areas. In the Payne County area, second-generation egg laying began in late June and third-generation eggs were present by the end of August. Damage generally increased through the season. Heavy populations of elm leaf beetles occurred again in the north-central, Rolling Plains, Trans-Pecos, and Panhandle areas of TEXAS in 1973. The heaviest damage was noted in Wilbarger, Winkler, Ward, Ector, Midland, and Martin Counties.

Elm leaf beetle caused conspicuous leaf damage to elms in many UTAH localities. Infestations were severe at Kanab, Kane County; Moab, Green County; Green River, Emery County; and some Salt Lake and Weber County localities. Populations were the heaviest they have been in many years and caused much defoliation of elms in many locations of CALIFORNIA.

Severe damage by BRONZE BIRCH BORER (*Agrilus anxius*) was evident throughout MICHIGAN, particularly in the southern Lower Peninsula. The drought and ice storm of 1972, which weakened and damaged trees, probably contributed to this problem. Only one parasitic hymenopteran, *Phasgonophora sulcata* (a chalcid wasp), was found attacking the larvae. This parasite was collected from a long-standing infestation exhibiting tree mortality, therefore control efficiency is questionable. *A. anxius* and *A. bilineatus* (twolined chestnut borer), which attacks various hardwoods including oak, hop hornbean and chestnut, are expected to be troublesome again in 1974. Increased attack by *A. bilineatus* should be anticipated in some oak regions.

Weather of the week continued from page 266.

Friday, just ahead of a Low centered over Utah, some scattered thunderstorms broke out in the Dakotas and a few showers splashed the west-central Plains. During the afternoon, tornadoes were sighted in the Texas Panhandle at Borger and Amarillo. Late Friday, a line of thunderstorms developed ahead of a cold front that was over the western Plains. Lake Diversion, Texas, reported golf ball-size hail and Lake Kickapoo clocked 60 m.p.h. winds. By early Saturday morning, showers had spread northward from south-central Oklahoma into the Dakotas. Some of the rains in Kansas and Oklahoma were quite heavy with a reported 5.40 inches in only six hours at Pratt, Kansas. By Saturday evening, thunderstorms moved off the Plains into the Mississippi Valley. Wetmore, Kansas, lived up to its name receiving 9.75 inches of rain during the storm. Sunday, tornadoes roared through sections of Nebraska, Kansas, and Oklahoma. Tornado damage was sustained at Arcadia, Nebraska, Concordia, Kansas, Oklahoma City, Oklahoma, and Wichita Falls, Texas. Sunday afternoon, thunderstorms extended from Arkansas through eastern Illinois and western Ohio into Lower Michigan. Thunderstorms also struck sections of Texas and Oklahoma. One thunderstorm dropped 1 inch of rain in only 20 minutes over Kansas City, Missouri. Sunday, more than 1 inch of rain soaked Jonesboro, Arkansas, Blytheville, Arkansas, Cape Girardeau, Missouri, and Abilene, Texas. Tornadoes caused extensive damage Sunday afternoon in southern Wisconsin and northern Illinois. Oshkosh, Wisconsin, sustained considerable damage, plus 18 injuries and Campbellsport, Wisconsin, reported one death. In Polo, Illinois, 20 homes were damaged and near Rockford, Illinois, there were several injuries. Nearly 4 inches of rain in a few hours Sunday evening produced flash flooding in the vicinity of Hot Springs National Park and Little Rock, Arkansas, Cuba, Missouri, Greenville, Texas, and southeastern Oklahoma.

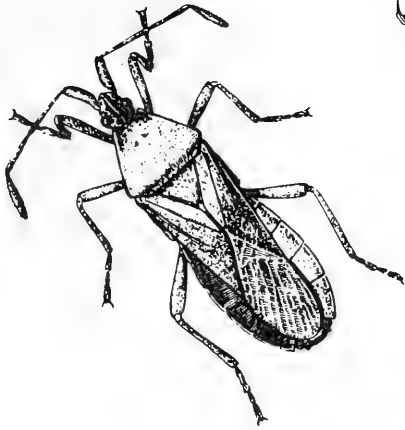
TEMPERATURE: Unusually cool temperatures settled in the South and Southeast, including sections of Mississippi, Alabama, Georgia, and Tennessee. Temperatures ranged between 6 degrees and 8 degrees below normal. In contrast, sections of Montana registered temperatures for the week from 3 degrees to 7 degrees above normal. Most of the Nation enjoyed a mild spring week. Early in the week a High over Texas and Nebraska brought clear skies to much of the Nation's midsection from the Plains to the upper Great Lakes. Meanwhile, northerly winds around Highs swept cool Canadian air into the eastern half of the Nation. A midweek High pressure area over

southern Missouri pulled cooler air into the East. Freeze warnings were posted in parts of Virginia and Maryland and across northern Indiana into western Pennsylvania. Wednesday, temperatures were pleasant across most of the country and typical for mid-April with readings ranging from the 50's to 70's. Thursday morning, it was quite cool throughout most of the Southeast, with minimum temperatures reaching the mid to upper 20's as far south as Alabama, Georgia, and northern Florida. Thursday afternoon, temperatures were in the 90's in the desert Southwest, with the 80's in western Texas, and 70's as far north as South Dakota, and southwest Iowa. Highs in the 50's were the rule in the northern and central Rockies and from the Ohio Valley into New England and down the mid-Atlantic Coast States. Thursday evening, a cold front slipped southward from Canada dropping temperatures in the North Central States. Overnight lows were in the 20's from the Dakotas to Upper Michigan. Clouds and a cold front kept temperatures in the Great Lakes region in the 30's and 40's during the afternoon, while just to the south in the Ohio Valley the mercury hit the 60-degree mark. Fair weather prevailed east of the Mississippi River, but northern sections were unseasonably cold. Temperatures reached only into the 40's near the Great Lakes, and Caribou, Nebraska, had a high of only 37 degrees. During the weekend, fair skies dominated most of the Atlantic coast and from the southern Rockies into California and the Great Basin. Afternoon temperatures around the Nation ranged from 35 degrees at Jamestown, Maryland, to 87 degrees at Beeville, Texas.

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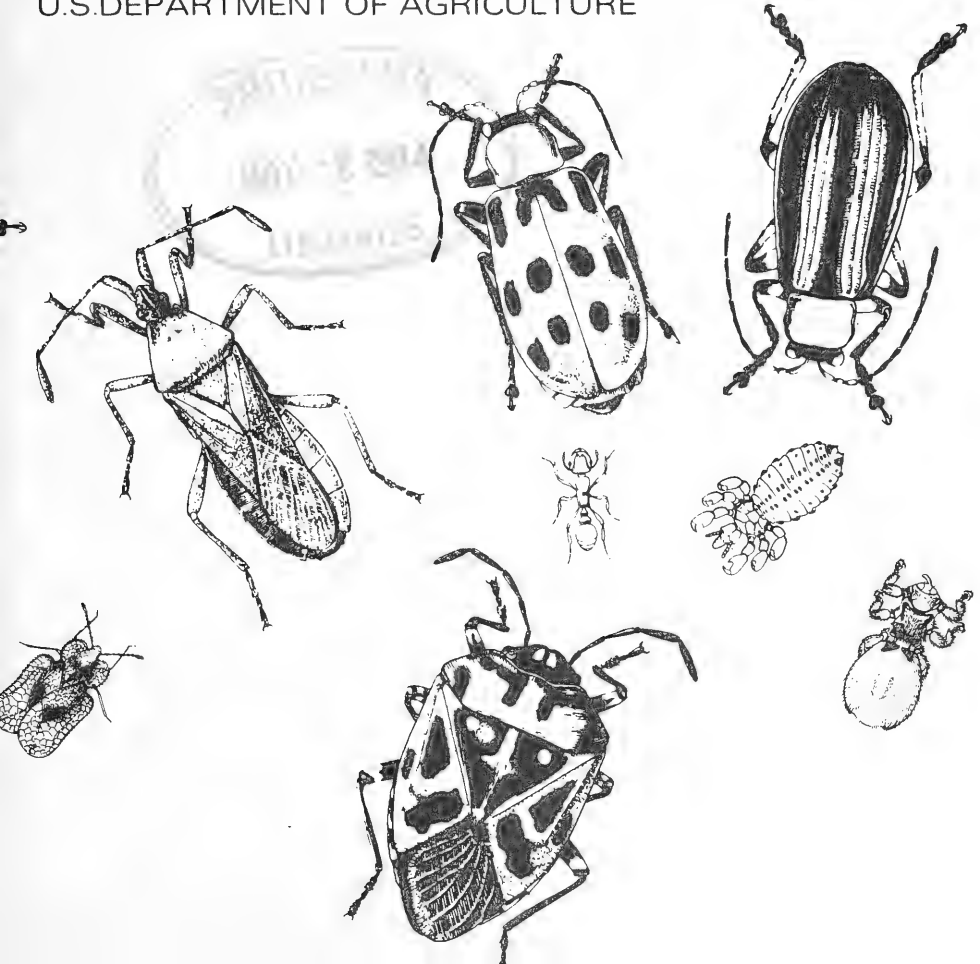
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Cooperative Economic Insect Report

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



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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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United States Department of Agriculture
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Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMY CUTWORM infestations general on alfalfa and wheat in west-central Nebraska; continued to damage winter wheat in extreme west-central North Dakota. (p. 295).

Pupation of overwintering EUROPEAN CORN BORER larvae underway in Maryland and Delaware; first moths taken in light trap in Maryland. (p. 296).

ALFALFA WEEVIL not expected to be a problem in New Jersey this season; adults and larvae economic in most alfalfa in South Carolina; some economic losses noted in Illinois and southeast Nebraska. Treatment underway in western Kansas. (pp. 297-299).

First REDBANDED LEAFROLLER and CODLING MOTH adults of season reported in New York and Washington, respectively. (pp. 300, 301).

Detection

A SCOLYTID BEETLE collected for first time in Tennessee. (p. 302).

For new county record see page 305.

Special Reports

Summary of Insect Conditions in the United States - 1973.

Beneficial Insects. (pp. 308-311).

Federal and State Plant Protection Programs. (pp. 311-314).

Gypsy Moth Quarantines. Map. Centerfold.

Reports in this issue are for week ending April 26 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MAY 1974

The National Weather Service's 30 day outlook for May is for temperatures to average above seasonal normals in the South. Below normal averages are indicated for most areas west of the Continental Divide. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed the median amount over the Great Basin and the central Rocky Mountains and also from eastern portions of the Great Plains to the Appalachian Mountains. In unspecified areas less than the median amount is indicated.

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

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Ranged 6-8 per square foot in Beaver County alfalfa. Large larvae light in Jackson County wheat. (Okla. Coop. Sur.). KANSAS - Larvae decreased in Finney County alfalfa and wheat. Most larvae mature and pupation underway. (Bell). NEBRASKA - General infestations noted in alfalfa and wheat in Chase, Lincoln, and Perkins Counties. Larvae averaged one per square foot in 9 alfalfa fields. First-cutting growth held back but no stand reduction noted. Larvae averaged one per linear row foot in 10 wheat fields. Light noneconomic feeding damage noted. (Campbell, Koinzan). NORTH DAKOTA - Continued to damage winter wheat in Golden Valley County. Larvae and light feeding also present in winter wheat in McKenzie, Bowman, and Slope Counties. Some treatment applied in Bowman County. Several untreated fields in Golden Valley County will be reseeded to spring wheat. About 75 percent of winter wheat acreage infested in this county. Some poor treatment results reported and attributed to improper mixture and cool temperatures. (Brandvik).

ARMYWORM (Pseudaletia unipuncta) - WEST VIRGINIA - Larvae averaged 2 per square yard in pasture field in Pocahontas County. Damage very light, less than 5 percent. (Hacker). SOUTH CAROLINA - Economic larval infestations noted in Allendale County wheat; a 100-acre planting completely destroyed. Also caused economic damage to rye in several counties in lower part of State. (Thomas). FLORIDA - Ten larvae collected in 100 sweeps of nearly ripe oats at Gainesville, Alachua County. Determined by D.H. Habeck. (Fla. Coop. Sur.). ALABAMA - Maturing larvae ate all leaves on 16 acres of oats in Houston County. Smaller stalks cut down. (Roney). ARKANSAS - Still very light in oats and wheat surveyed in east-central and northeast areas. Survey negative in one-third of fields. Heaviest counts ranged 20-25 per 100 sweeps. Populations too light to make square foot counts. No adults taken in Desha County light trap. No outbreak in small grain expected. (Boyer). KANSAS - First adults of season flying in significant numbers in Crawford County at blacklight trap. (Bell).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Increased on grain sorghum in south-central area. Heaviest infestations reported from Calhoun and Fayette Counties. Beneficial species built up rapidly with extremely heavy lady beetle populations in fields with corn leaf aphid. R. maidis infestations also observed in Coryell, Bell, McLennan, Hill, and Navarro Counties. (Cole, Hoelscher).

GREENBUG (Schizaphis graminum) - TEXAS - Still very light on small grains in Rolling Plains. Less than 10 per drilled row foot noted in Archer, Baylor, Hardeman, Wilbarger, and Wichita Counties. Beneficial species (lady beetles, lacewing larvae, and spiders) noted in most wheat fields. (Green). S. graminum and Sipha flava (yellow sugarcane aphid) decreased throughout south-central area on grain sorghum. (Cole).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Growers still treating potatoes in Queen Creek area, Maricopa County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Light, 180 nymphs and adults per 100 sweeps of blooming alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintering larvae averaged about 40 percent in Sussex County. (Burbutis). MARYLAND - Pupation continued on Eastern Shore. No pupae recovered from Western Shore to date. First sporadic adult catches reported from Deal, Somerset County, light trap. (U. Md., Ent. Dept.). WISCONSIN - Larval survival in corn stubble in Lafayette County and on Dane and Green County line noted at 80 and 65 percent, respectively. This is well below 90 percent survival rate in southwestern and south-central areas. (Wis. Ins. Sur.). SOUTH DAKOTA - Overwintering larval mortality in untilled corn in 7 east-central counties ranged 30-100 percent. These observations and data from 1973 fall abundance survey indicate infestations will probably be spotty this season. (Walgenbach).

A WIREWORM (Melanotus communis) - FLORIDA - Early and late-instar larvae common, middle-instar larvae scarce, pupae common, and some young adults on sugarcane at Belle Glade, Palm Beach County. (Fla. Coop. Sur.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - MARYLAND - Populations returned to normal. All previous heavy infestations controlled. (U. Md., Ent. Dept.). FLORIDA - Nymphs and adults averaged 350 per 100 sweeps of nearly ripe oats at Gainesville. (Fla. Coop. Sur.).

BLACKFACED LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Nymphs and adults ranged 200-300 per 100 sweeps of nearly ripe oats at Gainesville, Alachua County. (Fla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - SOUTH CAROLINA - Heavy populations present on wheat in Allendale, Bamberg, and Sumter Counties. To date, this is most southern area of State where species noted. Mild winter with increase in wheat acreage believed responsible for extension of occurrence. (Thomas).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged up to 200 per linear foot in wheat in dryer areas of Jackson County. Populations decreased in Kiowa and Greer Counties; moderate to heavy in Beaver County. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Generally light on small grains throughout Rolling Plains area. Populations ranged 5-125 per row foot in Archer, Baylor, Hardeman, and Wilbarger Counties. (Boring).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Larvae light on paragrass (Panicum purpurascens) in Everglades area, Palm Beach County. Determined by W.G. Genung. (Fla. Coop. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MISSISSIPPI - Up to 20 per 10 sweeps noted in Oktibbeha County pastures. (Robinson).

AN ARMORED SCALE (*Odonaspis saccharicaulis*) - FLORIDA - All stages prevalent on Bermuda grass in commercial situation at Ft. Lauderdale, Broward County. Collected and determined by F.A. Johnson. (Fla. Coop. Sur.).

BERMUDAGRASS MITE (*Eriophyes cynodontiensis*) - FLORIDA - Heavy in patches on some commercial Bermuda grass in Ft. Lauderdale area, Broward County. Collected and determined by F.A. Johnson. (Fla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW YORK - Eggs averaged 4.5 (range 0-19) per 0.25-square-foot sample taken at 10 a.m. April 4; based on examination of 24 samples taken in dormant alfalfa field of less than one acre on Hanshaw Road in Tomkins County. At 10 a.m. April 17, eggs averaged 5 (range 0-34) per 0.25-square-foot sample; based on 24 samples taken in prebud, 1.5-inch tall alfalfa field on Game Farm Road. (Cooley). NEW JERSEY - Very few weevils collected in alfalfa at Pole Tavern, Salem County, or at Mickleton, Gloucester County, as of April 18. Alfalfa growing rapidly, few indications of larval feeding as of April 26. No problems anticipated this season. *H. postica* no longer considered of economic importance in State due to activity of introduced parasitic wasps which have become firmly established in all counties. (Ins.-Dis. Newsltr.).

SOUTH CAROLINA - Alfalfa weevil adults and larvae economic in nearly all alfalfa fields statewide. (Thomas). TENNESSEE - Number of alfalfa tips infested per 50 tips examined in 6 fields checked in 4 counties ranged from 12 in one Henry County field to 30 in one Tipton County field. Number of larvae per 50 tips examined in these 4 counties ranged from 19 in one Chester County field to 50 in one Henry County field. Many alfalfa fields now ready for cutting and no treatment will be needed. (Gordon, Bruer).

KENTUCKY - Eggs in various Fayette County alfalfa fields averaged 44.9, 9.2, 46.2, 36.6, 46.0, and 30.2 per square foot. Pest economic in most southern and central area fields. Populations still light in extreme northern counties. Larvae averaged 1.24, 1.02, 0.10, and 0.36 per tip in various Shelby County fields. (Barnett, Parr).

WEST VIRGINIA - Number of tips infested by alfalfa weevil larvae per 50 alfalfa tips sampled by county: Randolph, 5 April 24; Hampshire, 11 at one location; 31 at second location; 23 at third location April 25. First-instar larvae predominated in Randolph County; second and third instars predominated in Hampshire County. (Hacker). OHIO - Egg hatch in alfalfa probably statewide. Larval feeding on tips generally less than one percent of plants in Wood, Hancock, Auglaize, Shelby, and Hardin Counties. Up to 5 percent tip feeding in one Miami County field. Alfalfa ranged 6-11 inches tall. (Fox). Larvae, mostly first instar, ranged 8-10 per square foot of alfalfa in Clark County. Peak oviposition expected next 7-10 days. (Horn). INDIANA - In 29 alfalfa fields from southwest, south-central, southeast, and central districts, mean percent infestation ranged 10-98 and mean number of larvae per stem ranged 2-5.3. Alfalfa ranged from 8 inches tall in Daviess County area (southwest district) fields to 11 inches in Jackson County (south-central district). (Meyer). Alfalfa averaged about 5 inches tall in La Porte County with 7 percent of tips showing damage, usually in trace proportions. (Hintz).

ILLINOIS - Alfalfa weevil larvae in alfalfa slowly increased in western counties. Economic losses noted in occasional field in Adams County, up to 20 larvae per sweep noted. Population sufficient for treatment in nearly all fields south of Adams County. Some untreated Jersey County fields averaged 100+ larvae per sweep. Populations decline rapidly north of Adams County. Average per sweep by county as follows: Hancock, 0.3; Knox, zero (2 fields); Peoria, 0.1. Populations in east much less severe than in west. Champaign County averaged 0.2 larvae per sweep and Shelby County averaged slightly less than 2 per sweep. With alfalfa set back nearly 14 days by cold March weather, growers concerned that later Hypera postica egg hatch will cause second surge of damage at time of normal first cutting. (Ill. Ins. Rpt.).

WISCONSIN - Survey for alfalfa weevil adults and larvae negative in alfalfa in southern districts. (Wis. Ins. Sur.). IOWA - Eggs ranged 90-190 (average 140) per square foot in Lee County alfalfa. Larvae, first and second instars, increased from less than 1 per stem to 2 per stem in some fields. Tip feeding ranged 10-64 (average 40) percent. Treatments recommended for some fields. In one Davis County field, larvae averaged 2.5 first to third instars per stem, with 100 percent tip feeding. In more northern field in Lucas County, counts less than one larva per stem. (Iowa Ins. Sur.). MISSOURI - Most alfalfa fields in southwest area show defoliation due to lack of treatment. Larvae per 100 stems by county as follows: Dallas 110, Osage 406, Gasconade 381, Lafayette 678. (Munson).

NEBRASKA - Alfalfa weevil adults and larvae common in southeast, central, south-central, and southwest area alfalfa; economic in southeast district. Adults ranged 0-3 and larvae, first to third instar, ranged 13-477 (average 117.6) per 100 sweeps in 21 Otoe County alfalfa fields. Adults ranged 0-18 (average 2) and larvae, first to third instar, ranged 0-7 (average 1.5) per 100 sweeps in 26 Dawson County alfalfa fields. (Manglitz). Larvae ranged 25-50 (average 37.5) in two Clay and Webster County fields, no adults taken. First to second-instar larvae extremely light with light tip feeding. (Peters). Adults ranged 0-8 (average 1.3) and larvae, first to second instar, ranged 0-16 (average 8) per 100 sweeps in Lincoln, Perkins, and Chase Counties. (Campbell, Koinzan)

KANSAS - Much treatment for alfalfa weevil was made and still underway in eastern two-thirds of State as far north as Clay County of north-central district and Leavenworth and Doniphan Counties of northern district. Treatment applied as far west as Russell and Barton Counties and significant infestations noted as far west at Ellis and Rooks Counties. Infestations heavy in northern Riley, southern Marshall, and Clay Counties. Significant infestations also noted in Mitchell, Osborne, Jewell, Cloud, and Washington Counties. Some fields in latter four counties and in Smith County may not need treating before cutting; frequent checks advised for all fields in area. No damaging infestations noted in Finney County alfalfa. H. postica pupation began as far north as Washington and Clay Counties and first-generation adults emerged farther south. (Bell).

ARKANSAS - Alfalfa weevil buildup in forage legumes slower than some years, likely due to low temperatures. Buildup past few weeks seems normal, or in some cases heavier than normal, for time of year. Below normal temperatures killed many larvae. About normal buildup now occurring in northwest area. Occasional cold nights may still hold down buildup. (Boyer). OKLAHOMA - Ranged 50-100 per square foot in alfalfa in Texas, Beaver, Harper, and Ellis Counties, and up to 30 per square foot in Cimarron County. Terminal infestations ranged 30-40 percent in Beaver County, 20-100 percent in Texas County. Larvae per 10 sweeps ranged 20-200 in Jackson County, 20-40 in Kiowa County. Percent terminal infestation ranged 0-70 in Muskogee County, and 10-50 in Wagoner County. Larvae averaged 37 per square foot in Stephens County and 42 per square foot in Payne County. Egg counts near zero in Payne County, but averaged 53 per square foot in Stephens County. Larvae reported heavy in Woodward, Pawnee, Kay, and Comanche Counties, moderate in Garvin County. Light in most fields in Roger Mills, Caddo, Beckham, and Washita Counties. (Okla. Coop. Sur.).

TEXAS - Alfalfa weevil larvae observed in alfalfa in several panhandle counties. Infestations heaviest in Hale, Castro, Deaf Smith, and Bailey Counties. Moderate in Castro County alfalfa with up to 20 percent tip damage noted. Larvae also noted on clover in Deaf Smith County. Larvae collected April 12 in Hale County reared for parasite emergence. Bathyplectes curculionis (an ichneumon wasp) emerged from these larvae. Numerous samples of Hypera postica adults collected in homes in central area. Infestation very heavy in Blackland counties this spring on burr clover. (Latham et al.). NEW MEXICO - Taken from alfalfa near Fort Sumner, De Baca County, by J. Gilstrap week ending April 26. This is a new county record. (N.M. Coop. Rpt.).

PEA LEAF WEEVIL (Sitona lineatus) - WASHINGTON - Averaged one adult per sweep on alfalfa and clover in Whitman County. (O'Keefe, Antonelli).

ALFALFA SNOUT BEETLE (Otiiorhynchus ligustici) - NEW YORK - Adults recently emerged and on soil surface in Wayne County, mostly at bases of alfalfa and clover plants. Appear sluggish, no movement in or out of alfalfa fields noted. Averaged less than one (range 0-3) per square foot between 9 a.m. and 2 p.m. April 17; based on stratified random sample of 16 square feet per field in 5 alfalfa fields of 10-20 acres along Val Vleck, Colvin, and Wolcott Spring Lake Roads. (Sliwa).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Infestations still heavy on alfalfa in Smith Valley, Lyon County. Treatments ineffective in many cases. (Bechtel). OKLAHOMA - Averaged 50 per 10 sweeps in Muskogee County alfalfa and 30 per 10 sweeps in Wagoner County. Moderate in Pawnee County and light in Garvin, Jackson, and west-central counties. (Okla. Coop. Sur.). ARKANSAS - Increased in legumes in all areas of State. Infestations seldom economic in alfalfa. Species common in vetch and clovers, mostly along roadsides and ditch banks. (Boyer). FLORIDA - Very light, 30 per 100 sweeps of blooming alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.). KENTUCKY - Increased in some forage legume fields; only minor damage noted. (Barnett). WISCONSIN - Nymphs still scarce in alfalfa in southern districts. Ranged 0-24 per 100 sweeps, average about 4. Some nymphs more than half-grown. About 8 percent of larvae large in one Walworth County field. One specimen contained many well-developed embryos, indicating production of new nymphs expected by beginning of next period. (Wis. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Ranged 0-10 per 10 sweeps in alfalfa in Wagoner and Muskogee Counties. (Okla. Coop. Sur.).

COTTON

STRAWBERRY SPIDER MITE (Tetranychus turkestanii) - ARIZONA - Migrations from alfalfa caused "hot spots" in Yuma County cotton. Treatments applied. (Ariz. Coop. Sur.).

MISCELLANEOUS FIELD CROPS

CARROT WEEVIL (Listronotus oregonensis) - NEW JERSEY - First adults of season collected at bait traps in southern area of State. (Ins.-Dis. Newsltr.).

POTATOES, TOMATOES, PEPPERS

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Adults and eggs noted on potatoes in Tyrrell County. Adults and young larvae noted in pepper plant beds near Clinton, Sampson County. Infestations restricted to scattered one-square-foot spots in two of 15 beds. Observations and light trap collections in Carteret, Tyrrell, Sampson, and Harnett Counties indicate increased adult activity throughout Coastal Plain. (Wrench et al.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NORTH CAROLINA - Adults 10 and egg masses 36 per 100 plants in some potato fields in Tyrrell County. Also reported in Pamlico County where treatments should begin next 7 days. (Sorenson).

BEANS AND PEAS

ARMYWORMS (Spodoptera spp.) - FLORIDA - Economic on commercial snap beans at Belle Glade, Palm Beach County. Determined by W.G. Genung. (Fla. Coop. Sur.).

COLE CROPS

YELLOWMARGINED LEAF BEETLE (Microtheca ochroloma) - ALABAMA - Adults emerged in Lee County; many feeding on leaves of radish and broccoli. (Wagoner).

GENERAL VEGETABLES

ONION THRIPS (Thrips tabaci) - CALIFORNIA - Some market onions treated at Imperial Valley, Imperial County; some growers felt treatment unnecessary. Onion seed fields treated and will need repeat treatments during growing season. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - NEW YORK - First moths of season noted April 15 in parts of Ulster, Dutchess, and Orange Counties. (Smith). Male moths taken in pheromone traps April 20 at Geneva, Ontario County, (Trammel, Brann), and in Pultneyville area of Wayne County April 21 (Tette).

FRUITTREE LEAFROLLER (Archips argyrospilus) - NEW JERSEY - First-instar larvae abundant in unsprayed apple block at Vincetown, Burlington County. (Ins.-Dis. Newsltr.).

CODLING MOTH (*Laspeyresia pomonella*) - WASHINGTON - Adult males in sex pheromone traps April 18; First emergence for 1974 at Buena, Zillah, and Sunnyside, Yakima County. (Tree Fruits Pest Mgt.).

PEAR PSYLLA (*Psylla pyricola*) - NEW YORK - Heavy oviposition began April 14 in parts of Onondaga, Oswego, Madison, and Cayuga Counties. (Dellamano). Eggs plentiful in many pear plantings in western part of State April 20. (Trammel, Brann). WASHINGTON - Fourth-instar nymphs found on pears at petal fall April 22 at Sawyer and Parker, Yakima County. (Tree Fruits Pest Mgt.).

WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) - CALIFORNIA - Treatment on nectarines continued in Tulare County. Early infestations can cause much fruit loss as well as cullage at harvest time. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (*Panonychus ulmi*) - NEW JERSEY - Overwintered eggs not hatched on apples at Vincetown, Burlington County, as of April 26. (Ins.-Dis. Newsltr.). OHIO - Overwintering eggs on Red Delicious cultivar averaged 19 and 12 per one-half inch of roughened stem in Wyandot and Franklin Counties, respectively. Bud development predominately in open cluster with small percentage of buds in late tight cluster and early full pink. Egg hatch, first noted April 19 in 1973 and April 28 in 1972, not yet occurred. (Fox).

CITRUS

A NOCTUID MOTH (*Xylomyges curialis*) - ARIZONA - Larval damage observed during citrus survey April 8-9 on western side of Salt River Valley. Foliage damage first observed about mid-March and thought to be that of *Spodoptera exigua* (beet armyworm) and *Trichoplusia ni* (cabbage looper). Heavy feeding damage to skirts of large trees noted in one grove. *X. curialis* one of most important pests attacking citrus in some California locations during prebloom and bloom period. If uncontrolled, larval infestations can destroy high percentage of newly developing spring flush of growth and bloom, and can cause scarring and loss of most newly developing fruit. (Ariz. Coop. Sur.).

ORNAMENTALS

SPRUCE NEEDLEMINER (*Taniva albolineana*) - KANSAS - Caused serious foliar damage to ornamental spruce in Douglas, Franklin, Johnson, and Brown Counties. (Bell).

BAGWORM (*Thyridopteryx ephemeraeformis*) - OKLAHOMA - Newly hatched larvae active on ornamentals in Jackson County. First report of season. (Okla. Coop. Sur.).

HAWTHORN LACE BUG (*Corythucha cydoniae*) - OKLAHOMA - First of season noted on pyracantha in Stillwater area of Payne County. (Okla. Coop. Sur.).

A CONIFER APHID (*Cinara tujafilina*) - OKLAHOMA - Infestations still heavy on arborvitae in some Payne County areas. (Okla. Coop. Sur.).

FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MARYLAND - Adults active and ovipositing in all areas of State east of Washington County. Above normal populations and damage expected this season. (U. Md., Ent. Dept.).

NORTHERN PINE WEEVIL (Pissodes approximatus) - OHIO - Mating observed on stumps of Scotch pine (cut in 1973) in Portage County area. Feeding on branches and stems of seedlings will continue for brief period before returning to stumps for oviposition. Treatments should be applied. (Balderston, Nielsen).

EASTERN SPRUCE GALL APHID (Adelges abietis) - OHIO - Overwintering females fully developed on Norway and white spruce in Stark County area. Chemical treatments should be applied. (Nielsen, Balderston).

PINE BARK APHID (Pineus strobi) - SOUTH CAROLINA - Infestations heavy on 15 of 100 Pickens County white pine trees. Treatments planned. (Hair).

MAPLE LEAFCUTTER (Paraclemensia acerifoliella) - NEW HAMPSHIRE - Collections of leaf litter made April 18 in sugar maple (Acer saccharum) orchards at Acworth and Langdon, Cheshire County, and at Gilford, Belknap County, indicate low mortality of overwintering forms. (Miller, Morse).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NEW HAMPSHIRE - Eggs hatched April 17 at Durham, Strafford County. (Morse). NEW YORK - Eggs hatched in parts of Onondaga, Oswego, Madison, and Cayuga Counties. (Dellamano, Apr. 23). KENTUCKY - Infested several species of trees (mostly wild cherry) in all sections of State. Tents obvious and feeding apparent. (Barnett).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Infestations reported throughout south-central area. Moderate infestations observed in Coryell, McLennan, and Bosque Counties. Damage caused to many different types of shade trees in these areas. (Cole, Hoelscher).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Infested pecan, ash, and mulberry trees in Brazos and Bureson Counties. (Cole).

ELM LEAF BEETLE (Pyrrhalta luteola) - MARYLAND - Adults active on elm throughout State. Migration continued from overwintering quarters. (U. Md., Ent. Dept.). OKLAHOMA - Adults noted on elm trees in several Payne County areas. (Okla. Coop. Sur.).

A SCOLYTID BEETLE (Xyleborus rubricollis) - TENNESSEE - Collected March 1, 1974, from Davidson County maple trees by R. Patrick. Determined by D.M. Anderson. This is a new State record. (Gordon, Bruer).

WOOLLY ELM APHID (Eriosoma americanum) - OKLAHOMA - Infestations heavy on American elms in Pittsburg and Coal Counties. (Okla. Coop. Sur.).

GIANT BARK APHID (Longistigma caryae) - OKLAHOMA - Heavy infestation noted on live oak in Oklahoma City, Oklahoma County. Moderate on pin oak at Stillwater, Payne County. (Okla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 75 cases reported from continental U.S. during period April 7-20 as follows: Texas 71, Arizona 3, California 1. Total of 260 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 214,518,000 as follows: Texas 203,304,000, Arizona 10,764,000, California 450,000. Total of 225,167,400 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged one per animal on backs of 80 Holstein dairy cows of various ages in Fayette County. (Barnett).

FACE FLY (Musca autumnalis) - ILLINOIS - First of season noted on young dairy cows in Adams County, averaged 5 per 10 animals. (Ill. Ins. Rpt.). KENTUCKY - Averaged 10.1 per head on various cattle herds in Harrison County. (Barnett).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Up to 100+ per head noted on cattle in Oktibbeha and surrounding counties. (Robinson). OKLAHOMA - Averaged 200 per head on cows in Payne County and ranged 200-300 per head in Major County. Moderate in Pawnee and Comanche Counties. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - First hatch of spring Aedes occurred March 29; A. trichurus, A. stimulans, A. excrucians, A. spencerii, and A. riparius now present as fourth-instar larvae. Some A. vexans larvae reported. No Culiseta spp. or Culex spp. observed to date. (Minn. Pest Rpt.). NEW HAMPSHIRE - Aedes spp. larvae about three-fourths grown at Durham, Strafford County, April 19. (Dyrkacz, Katkin).

A LOUSE FLY (Hippobosca longipennis) - CALIFORNIA - During period April 15-26, 16 adults noted in San Pasquel Wild Animal Park, San Diego County, in the cheetah compound. This is first occurrence since November 1973. An areawide treatment in September 1973 effectively removed ticks, fleas, and reduced fly population. Dusting loafing platforms discontinued in November as precaution against developing resistance. Areawide aerial treatment scheduled for May 7, 1974. Dusting of loafing platforms will begin in mid-May. Close surveillance for this pest planned this season. (Cal. Coop. Rpt.).

AMERICAN DOG TICK (Dermacentor variabilis) - NEW JERSEY - Moderate to heavy in southern and central counties. (Ins.-Dis. Newsltr.).

BENEFICIAL INSECTS

LADY BEETLES - FLORIDA - Hippodamia convergens (convergent lady beetle) counts per 100 sweeps averaged 12 adults with some larvae in oats and 4 adults in alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.). ARKANSAS - Lady beetle adults found in almost all green vegetation but populations not increasing significantly. Larvae still light. Cool nights probably holding reproduction to light level. (Boyer). OKLAHOMA - H. convergens heavy in aphid infested alfalfa in some areas in southwest counties. (Okla. Coop. Sur.).

HONEY BEE (Apis mellifera) - OHIO - Swarming noted in Cincinnati area of Hamilton County April 26. Expected to occur in areas of Franklin and Cuyahoga Counties April 27 and May 4, respectively. Colonies generally strong and swarming conditions should be favorable this season. (Fox).

ICHNEUMON WASPS - OKLAHOMA - Bathyplectes curculionis parasitized 10-25 percent of Hypera postica (alfalfa weevil) larvae collected in Cimarron, Texas, and Beaver Counties. (Okla. Coop. Sur.). NEW HAMPSHIRE - Scambus sp., a parasite of Paraclemensia acerifoliella (maple leafcutter); reared from overwintering forms taken in leaf litter collected at localities in Cheshire and Belknap Counties. (Morse).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - KENTUCKY - Small grains in 22 fields in 8 counties sampled April 15-18; heaviest population found on wheat in Pendleton County, ranged 2-8 (average 4) per 100 sweeps. No feeding damage apparent, no eggs found. Dissection of 3 female beetles revealed 2-4 well-developed eggs in each; no food found in alimentary tracts. Beetles most active when temperature above 70 degrees F. and skies clear; temperature ranged 50-70 degrees F. during days and 35-45 during nights of sampling period. Low temperatures and overcast skies may have been part of reason for no beetles being detected in Bourbon County. During sampling period April 22-25, heaviest counts found on winter wheat in Kenton County; ranged 0-5 (average 3.2) per 100 sweeps. Light feeding noted in Kenton and Boone Counties. Single egg found in Kenton County. Small grains in fair to good condition. Barley about 17 percent headed; wheat beginning to head in southwest area. (Barnett, Sperka).

A GRASS BUG (Labops hesperius) - NEW MEXICO - Second-week nymphs ranged 200-500 per clump on crested wheatgrass near Canjilon, Rio Arriba County. Distribution appears similar to area infested last season. Caused much local concern. (N.M. Coop. Rpt.).

GRASSHOPPERS - NORTH DAKOTA - Egg development in Golden Valley County ranged from clear to segmented with most eggs in eye-spot stage. Eggs 9 percent clear, 25 percent coagulated, 57 percent eye spot, and 9 percent segmented. No parasites, predators, or desiccated eggs noted. (Brandvik). OKLAHOMA - Hatch underway in south-central and southwest counties first week of April, west-central and northwest counties by April 10, and the panhandle counties by April 25. (Okla. Coop. Sur.).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - First eggs hatched April 20 and 21 at Berlin, Camden County, and April 21 in Monmouth County. (Ins.-Dis. Newsltr.).

The following correction should be made on the Gypsy Moth Quarantines map dated April 1, 1974, (centerfold) in this issue. In Item 3, "... if processed by grinding and pulverizing, and ..." should be deleted.

THE FOLLOWING REGULATED ARTICLES MUST BE MOVED UNDER
CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED

1. Trees, shrubs with persistent woody stems, and parts thereof, **except** seeds, fruits, and cones.
Trees and shrubs, and parts thereof, are exempt if grown in a greenhouse throughout the year and so labeled on the outside of each container.
Cuttings, and scions with stems no greater than one-half inch in diameter are exempt.
Parts of trees and shrubs that have been dried, pressed, waxed, lacquered, varnished, or similarly surface-treated, are exempt.
Christmas trees are exempt, if it has been determined by an inspector that they have not been exposed to infestation.
Boughs and Christmas greenery are exempt.°
2. Timber and timber products, including but not limited to lumber, planks, poles, logs, cordwood, and pulpwood.
Lumber is exempt if dressed or sawed four sides with ends clipped and free of surface bark, or if kiln dried, provided such lumber is shipped direct after processing and the waybill or other shipping document is marked to show that the lumber was shipped immediately after processing.
Manufactured wood products, such as shingles, flooring, furniture, handles, etc., are exempt.°
Shavings, sawdust, wood flour, excelsior, and cedar bedding are exempt.°
3. Stone and quarry products:
Stone and quarry products are exempt if processed by grinding or pulverizing, and if it has been determined by an inspector that they have not been exposed to infestation.
4. Mobile homes, recreational vehicles, and associated equipment moving from hazardous parks or recreational sites.
°Exempt if not exposed to infestation after the prescribed handling.

JAPANESE BEETLE (Popillia japonica) - OHIO - Grub migration from lower soil regions to turf root zone occurred about 21 days later (mid-April) in 1974 than in 1973 (third week of March). Adult emergence expected slightly later than in 1973. Larvae averaged 16-17 per square foot of turf at Akron, Summit County, April 19; 90 percent fed in root zone and almost all in third (final) instar. Heavy infestation, 35-40 per square foot of turf, noted at a Portage County golf course April 22. All larvae fed in root zones and about 25-30 percent of grubs in second instar. (Lawrence).

DETECTION

New State Record - A SCOLYTID BEETLE (Xyleborus rubricollis) - TENNESSEE - Davidson County. (p. 302).

New County Record - ALFALFA WEEVIL (Hypera postica) NEW MEXICO - De Baca (p. 299).

CORRECTIONS

CEIR 24(17):285 - CONIFER SAWFLIES (Neodirpion spp.) should read (Neodiprion spp.)

CEIR 24(18): Centerfold - GYPSY MOTH QUARANTINES. Map. - Item 3 on reverse side: " ... if processed by grinding and pulverizing, and ..." should be deleted.

HAWAII INSECT REPORT

General Vegetables - Damage due to LEAFMINER FLIES (Liriomyza spp.) ranged moderate to heavy in 1.5 acres of snap beans at Waianae, Oahu. Damage heavy (50 percent of leaf area with mines) on estimated 30-50 percent of leaves on each plant. Damage severe enough in several parts of field to cause 50+ percent leaf drop. Damage on young 5-foot tall nonbearing plants light; 10 percent of leaves with larval damage. Due to leafminer and Tetranychus cinnabarinus (carmine spider mite) control problems, some farmers changing to other crops during period May through August. Liriomyza spp. damage light to moderate on small planting of long beans at Waimanalo, Oahu. Few adults observed in planting, no pupae noted on leaves. CARMINE SPIDER MITE (T. cinnabarinus) damage light to moderate on 1.5 acres of snap beans at Waianae. Mites averaged less than 10 per square inch of leaf area in certain parts of field, at least 20 in other parts of field. Chlorosis due to mite feeding obvious. ONION THRIPS (Thrips tabaci) damage to onions at Koko Head and Waianae, Oahu, remained light. However, damage moderate to heavy on acre of Manoa lettuce at Koko Head; 90 percent of heads exhibited feeding damage on older leaves. Average of 4 thrips per plant found on 50 plants examined. Spotted wilt infected plants noted throughout plantings. (Mau).

Fruits and Nuts - Light damage by larvae of CITRUS SWALLOWTAIL (Papilio xuthus) observed on young foliage in small backyard citrus planting at Waipahu, Oahu. Examination of 33 eggs revealed 67 percent parasitized by Trichogramma spp. (minute egg parasites). (Otsuka).

Beneficial Insects - To date, 23 releases of an ENCYRTID WASP (Ooencyrtus erionotae), an egg parasite of Erionota thrax (banana skipper), have been made at banana plantings on Oahu; average of 359 specimens released at each site. A BRACONID WASP (Apanteles erionotae), a larval parasite of E. thrax, released at 15 sites; average of 597 specimens released at each site. Evaluation of these releases to be made as data becomes available. (Kumashiro, Teramoto). Initial release of 100 specimens of a GALL FLY (Procecidochares sp.) made at Hualalai Ranch, Kaupulehu, Hawaii Island, April 8, 1974. This tephritid introduced from Mexico for control of Hamakua pamakani (Ageratina riparia); this weed found on all islands except Kauai, and considered especially noxious on rangelands on Hawaii Island. This gall fly is second insect to be introduced for biological control of Hamakua pamakani. A PTEROPHORID MOTH (Oidaematophorus sp.), larvae of which feed on leaves of Hamakua pamakani, previously introduced (Otsuka).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1973
(Continued from page 291)

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) and Coleomegilla maculata (a lady beetle) were the more important lady beetle species that occurred in cotton, grain, vegetables, and other crops in ALABAMA. These species were also the most important predators present in crops in ARKANSAS during the 1973 season. Populations were at higher levels than normal during mid and late summer, probably due to the low use of control materials.

Overwintering convergent lady beetle adults were much less abundant than in 1972 in bunch grass samples collected in the eastern two-thirds of KANSAS during the annual winter chinch bug survey conducted during late February and early March. This lady beetle was unusually light in wheat and alfalfa in the eastern area during early spring, but populations were heavy in these crops in late spring. There was a good reserve of H. convergens for movement into seedling sorghum. Often, heavy populations of this lady beetle, more than other species, exerted some control of Schizaphis graminum (greenbug) and Heliothis zea (corn earworm) in sorghum over much of Kansas during the remainder of the growing season. In late September, H. convergens adults were reported massing on the wall of a building in Riley County, the first such report since fall 1971.

Convergent lady beetle was active from mid-April through November in OKLAHOMA. Heavy populations were reported controlling S. graminum in some wheat fields in Roger Mills County during mid-November. Lady beetles, mainly H. convergens, were active in alfalfa in Chaves, Eddy, and Quay Counties, NEW MEXICO, during early spring, although counts, 20-30 adults per 25 sweeps, were somewhat below expected levels.

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) was active in puncturevine areas near Loving and Carlsbad, Eddy County, NEW MEXICO, by July 13, where 40 percent of the seeds of this pest plant were infested. This weevil destroyed about 100 percent of the puncturevine seeds that had been produced by early September near Hatch, Dona Ana County. Late-season reports indicated some puncturevine seed weevil activity near Albuquerque, Bernalillo County, indicating this weevil had made some recovery since the freeze of 1971 in this area.

In southern FLORIDA, 250-500 specimens of a WEEVIL (Neochetina eichhorniae) were released at more than 50 sites in an attempt to control water hyacinth.

PAINTED LADY (Cynthia cardui) population buildups occurred in the Southwest and farther south resulting in very heavy northward movement of migrating adults into OREGON. The first adults were seen at West Salem, Polk County, May 13. Clouds of butterflies were noted in the Willamette Valley and some adults were observed east of the Cascade Mountains. Females oviposited heavily on thistles, the preferred hosts of this nymphalid. Large numbers of eggs were laid and developing larvae caused widespread and heavy damage to Canada thistle and bull thistle. Very heavy larval

populations developed and completely stripped preferred hosts. In WASHINGTON, painted lady larvae infested several crops causing minor damage, as well as affecting thistles and some other weeds that are normal hosts. Excessively heavy populations were reported during spring throughout central and eastern Washington.

Painted lady was observed throughout MONTANA, with adults present from May through August. There were many reports of larvae feeding on Canada thistle. A widespread outbreak of this nymphalid occurred in UTAH. Flights through most lowland and canyon areas of the State were noted for several weeks in June, and larvae commonly fed on mallows and thistles. Painted lady larvae caused much defoliation of musk thistle along roadsides and pastures in several north-central and northeast counties of KANSAS in early June.

PARASITOIDS of Oulema melanopus (cereal leaf beetle) were recovered for the first time in several areas and additional releases were made. A EULOPHID WASP (Tetrastichus julis) and an ICHNEUMON WASP (Diaparsis sp.) were recovered for the first time in Crawford County, PENNSYLVANIA, June 6. A total of 43,200 T. julis and 6,980 Diaparsis sp. were released as parasitized O. melanopus larvae in Crawford, Butler, Centre, Clarion, and Lawrence Counties. A total of 818 Diaparsis sp. adults were released in Crawford and Erie Counties. A MYMARID WASP (Anaphes flavipes) was recovered for the first time in Pennsylvania in Armstrong County June 18, and was recovered for the first time in Beaver, Lawrence, and Mercer Counties June 18 and 19 and in Lycoming County June 27. A total of 33,750 A. flavipes specimens were released in Butler, Crawford, Erie, Indiana, Jefferson, Lawrence, Mercer, and Westmoreland Counties. In Crawford County, Pennsylvania, 2,400 specimens of an ICHNEUMON WASP (Lemophagus curtus) were released as parasitized O. melanopus larvae.

Egg and larval parasitoids of O. melanopus were also released in WEST VIRGINIA. A. flavipes was released in 20 counties, Diaparsis sp. in 9 counties, and T. julis in 2 counties. In INDIANA, T. julis was recovered for the first time in La Porte County, and was released in 22 counties of that State. A. flavipes was recovered for the first time in St. Joseph, Fulton, Steuben, Lagrange, De Kalb, Allen, Wayne, Henry, Union, and Franklin Counties, Indiana. Releases of this mymarid were made in 15 counties. Diaparsis sp. was recovered for the second successive year in La Porte County, and this ichneumon wasp was released in 28 counties.

Surveys conducted in two alfalfa fields each in Rowan and Haywood Counties, NORTH CAROLINA, revealed established populations of an ICHNEUMON WASP (Bathyplectes curculionis) and a EULOPHID WASP (Tetrastichus incertus) in both counties. Of the 3,000 Hypera postica (alfalfa weevil) larvae examined from Rowan County, 15.8 percent were parasitized by B. curculionis, a substantial increase over the results of previous surveys. T. incertus was also present in the alfalfa weevil population in Rowan County but less than one percent recovery was attained. B. curculionis and T. incertus were released in Rowan County during 1971, but neither was released in Hayward County. However, 1.3 percent of the alfalfa weevil larvae collected in Hayward County during the 1973 survey were parasitized by B. curculionis and less than one percent by T. incertus. These may be migrants from a nearby out-of-State release site.

In OHIO, Bathylectes curculionis parasitized 80 percent of the alfalfa weevil larvae sampled from an alfalfa field near Columbus, Franklin County, by May 24. B. anurus attained a maximum of 5 percent larval parasitism by June 27 at Wooster, Wayne County. B. anurus was collected for the first time in Washington County, INDIANA, and B. curculionis was collected for the first time in Daviess, Brown, Washington, Owen, and Morgan Counties during the 1973 season. B. anurus remains at low levels in the alfalfa weevil population in Indiana wherever it is found. South of U.S. Highway 50, B. curculionis was found in about 10 percent of the alfalfa weevil population early in the season, and north of this highway it was found in 70-80 percent of the alfalfa weevil population, but later in the season. B. curculionis was reared from specimens of Hypera postica collected during June in Adair, Boone, Clarke, Hamilton, Lucas, Story, Union, Adams, Audubon, Montgomery, Pottawattamie, Scott, Taylor, Keokuk, Muscatine, and Washington Counties, IOWA.

A MYMARID WASP (Patasson luna), a parasitoid of alfalfa weevil eggs, had exerted 25 percent parasitism in Wayne County, OHIO, by May 17.

An ICHNEUMON WASP (Eriborus terebrans), a parasite of Ostrinia nubilalis (European corn borer), was reported for the first time from Jasper, Marshall, Lagrange, and Noble Counties, INDIANA.

A BRACONID WASP (Lysiphlebus testaceipes) appeared, as usual, to be the most important single biotic agent in late season control of Schizaphis graminum (greenbug) in sorghum throughout KANSAS. Of significance, also, was the observation that this wasp gave significant control much earlier in the season than usual, at least in Marion and Ottawa Counties during mid and late June. Another BRACONID WASP (Trioxus pallidus), a parasite of Chromaphis juglandicola (walnut aphid), is widespread in walnut orchards in the Medford and Talent areas of Jackson County, OREGON. Natural spread has been rapid as this wasp had been established only two years.

A EULOPHID WASP (Elasmus polistis), reared from a nest of Polistes sp. (a vespid wasp) found on a porch in Las Cruces, Dona Ana County, NEW MEXICO, during September was a new State record.

A SAPYGID WASP (Sapyga pumila) was the most destructive parasite of Megachile rotundata (alfalfa leafcutter bee) in the alfalfa seed producing areas of Churchill, Humboldt, and Pershing Counties NEVADA. In Humboldt County, where the population of this wasp were the heaviest, it is estimated that parasitism had increased up to 500 percent over 1972 levels.

A CHALCID WASP (Brachymeria intermedia), a pupal parasite of Porthetria dispar (gypsy moth), was released in Jefferson, Berkeley, Hampshire, Pocahontas, Pendleton, Hardy, Grant, and Kanawha Counties, WEST VIRGINIA, during the 1973 season.

HONEY BEE (Apis mellifera) honey production in PENNSYLVANIA was poor early in the year. Cold, wet weather in spring and early summer reduced the expected crop. Bees had wintered well and the colonies were in good condition in spring. Swarming was a problem and many after-swarms were found. The 1973 honey crop was

about average with a very good fall flow from goldenrod in most areas. Swarming continued into September which is a very unusual condition. Most bees were in excellent condition for wintering as a result of the good fall flow. It was important to keep these colonies alive this past winter since both package bees and queens will be in short supply in 1974 and the prices high in spring. More bees are still needed for pollination and honey production. Apis mellifera colonies among the 3,000 bee keepers in ALABAMA declined to about 57,000. There were 174,000 colonies in 1956. The estimated yield was 38 pounds per colony or about 1,600,000 pounds in 1973. Colonies used in alfalfa seed areas of NEVADA increased from 18,000 colonies in 1972 to 19,126 colonies in 1973.

ALFALFA LEAFCUTTER BEE (Megachile rotundata) populations in alfalfa seed producing areas of NEVADA were below the 1970 to 1972 levels due to parasites, predators, and other factors.

DAMSEL BUGS (Nabis spp.) became active in wheat and alfalfa as early as late January near Fayetteville, ARKANSAS. These bugs are important predators in soybeans and remained at a higher than normal level all summer, probably due to light use of other controls in cotton and none in soybeans. Damsel bugs were extremely heavy in Gallatin County, MONTANA, during 1973 along with Chrysopa californica (a lacewing). Larvae of Syrphus spp. (syrphid flies) were in constant evidence as were lady beetles and Geocoris spp. (bigeyed bugs). All are becoming important factors in alfalfa weevil control. Bigeyed bugs were important predators in soybeans, cotton, and sorghum in ARKANSAS. Populations remained at a good level longer in the season than normal, probably due to overall light use of insecticides.

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

Treatments for BOLL WEEVIL (Anthonomus grandis) were applied to 652,279 aggregate acres in the TEXAS High Plains and 6,072 acres in the Big Bend area of Texas and Mexico. Estimated loss plus cost of control measures amounts to \$313 million annually in the United States. About 350,000 acres were surveyed weekly on the Texas High Plains and Rolling Plains prior to and during the control season. A total of 209 pheromone traps were operated in Mexico and New Mexico for boll weevil detection. Also, 298 pheromone traps were used for monitoring spread into the control zone from the east along 250 miles of the Cap Rock, and 280 traps for movements to trap-crop plots.

BURROWING NEMATODE (Radolphus similis) surveys were conducted at 91 nurseries and new citrus sites in FLORIDA, and the 96,612 root samples collected were processed. The total of 27,467 root samples collected during marginal and buffer surveys in chemical and push and treat barriers were also examined. Detection and delimiting inspections for treatment resulted in the examinations of root samples from 11,446 acres. Trees were pushed and treatments were applied on 987 acres. A total of 52,012 linear feet of chemical barrier were established and 1,269,284 linear feet were maintained.

CEREAL LEAF BEETLE (Oulema melanopus) surveys were conducted at 1,454 sites in 4 States. Infestations were found for the first time in one new county in MISSOURI, 7 counties in VIRGINIA, 2 counties in NEW JERSEY, and 6 counties in NEW YORK.

In spring 1973, a total of 519,750 specimens of Anaphes flavipes (a mymarid wasp), an egg parasitoid, was released at 184 sites in 5 States. Also, 339,301 specimens of Tetrastichus julis (a eulophid wasp), Diaparsis carnifer, Diaparsis sp., and Lemophagus curtus (ichneumon wasps), all larval parasitoids of cereal leaf beetle, were released at 145 sites in 9 States.

A point of interest is that A. flavipes was recovered 103 air miles east of the closest release site. Although no release of this mymarid wasp has been made in Canada, it was recovered in that country 300 miles from the closest release site in the United States. A. flavipes has been collected from 21 European countries and the four larval parasitoides from 13 countries for importation into the United States.

Anaphes flavipes was recovered for the first time during 1973 from 10 counties in Indiana, 4 in Michigan, 2 in New York, 8 in Ohio, 5 in Pennsylvania, and 3 counties in West Virginia. Tetrastichus julis was recovered for the first time in one county in Indiana, 2 in Michigan, 3 in Ohio, one in Pennsylvania, and 3 counties in West Virginia. Diaparsis carnifer was recovered in one county in Michigan and Diaparsis sp. in one county in Pennsylvania. Lemophagus curtus was recovered for the first time in one Michigan county during 1973.

A cereal leaf beetle hearing to revoke the quarantine was held August 7, 1973. The cereal leaf beetle quarantine was terminated October 1, 1973.

During 1973, a total of 10,128,817 citrus trees were examined for CITRUS BLACKFLY (Aleurocanthus woglumi) infestation. Treatment was made on 382,079 trees. During the year, 4,220,000 specimens of Prospaltella spp. (a eulophid wasp) were released. At the start of 1973, citrus blackfly infestations were present in Mission, Hidalgo County, and in Los Fresnos, Olmito, and Brownsville, Cameron County, TEXAS.

A special biometric survey was designed for checking 14,000 points monthly for 7 months--December 1972 through June 1973. This survey resulted in finding new citrus blackfly infestations. In late January, infestations were found in San Benito, Harlingen, and La Paloma in Cameron County, Texas, and in Rio Bravo, Realito, and Matamoros, Mexico. They were very light and apparently of recent origin. During early February, an infestation was found in the village of Calaboz, about 10 miles northwest of Brownsville and bordering on the Rio Grande. At this time, continuing light infestations on a few dooryard plantings had been found in the southeastern section of Brownsville, about 5 miles south of other known infestations in Brownsville. On March 9, seven infested trees were found in Rio Hondo, Texas. In May, 133 citrus trees were found infested three miles north of Valle Hermosa, Tamaulipas,

Mexico. In August, 29 new infested properties were detected in Matamoros. By October this number had increased to almost 200.

A citrus blackfly hearing to establish the quarantine and terminate the emergency was held October 30, 1973. The quarantine in Texas became effective March 13, 1974.

Detection surveys for MEDITERRANEAN FRUIT FLY (Ceratitis capitata) ORIENTAL FRUIT FLY (Dacus dorsalis), MELON FLY (D. cucurbitae), QUEENSLAND FRUIT FLY (D. tryoni), and NATAL FRUIT FLY (C. rosa) were conducted in ecologically suitable areas of Mexico and the United States by trapping with multiple and single lure traps. A total of 19,389 traps were used at 33,755 sites. A single oriental fruit fly was trapped at Encino, CALIFORNIA, in September. In FLORIDA, 380 lure traps were used in a surveillance program for MEXICAN FRUIT FLY (Anastrepha ludens). A single A. ludens was found and the number of traps was increased to 4,667.

The nationwide biometrical soil sampling survey for GOLDEN NEMATODE (Heterodera rostochiensis) continued during 1973. Of the more than 50,000 samples taken, none proved positive outside of NEW YORK. Samples taken on Long Island disclosed about 1,000 acres infested land. These acres are scheduled for treatment during 1974.

Adult GRASSHOPPER surveys made in fall 1972 indicated 15,337,582 infested rangeland acres. In 1973, treatments were applied to 2.86 million acres in 8 Western States and Texas. Of these treated acres, 2+ million acres were in New Mexico, Idaho, and Washington. The fall 1973 adult survey indicated 8,709,297 acres infested in 14 Western and Midwestern States.

Outside the GYPSY MOTH (Porthetria dispar) generally infested area, 63,354 traps were used in 43 States to detect spread of this pest during the 1973 season. These traps were placed and inspected with the cooperation of the National Campers and Hikers Association and State and Federal cooperators. Male moths were trapped for the first time in six States--CALIFORNIA, FLORIDA, GEORGIA, ILLINOIS, INDIANA, and KENTUCKY, representing 10 counties. Positive trap catches were also made for the first time in 57 counties in 9 States where gypsy moth infestations are known to occur or where catches have previously been made. Aerial surveys conducted by State and Federal personnel showed a total of 1,773,846 acres of defoliation in the nine generally infested Northeastern States. Defoliation in this area ranged zero to 30 percent on 160,669 acres, 30-60 percent on 712,059 acres, and 60-100 percent on 901,118 acres.

During calendar year 1973, more than 2.8 million acres were surveyed in 12 Southeastern and South-central States for IMPORTED FIRE ANTS (Solenopsis invicta and S. richteri). A total of 14,678,548 acres was treated in seven States.

About 36,000 traps were in operation during 1973 to detect new infestations of JAPANESE BEETLE (Popillia japonica). Adult beetles were trapped for the first time in 19 counties in 11 States--ALABAMA, CALIFORNIA, GEORGIA, ILLINOIS, INDIANA, IOWA, KENTUCKY, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, and WASHINGTON. Several

of the catches may have been hitchhikers. An established small infestation was found in San Diego, California, in July. Dover Air Force Base at Dover, Delaware, and McGuire Air Force Base at Wrightstown, New Jersey, were declared hazardous during the seasonal surveillance of major airports to determine adult beetle populations.

Releases totaling 90,000,000 sterile PINK BOLLWORM (Pectinophora gossypiella) moths were made in the San Joaquin Valley of CALIFORNIA, to prevent the establishment of populations of economic importance. Twenty-five native moths were trapped in the Kern County portion of the valley during the period August 13 through October 1, compared with 36 moths trapped in two counties in 1972. No pink bollworm larvae have been found since 1970. About 50,000 traps were serviced in the San Joaquin Valley on an estimated one million acres of cotton. The ratio was one trap per 20 acres.

In the Moapa Valley of NEVADA, it was demonstrated over a 3-year period that a native pink bollworm moth population could be suppressed. In FLORIDA, 42 million sterile pink bollworm moths were released during 1973 to suppress native populations on wild cotton.

Biometric surveys for WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) are conducted within the regulated area of FLORIDA and within a 25-mile radius outside of the regulated area. In 1973, 21,966 acres were surveyed. New infestations were detected in 1,640 acres of citrus. The total acreage infested to date is 3,764. Adult populations increased in some groves during the year. State and Federal personnel soil treated 6,580 aggregate acres and foliage treated 13,954 aggregate acres.

During 1973, about 17,000 acres were surveyed for WHITEFRINGED BEETLES (Graphognothus spp.), of which 16,000 acres were designated infested. Beetles were found for the first time in four counties and parishes in ARKANSAS, GEORGIA, and LOUISIANA. A public hearing was held in September to consider termination of the Federal Quarantine or to extend the quarantine regulations to KENTUCKY, MISSOURI, and TEXAS. A decision on this matter will be forthcoming.

WEATHER OF THE WEEK ENDING APRIL 29

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

HIGHLIGHTS: Locally heavy rains, averaging more than 2 inches caused considerable flooding in Texas, Oklahoma, Kansas, Arkansas, and Louisiana. Little or no rain fell over the Western States. Temperatures averaged more than 5 degrees above normal in the Nation's midsection last week with Amarillo, Texas, 10 degrees above normal. In contrast, temperatures in the Southeast were cooler than usual for the second consecutive week, averaging as much as 8 degrees below normal in Florida.

PRECIPITATION: Moderate precipitation fell over much of eastern half of the Nation. More than 2 inches of rain soaked Des Moines, Iowa, Lincoln, Nebraska, Memphis, Tennessee, Shreveport, Louisiana, and Beaumont and Port Arthur, Texas, during the week. Rain totaled 4 to 7 inches in an area from Arkansas into western Tennessee and northern Mississippi. Rain also dampened the Pacific Northwest and northern California during the week. Only the Southwest remained dry, except a small section of Colorado. Monday morning, 2.75 inches of rain fell at Dryersburg, Tennessee, with 2.07 inches reported at Memphis. Over one inch fell at Greenwood, Mississippi, 1.85 inches at Hopkinsville, New York, and Killeen, Texas got 1.10 inches. Late Monday, heavy rain drenched northern Louisiana, southern Arkansas, and central Mississippi. Almost 22 inches fell in only six hours at Monroe, Louisiana, and 1.68 inches were recorded at Shreveport, Louisiana. By evening, all rivers and streams in south-central Mississippi were out of their banks and record overflows occurred near Eminence, Missouri, and at Benton, Arkansas. Tuesday, severe thunderstorms and heavy rain subsided but a cold front stretching from western New York through Alabama and southeast Texas set off more showers across the Atlantic Coast States and along the gulf coast. At midweek, a Low off the New England coast brought rain and snow to an area from the lower Great Lakes into New England. Wednesday morning, the storm had spread to western New York and down through West Virginia. By evening, 4 to 6 inches of heavy snow had fallen in a band from northern New Hampshire into the Houlton, Nebraska, area; Greenville, Maine, measured 9 inches. Friday, a Low in Montana and Utah brought showers and thundershowers to much of the central and northern Rockies and into Kansas and Nebraska. A few showers were also scattered over northern and central California. Early Friday morning, a tornado touched down in the southwestern part of Pecos, Texas, injuring two persons and damaging three trailers and four vehicles. Friday afternoon, showers moved off the New England coast after leaving 3 inches of snow at the summit of Mount Washington in New Hampshire. During the weekend, some severe thunderstorm activity occurred in Nebraska, bringing golf ball-size hail and winds of 65 m.p.h. to Callaway. Hail and very heavy rains fell around Broken Bow with some flash flooding on highways. A cold front trailing from a Low in the northern Plains triggered showers and thundershowers from western Texas into the upper Mississippi Valley. Sunday, a cold front stretched from northern Michigan into extreme southwestern Texas. Along the front, scattered showers and thundershowers dampened the day.

TEMPERATURE: The Nation's midsection enjoyed mild temperatures last week, with many areas recording at least 3 degrees above normal. Only sections in the Southeast and the Pacific coast registered temperatures below normal. During the week, a High in Canada reaching south into the Plains brought fair skies but cool temperatures to much of the central part of the United States. Northerly winds from Canada chilled parts of the Great Lakes, Ohio Valley, and Mississippi Valley. Lows in the 20's were common as far south as northern Missouri and central Illinois. Thursday, unseasonably cool weather prevailed in most of the Atlantic Coast States and the intermountain States were generally warmer than normal. Thursday morning, record lows were set at Athens, Georgia, 16 degrees; Savannah, Georgia, 42 degrees; and Charleston, South Carolina, 37 degrees. In the afternoon, it warmed to 54 degrees as far south as Cape Hatteras, North Carolina, while it reached 82 degrees as far north as Glasgow, Montana. Cool temperatures persisted in the Atlantic Coast States on Friday because of the Canadian air. Temperatures warmed Saturday and normal springtime readings were common along the Gulf Coast States and into California. Sunday, unseasonable warmth prevailed east of the Mississippi--84 degrees as far north as Rochester, New York; Concord, New Hampshire, recorded 83 degrees, which was 21 degrees above normal.

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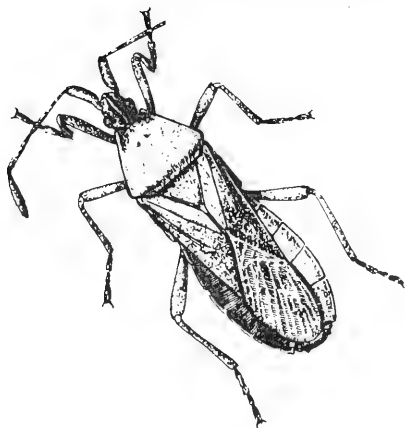
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Cooperative Economic Insect Report

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



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMY CUTWORM damage severe in Box Elder County, Utah. ARMYWORM damage to small grains occurring in North Carolina. (p. 319).

PALE WESTERN CUTWORM severe in 400 acres of wheat in Montana. (p. 320).

ALFALFA WEEVIL infestations are heavy in central U.S. (p. 321).
PEA APHID is a problem on alfalfa in Washington, California, and Nevada. (p. 322).

PEAR RUST MITE may be serious on pears in Washington and California. (p. 326).

BRONZE BIRCH BORER is very damaging in parts of Wisconsin. (p. 327).

Detection

New State records include an ANOBIID BEETLE from Maryland (p. 326), and a CYNIPID WASP (p. 327) and a BRACONID WASP (p. 328) from Pennsylvania.

For new county records see page 329.

Special Reports

Periodical Cicadas - Outlook for 1974. (pp. 331-332).

Reports in this issue are for week ending May 3 unless otherwise indicated.

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SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - UTAH - Removed by April 26, most vegetation including crested wheatgrass planted in range area of Curlew Valley, 12 miles southwest of Snowville, Box Elder County. By this reporting period, damage was severe to range pasture in south Curlew Valley. Infested area at least one mile long and one-third mile wide. (Whitworth). COLORADO - Averaged 2 per linear foot of wheat in Washington County. (Pilcher).

KANSAS - First army cutworm adults of season in flight in Finney County. (Bell). SOUTH DAKOTA - Active on winter wheat in West River area counties. Larval development in Sturgis area, Meade County, ranged from one-third inch long to almost mature. Larvae expected to feed on winter wheat in more northern areas for 7 days. (Kantack et al.). NORTH DAKOTA - In eastern Slope County larvae observed at one per linear row foot in one field. Damage light in one field. Larvae about one inch long. (Brandvik). MONTANA - Infested many alfalfa fields in Carter, Fallon, and Powder River Counties. (Pratt).

ARMYWORM (Pseudaletia unipuncta) - KANSAS - Substantial populations in flight in Barton County past 3 weeks. (Bell). ILLINOIS - One 0.5 inch larva swept in Fayette County. Ten adults caught in light trap on May 1 in Champaign County. (Ill. Ins. Rpt.). MICHIGAN - Moths trapped nightly at Lenawee County blacklight station since trap was activated on April 12, ten days earlier and more persistent than last year. NORTH CAROLINA - Damaged small grains in eastern Coastal Plain. Treatment being applied to 1,000 acres in Pamlico County. (Rea et al.).

ASTER LEAFHOPPER (Macrostoteles fascifrons) - FLORIDA - Adults 15 in 100 sweeps of ripe oats at Gainesville, Alachua County. (Fla. Coop. Sur.). WISCONSIN - Adults 2-4 per 100 sweeps in southwestern Grant and central La Crosse Counties on winter grain. Adults 1 per 200 sweeps on rye, and 2-3 per 100 sweeps north of Montello. First early flight of migrants seems to be mostly west of Wisconsin into Minnesota and the Dakotas. Problem thus far is reduced from other years but could worsen in next 2 to 3 weeks. (Wis. Ins. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatments continued in Kern County breeding grounds. Total of 44,555 acres treated. Several thousand acres scheduled for treatment. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - TEXAS - Up to 5 per row foot in small grain fields in Archer, Baylor, Hardeman, Young, and Wilbarger Counties. Beneficial insects and spiders continued to prey heavily on greenbugs. (Boring). KANSAS - Trace populations of nonwinged specimens swept from heading wheat in Crawford County. (Bell). MISSOURI - Light, 0-18 per row foot, in southwest and east-central areas. (Munson). SOUTH DAKOTA - Winged specimens detected in barley field in southern Brookings County. Infestation noted at 3 per 40 row feet. (Kieckhefer, Walgenbach).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MICHIGAN - One aphid picked up on alfalfa in Shiawassee County April 30, early for this species. (Kaiser).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Second-instar larvae infested tobacco in flue-cured tobacco belt of northern area. Infested 50+ percent of untreated plants. Infested 95 percent of some "Maryland" variety flue-cured tobacco near Quincy, Gadsden County. (Fla. Coop. Sur.). IDAHO - Collected from geranium plants imported from out-of-State. Geraniums severely damaged in greenhouse at Pocatello, Bannock County. (Sandvol).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - WISCONSIN - Winter survival in cornstalks in southern and western counties ranged 65-100 (averaged 88) percent. This compares with an 82 percent average for the 10 previous years. Definite potential for problems this season, particularly if there is a warmer than average spring and summer. (Wis. Ins. Sur.). NEBRASKA - Larvae collected from corn 25 miles south of Wood Lake in Cherry County October 6, 1973, by J. Wedberg. This is a new county record. (Keith).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MISSOURI - Light to moderate, 0-5 per plant, on early corn in southwest, south-central and west-central areas. (Munson). MARYLAND - Adults 1-10 per 100 plants in southern area and on Eastern Shore. Expected to increase next few weeks. (U. Md., Ent. Dept.).

CHINCH BUG (Blissus leucopterus leucopterus) - TEXAS - Damaging infestations on Milam County corn. (Cole).

SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - MONTANA - Almost destroyed 400 acres of winter wheat in Pondera County. (Pratt).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Rye checked in La Crosse and Waushara Counties showed 3 nymphs per 100 sweeps. In southern Sauk County, 1 of 3 per 100 caught was the winged form. (Wis. Ins. Sur.).

AN APHID (Rhopalosiphum padi) - CALIFORNIA¹ - Infested barley at Lemoore, Kings County. (Cal. Coop. Rpt.). KANSAS - Ranged 2-3 per 10 sweeps of heading wheat in Crawford County. (Bell).

BLACKFACED LEAFHOPPER (Graminella nigrifrons) - FLORIDA - Adults 30 per 100 sweeps of ripe oats at Gainesville, Alachua County. (Fla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Continued to damage wheat in Cimarron County; ranged 100-500 per linear foot. Most growers not treating fields due to continued dry weather. (Okla. Coop. Sur.). KANSAS - Heavy in some wheat fields in northwest district. (Bell).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, 3-31 per row foot, in small grain fields in Hardeman, Wilbarger, and Young Counties. Infestations ranged 30-100 per row foot in Baylor County. (Boring).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - UTAH - Some hatch at Logan, Cache County, by April 17. Adults active and heavy in some alfalfa fields for week ending April 26. Eggs currently numerous on Logan area alfalfa. Oviposition and plant growth at least 7 days ahead of 1973 conditions. Some spring eggs began hatch. (Davis). NEW MEXICO - Up to 2 adults per 25 sweeps collected from alfalfa at Ft. Sumner, De Baca County, and 0-1 larva per 25 sweeps at Belen, Valencia County. (N.M. Coop. Rpt.).

OKLAHOMA - Alfalfa weevil infested 10-70 percent of terminals in Muskogee County, and 20-60 percent in Wagoner County. Larvae averaged 30 per 10 sweeps in Jackson County. Declined rapidly in Payne and Stephens Counties. Light in Dewey County. (Okla. Coop. Sur.). KANSAS - Some damaging infestations in forage legumes reported as far north as Phillips and Washington Counties and as far north and west as Rawlins, Thomas, and Finney Counties. Damaging infestations common in northeast district up to Nebraska line. Larvae nearing economic populations in some earlier treated fields in the south-central district, in some fields in southeast and east-central districts, and in Pottawatomie County. Larvae mostly first and second instars in Wabaunsee, Shawnee, and Pottawatomie Counties. (Bell). NEBRASKA - Economic in almost all southeast area fields. Adults averaged 3.5 and larvae 213 per 20 sweeps in 3 Nemaha County fields. In Johnson County, adults averaged 4 and larvae 296.5 per 20 sweeps. Tips infested ranged 88-100 percent in Nemaha and Johnson Counties. (Keith et al.). In 24 Otoe County fields, adults averaged 14.5 and larvae 945 per 100 sweeps. Tips infested ranged 20-100 percent. Populations lighter but increasing in other areas. In Clay County, adults averaged 4.6 and larvae 14 per 20 sweeps in 3 fields. (Gary, Woolsey). Infested tips averaged 30 percent in 12 Thayer County fields. (Sefrna). Adults averaged 1.7 and larvae 18 per 100 sweeps in 4 fields in Antelope and Boone Counties. (Koinzan).

ARKANSAS - Alfalfa weevil ranged 300-1,000+ per 100 sweeps of alfalfa. Large percentage of larvae second instar. (Boyer). MISSOURI - Defoliated untreated fields in southern and central areas. Larvae ranged up to 900 and 1,000 per 100 stems. (Huggans). IOWA - Eggs averaged 9 per square foot in Lee County alfalfa fields. Oviposition has peaked. Increased in Lee County field; larvae averaged 3.5 per stem and tip feeding averaged 61 percent. More than 75 percent of larvae in first two instars. Larvae fewer, 1-8 per sweep, in south-central and southwestern counties. Damage to alfalfa 8-12 inches tall limited to southern third of State. (Iowa Ins. Sur.). MINNESOTA - First active adults of the season observed in southeast district. Averages ranged 3-4 per 100 sweeps of alfalfa. (Minn. Pest Rpt.).

WISCONSIN - First alfalfa weevil larvae of season swept from alfalfa. Mostly first and second instars. (Wis. Ins. Sur.). MICHIGAN - Hatched on April 29. Feeding damage apparent in some fields of 8 to 10-inch alfalfa in Cass County. (Sackrider, Ruppel). Eggs found April 30 in Shiawassee County. (Kaiser). Adults and a few grubs feeding on May 1 in Kalamazoo County. (Tesar). ILLINOIS - Tenfold increase, up to 120 per sweep, in untreated fields in Adams and Mason Counties. Counts of 100 per sweep on untreated alfalfa in Fayette County and 9 per sweep in a 10-day-old treatment of alfalfa

in Johnson County. Pupation widespread throughout southern half of State and new second-generation adults readily found throughout southern third. Potential for economic damage in southwestern half of State. (Ill. Ins. Rpt.). INDIANA - In 32 southern fields treated or untreated: Mean number of larvae per infested stem ranged 1.6-5.8, mean percent of infestation ranged 76-95 percent, and alfalfa height ranged 11.6-17.0 inches. Appeared on northern area alfalfa. (Hintz). OHIO - Larvae, mostly third instar, fed outside of tips in southwestern counties. Larvae, mostly first and second instars, fed within tips in north and west-central counties. (Fox).

KENTUCKY - Alfalfa weevil eggs averaged 44.9, 14.6, and 35.8 per square foot in various Fayette County alfalfa fields. Eggs averaged 42 per square foot at a Barren County location. (Barnett, Parr). TENNESSEE - Counts per 50 alfalfa tips checked in 4 counties ranged from 8 in Bradley County to 30 in Tipton County, and ranged from 2 larvae in Tipton County to 85 in Sumner County. (Gordon et al.).

VIRGINIA - For the week ending April 26, alfalfa weevil infested 68.7 percent of tips in 14 fields (118 acres); estimated defoliation averaged 22.1 percent. Larvae averaged 2.4 per tip. Above recommended treatment level in 71 percent of sampled fields or 68 percent of sampled acres. Infestation in King George County April 16 very light. Suspected predators and parasites observed. Currently infested 62 percent of tips in 15 fields sampled (122 acres); estimated defoliation averaged 29.1 percent. Larvae small and averaged 2.1 per tip. Above recommended treatment level in 67 percent of all sampled fields or 62 percent of all sampled acres. Damage continues economic in many areas. (Allen). MARYLAND - Oviposition well above normal in Washington, Frederick, and Carroll Counties. Slightly above 1973 levels, damage ranged 20-50 percent in several hundred acres in these same counties. Damage in other areas well below normal, 5-30 percent at most. (U. Md., Ent. Dept.).

PEA APHID (*Acyrtosiphon pisum*) - WASHINGTON - Ranged 100-150 per sweep on April 24 in alfalfa seed fields near Richland, Benton County. (Baird, Madsen). CALIFORNIA - Heavier on alfalfa than in recent years. Treatment still required in second and third cuttings. (Cal. Coop. Rpt.). NEVADA - Heavy; alfalfa stunted in several fields in Fish Lake Valley, Esmeralda County. Treatments planned. Other fields have adequate populations of predators and parasites. (Smith). NEW MEXICO - Counts per 25 sweeps by county: De Baca 15-20 at Ft. Sumner; Dona Ana 8-10 near Las Cruces. Predators active. (N.M. Coop. Rpt.).

OKLAHOMA - Pea aphid ranged 40-60 per 10 sweeps of alfalfa checked in Wagoner and Muskogee Counties. (Okla. Coop. Sur.). KANSAS - Increased rapidly in many south-central district forage legume fields treated earlier for alfalfa weevil. (Bell). MISSOURI - Counts in red clover in southwest and south-central areas ranged 6-250 per 10 sweeps. Heaviest in new seedings. (Munson). ARKANSAS - Parasitism appearing in northwest area legumes. (Boyer). FLORIDA - Total of 280 pea aphids collected in 100 sweeps of blooming and fruiting alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.). KENTUCKY - Increased on alfalfa in central

and southern areas; averaged 300 per 100 sweeps at one location. (Barnett). MICHIGAN - Pea aphid appearing in alfalfa. Heavier than normal due to warm weather. (Kaiser). WISCONSIN - Hatched on April 9 in Jefferson County. Reproduction began about April 26. Winged adults apparent in La Crosse and Marquette Counties by April 29. Parasitism, apparently by Praon sp., ranged 50-85 percent in west-central and central counties. Aphids ranged 0-20 (averaged 4) per 10 sweeps, heaviest in west-central and southeastern counties. (Wis. Ins. Sur.).

SUNFLOWER SPITTLEBUG (Clastoptera xanthocephala) - FLORIDA - Adults 56 in 100 sweeps of blooming and fruiting alfalfa at Gainesville, Alachua County, seasonal high at this location. (Fla. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - ILLINOIS - Spittle masses averaged 7 per square foot of alfalfa in Fayette County. (Ill. Ins. Rpt.). WISCONSIN - Hatched on dandelion by April 22 in western Dane County. (Wis. Ins. Sur.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Adults 142 and nymphs 47 in 100 sweeps of blooming and fruiting alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Live weevils trapped in sex-lure traps April 24 to May 1 in Autauga, Tuscaloosa, and Fayette Counties. (McQueen).

STARVED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Samples from Monroe, Lowndes, and Oktibbeha Counties indicate adults feeding on wild host Erigeron annuus. Up to 10 adults per 50 sweeps. (Robinson).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - OKLAHOMA - Adults active on home garden potatoes in Payne County. (Okla. Coop. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Eggs and young larvae beginning to appear in Harnett, Sampson, Carteret, Tyrrell, Pamlico, and Camden Counties. (Hunt).

SOUTHERN MOLE CRICKET (Scapteriscus acletus) - ALABAMA - Nymph and adults tunneling around potatoes in gardens in Houston County. (Stephens).

BEANS AND PEAS

POTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Adults heavy on bean foliage in Brazos and Burleson counties. (Green).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Adults and larvae infesting peas and beans in Mobile County. Controls applied. (Lockhart, Howell).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - In Walla Walla County week ending April 18, catches averaged 3.5 per sex attractant trap, twice as high as same period last year, suggesting heavy infestations soon for peas and legumes in eastern area. In Whatcom and Skagit Counties, first moths caught in pheromone traps week ending April 22, closely paralleling first occurrences in 1972 and 1973. Flights for northwestern area in 2 previous years peaked around May 21. (Halfhill et al.).

HAWAII INSECT REPORT

General Vegetables - Larvae of LEAFMINER FLIES (Liriomyza spp.) infested 10 percent or less of more than 2 acres of green onions at Waianae, Manoa, and Moiliili, Oahu; less than 3 mines per infested leaf. Damaged about 25 percent of older squash leaves at Waianae. Expect increased activity throughout summer. CARMINE SPIDER MITE (Tetranychus cinnabarinus) at Waianae averaged less than 10 nymphs and adults per square inch in 1.5 acres of eggplant and averaged more than 30 nymphs and adults per square inch in 0.25 acre of squash. Increased damage expected this summer. Adults of THREELINED POTATO BEETLE (Lema trilineata) averaged about 30 per plant in 0.5 acre of eggplant and less than 1 per plant in 0.25 acre of bell peppers at Waianae. BEET ARMYWORM (Spodoptera exigua) damaged an estimated 25 percent of green onion leaves in 50-square-yard planting at Manoa. (Mau).

Forest and Shade Trees - Averages of 28 larvae of a NOCTUID MOTH (Ascalapha odorata), 9 larvae of another NOCTUID MOTH (Melipotis indomita), and 48 larvae of MONKEYPOD MOTH (Polydesma umbricola) found in survey of 8 monkeypod trees at Manoa. All trees in area have new flush growth. M. indomita expected to increase on monkeypod during May and June. (Lai, Mau). KOU LEAFWORM (Ethmia nigroapicella) damage moderate to heavy on Cordia subcordata (kou) in a nursery at Kihei, Maui. Damage noticeable on younger foliage of large trees. (Miyahira).

Beneficial Insects - Parasitism of Erionota thrax (banana skipper) by an ENCYRTID WASP (Ooencyrtus erionotae) increased at Honouliuli, Oahu, in a banana planting. Parasitized 100 percent of egg clusters for April (90.4 percent for March). Parasitized 78.6 percent of eggs for April (60.9 percent for March). Initial release of O. erionotae at Honouliuli made on November 28, 1973; second and last release of 150 adults on December 21. (Kumashiro, Murai). Eggs of a TACHINA FLY (Trichopoda pennipes) found on 42 percent of 38 adults of Nezara viridula (southern green stink bug) collected on 12 square yards of broccoli. (Mau).

DECIDUOUS FRUITS AND NUTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - INDIANA - Webs about 4 inches across as far north as Starke County. (Hintz). WISCONSIN - Webbing 4 inches across observed on ornamental crab-apple in northern Dane County on April 29. (Wis. Ins. Sur.). MISSOURI - Light throughout the southern areas. Found on wild cherry, plum, peach, and cherry trees. (Munson). OKLAHOMA - Still active on wild plum and various fruit trees in moderate numbers in much of eastern half of State. (Okla. Coop. Sur.).

WESTERN TENT CATERPILLAR (Malacosoma californicum) - NEVADA - Larvae half grown, tents 0-4 per desert peach plant (Prunus andersonii) in southern Washoe County. (Nev. Coop. Rpt.).

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - Adult male caught in sex pheromone trap April 23. This is first Upper Yakima Valley record at Yakima, Yakima County. (Johnson). NEW MEXICO - Catches in sex lure trap per night: 1-2 males in Dona Ana County, and 30-40 at La Luz, Otero County, and Bernalillo, Sandoval County. (N. M. Coop. Rpt.).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - MICHIGAN - Adult flight peaked week ending April 26 in southwest area, pheromone trap catches averaged 75 males per trap per week in Grand Rapids. First larva taken May 2 by T. Sutton in southwest area. (Sauer).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Larvae reported leaving pecan terminals to pupate in Carter, Love, and Cotton Counties. (Okla. Coop. Sur.). TEXAS - Emergence began at Seguin, Guadalupe County; 15 of 62 (24 percent) pupae collected emerged before April 24. Additional 16 (26 percent) emerged to date. (Green).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - First egg cluster of season observed May 2 on pecan leaves in Bullock County. (Stone, Strother).

ROSY APPLE APHID (Dysaphis plantaginea) - MARYLAND - Population light but leaf curl evident in several apple orchards near Hancock, Washington County. (U. Md., Ent. Dept.). MICHIGAN - Nymphs migrating to fruit buds in southwest area. (Tatter).

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - Adult activity increased statewide past 2 weeks. Hatch reported April 29 in southwest area. (Tatter).

PECAN PHYLLOXERA (Phylloxera devastatrix) - MISSISSIPPI - Heavily infested several 15-year-old Mahan pecan trees in Washington County. Infested 60-70 percent of new twigs. (Worley).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Egg hatch noted May 2 in Hampshire, Middlesex, and Worcester Counties. (Costante, Jensen). NEW JERSEY - Overwintering egg hatch on Red Delicious apple trees in southern counties noted April 29. (Ins.-Dis. Newsltr.).

PEAR RUST MITE (Epitrimerus pyri) - WASHINGTON - Heavy populations observed at base of florets of pears at petal fall at Prosser, Benton County, April 24. (Tree Fruits Pest Mgt.). CALIFORNIA - Mites active in some Sacramento Valley pear orchards in Sacramento County. Scarring of young fruit beginning. Becoming more serious than in past years. (Cal. Coop. Rpt.).

SMALL FRUITS

STRAWBERRY WEEVIL (Anthonomus signatus) - MICHIGAN - Beetles have begun clipping damage in southwest area. (Howitt). Expected to be a serious problem again. (Sauer).

ORNAMENTALS

COTTONY CUSHION SCALE (Icerya purchasi) - VIRGINIA - Numerous adults, and second and third instar nymphs infested one Pittosporum plant at West Point, King William County, April 18. This is first confirmed overwintered population detected in State. Collected by R. McCartney. Determined by P. Lambdin. (Allen).

BOXWOOD PSYLLID (Psylla buxi) - OREGON - Heavy on dogwood in Salem area, Maricopa County, parks. (Long).

FOREST AND SHADE TREES

SPRUCE NEEDLEMINER (Taniva albolineana) - OHIO - Heavy on Norway spruce in Carroll County. Last instar larvae and pupae common; oviposition expected mid-May to mid-June. Damaging infestations expected statewide in sizeable spruce plantings, especially spruce with compact foliage. (Balderston).

SPRUCE BUDWORM (Choristoneura fumiferana) - IDAHO - Empty pupal cases collected from blue spruce on farm near Aberdeen, Bingham County, April 29. Killed several trees. (Sandvol).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Larval survival on pine trees checked on lake shore 70 percent in Sheboygan County and 30 percent in Manitowoc County. (Wis. Ins. Sur.).

AN ANOBIID BEETLE (Ernobius opicus) - MARYLAND - Taken in black-light traps in Anne Arundel and Baltimore Counties from May through July during years 1968 through 1973. Collected and determined by E. J. Ford, Jr. This is a new State record. Previously reported only from Michigan and Massachusetts. (Ford).

WHITE PINE WEEVIL (Pissodes strobi) - PENNSYLVANIA - Damaged blue spruce (4-6 feet tall) in 20-acre field of Christmas trees in Forest County April 29. (Wallace).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - PENNSYLVANIA - Adults and eggs observed on Douglas-fir in Boalsburg, Centre County, April 22. Oviposition noted at 70 percent. Infestation heavy; needles from past two years injured. (Adams). - IDAHO - Spring populations increased on many fir species at Moscow, Latah County, and Lewiston, Nez Perce County. (Portman, Saxton).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - NEW JERSEY - Larvae common in Somerset and Middlesex Counties on Scotch and Austrian

lines. (Ins.-Dis. Newsltr.). MICHIGAN - Hatch began in Livingston and Ingham Counties. (Mosher).

BRONZE BIRCH BORER (Agrilus anxius) - WISCONSIN - Very damaging to some birch trees in Dodge and Waukesha Counties. Killed 25 percent of birch trees in Beaver Dam. (Wis. Ins. Sur.).

ELM LEAF BEETLE (Pyrrhalta luteola) - CALIFORNIA - Adults emerged from hibernation and fed on tender new foliage of elm. Many terminals nearly destroyed with 2-25 adults feeding. Current damage much earlier than normal. (Cal. Coop. Rpt.). IDAHO - Found on elm shoots growing from ground at Parma, Canyon County. Leaves very ragged. (Scott).

CYNIPID WASP (Callirhytis furva) - PENNSYLVANIA - Galls found on one ornamental pin oak in Lansdowne Township, Delaware County, on September 12, 1973. Determined by A.S. Menke. (Langford). This is a new State record.

BROWNHEADED ASH SAWFLY (Tomostethus multicinctus) - KANSAS - Young larvae caused noticeable foliar injury on ash at Garden City, Finney County. (Bell).

DOXELDER PSYLLID (Psylla negundinis) - MARYLAND - Collected in blacklight trap in Baltimore County June 3, 1973, by E.J. Ford, Jr. Determined by L.M. Russell. This is a new county record. (Ford). For first State record see CEIR 18(38):905. (PPQ).

HUMAN AND ANIMALS

CREW WORM (Cochliomyia hominivorax) - Total of 52 cases reported from continental U.S. during period April 21-27 as follows: Texas 10, Arizona 2. Total of 168 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 123,058,800 as follows: Texas 102,493,800; Arizona 20,205,000; California 60,000. Total of 96,952,200 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 1.04 per animal in backs of 80 Holstein dairy cows of various ages in Fayette County. (Barnett).

CORN FLY (Haematobia irritans) - MISSISSIPPI - Averaged 150+ on beef cattle in Monroe, Lee, Chickasaw, and Oktibbeha Counties. (Robinson). IOWA - Ranged 0-50 per head on pastured cattle in Decatur, Clarke, and Monroe Counties. (Iowa Ins. Sur.).

OKLAHOMA - Ranged 150-300 per head on cattle checked in several southwest counties. Averaged 100 per head in Payne County. Moderate in Noble County. (Okla. Coop. Sur.). NEBRASKA - Average 25 per animal in Lincoln, Logan, and McPherson Counties. (Campbell).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Averaged less than 1 per face on beef cattle in Monroe County. (Robinson). KENTUCKY - Sight over most of State. (Barnett). WISCONSIN - Appeared in southwest area. Up to 6 per animal noted on one beef cattle herd. Mild winter may have favored overwintering success. (Wis. Ins. Sur.). NEBRASKA - Averaged 4 per face on cattle in river or irrigated pastures in Lincoln and Keith Counties. (Campbell).

MOSQUITOES - KENTUCKY - Various species were problem in Hopkins County. (Gayle). OHIO - About 4,500 Aedes canadensis larvae (late instar and pupae) taken in 9 dip collections in Summit County woodlot. Adult emergence expected soon. (Ohio Dept. Health). NEVADA - Aedes dorsalis and A. nigromaculis larvae light in Sparks and Stead areas, Washoe County. (Alcorn).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy numbers reported on cattle in Vian area, Sequoyah County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - IOWA - First of season reported swarming in Cherokee County April 30. (Iowa Ins. Sur.).

BENEFICIAL INSECTS

A BRACONID WASP (Microgaster schizurae) - PENNSYLVANIA - Two adults reared from a Heterocampa manteo (variable oakleaf caterpillar) collected at Colonel Denning State Park in Perry County in September 1973. Determined by P.M. Marsh. This is a new State record. (Kim).

AN ICHNEUMON WASP (Bathyplectes curculionis) - INDIANA - Reared from a larva of Hypera postica (alfalfa weevil) collected April 19 in Warrick County by R. Meyer. This is a new county record. (Meyer). IOWA - Adults ranged 1-2 per 10 sweeps in Clarke, Decatur, Lucas, Monroe, and Wayne Counties. (Iowa Ins. Sur.).

LADY BEETLES - OHIO - Coleomegilla maculata adults averaged one per five sweeps in an Auglaize County field of alfalfa, red clover, and timothy. Mating noted throughout central and western area. (Fox). WASHINGTON - Coccinella transversoguttata (transverse lady beetle) adults fed on Myzus persicae (green peach aphid) in peach trees at Donald, Yakima County, April 26. (Tree Fruit Pest Mgt.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - PENNSYLVANIA - Adults by county: Indiana 5 per 50 sweeps in 3 wheat fields, Centre from 7 per 50 sweeps to 4 per 250 sweeps on April 25, and Indiana 14 per 50 sweeps of wheat on April 30. (Pealer et al.). WEST VIRGINIA Eggs averaged 14 per square foot in winter wheat and 26 per square foot in spring oats in Pleasants County. Few first instar larvae present and all oats had light adult feeding signs. (Tustin). INDIANA - About 1 adult per 100 sweeps taken from grass in alfalfa field margins. (Hintz).

A GRASS BUG (Labops hesperius) - NEW MEXICO - Populations near Canjilon continue to damage stressed wheatgrass. Other populations in Rio Arriba County reported from north of Cuba. (N.M. Coop. Rpt.).

GRASSHOPPERS - OREGON - First instar nymphs of Oedaleonotus enigma noted on rangelands in Hermiston area, Umatilla County;

hatch underway. (Goeden). NORTH DAKOTA - Egg development of unspecified species in Morton, Grant, Hettinger, Slope, and Kidder Counties as follows: One percent clear, 7 percent coagulated, 67 percent eye spot, and 23 percent segmented. About two percent of eggs desiccated. (Brandvik).

GYPSY MOTH (Porthetria dispar) - MASSACHUSETTS - Hatch noted in Hampshire County April 29. (Rose). RHODE ISLAND - First larvae observed April 30, still on or near egg masses in Washington County. (Field). CONNECTICUT - Overwintering eggs observed hatching April 26 on building at Storrs, Tolland County. Ballooning expected next 14-21 days. Treatment not advised due to high probability of reinfestation by migrant larvae. (Kersting). PENNSYLVANIA - Hatch observed April 30 near Tower City, Schuylkill County, on oaks. Hatch of 80-90 percent noted by April 30 on ridges south of Woodward, Centre County. (Cameron). DELAWARE - Early instar larvae noted on oaks in New Castle County. Eggs hatched April 22. (Burbutis). MARYLAND - First larval hatch reported near Conowingo Dam, Cecil County, April 23. (U. Md., Ent. Dept.). MICHIGAN - Hatch began May 1 in Mecosta and Isabella Counties. (Sauer).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae infesting 20-acre field of corn following peanuts of 1973 at one per stalk in Houston County. (Bond, Roney).

DETECTION

New State Records - AN ANOBIID BEETLE (Ernobius opicus) - MARYLAND - Anne Arundel and Baltimore Counties. (p. 326). A BRACONID WASP (Microgaster schizurae) - PENNSYLVANIA - Perry County. (p. 328). A CYNIPID WASP (Callirhytis furva) - PENNSYLVANIA - Delaware County. (p. 327).

New County Records - BOXELDER PSYLLID (Psylla negundinis) MARYLAND - Baltimore (p.327). EUROPEAN CORN BORER (Ostrinia nubilalis) NEBRASKA - Cherry (p.320). AN ICHNEUMON WASP (Bathyplectes curculionis) INDIANA - Warrick (p. 328).

Periodical Cicadas - Outlook for 1974

Brood XIV of periodical cicadas (17-year race) is scheduled to appear this year in Illinois, Indiana, Ohio, Pennsylvania, New York (Long Island), Massachusetts (Cape Cod), Maryland, West Virginia, Kentucky, Virginia, North Carolina, Tennessee, Georgia, and Alabama. Cicadas should appear suddenly in late May, and for 6 weeks will fill the countryside with their remarkable song, mate, lay eggs in twigs, and pass away as suddenly as they appeared.

Brood XXI, the 13-year race of periodical cicadas, is also scheduled to appear at scattered locations in Mississippi, Alabama, southern Tennessee and western Florida. This brood has not been collected in recent years and is thought by some entomologists to be nonexistent. This gives anyone in the areas indicated on the map on the next page the opportunity to contribute to the knowledge of this brood.

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

For maps on occurrences of Broods XIV and XXI, see following page.

Table of Coincidence of Broods of Periodical Cicadas

Table of Coincidence of Broods of Periodical Cicada

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

Periodical Cicadas

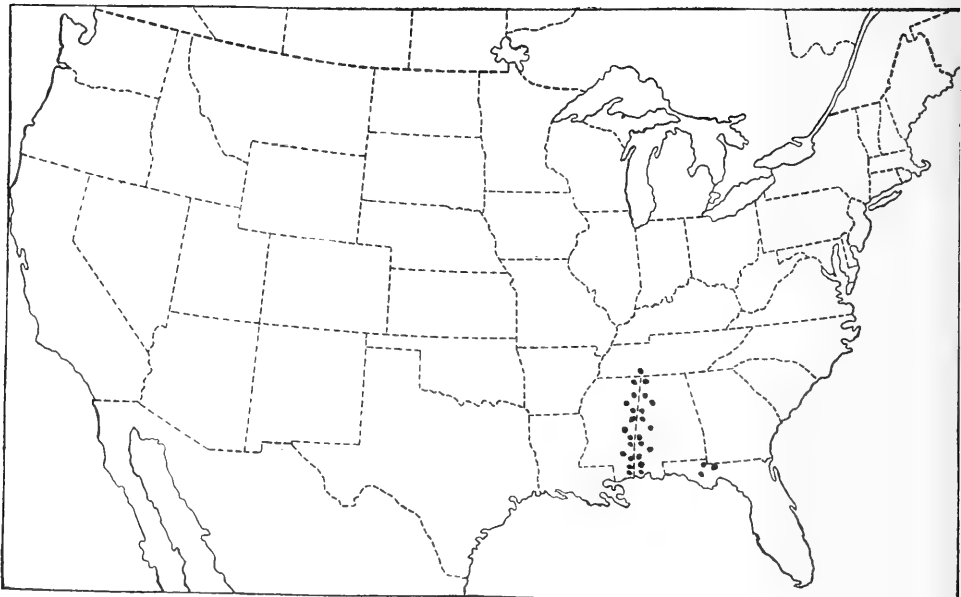
Brood XIV

17-year race



Brood XXI

13-year race



Prepared by Pest Survey
and Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(19):331-332, 1974

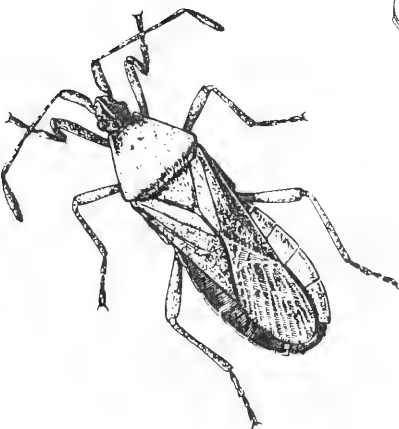
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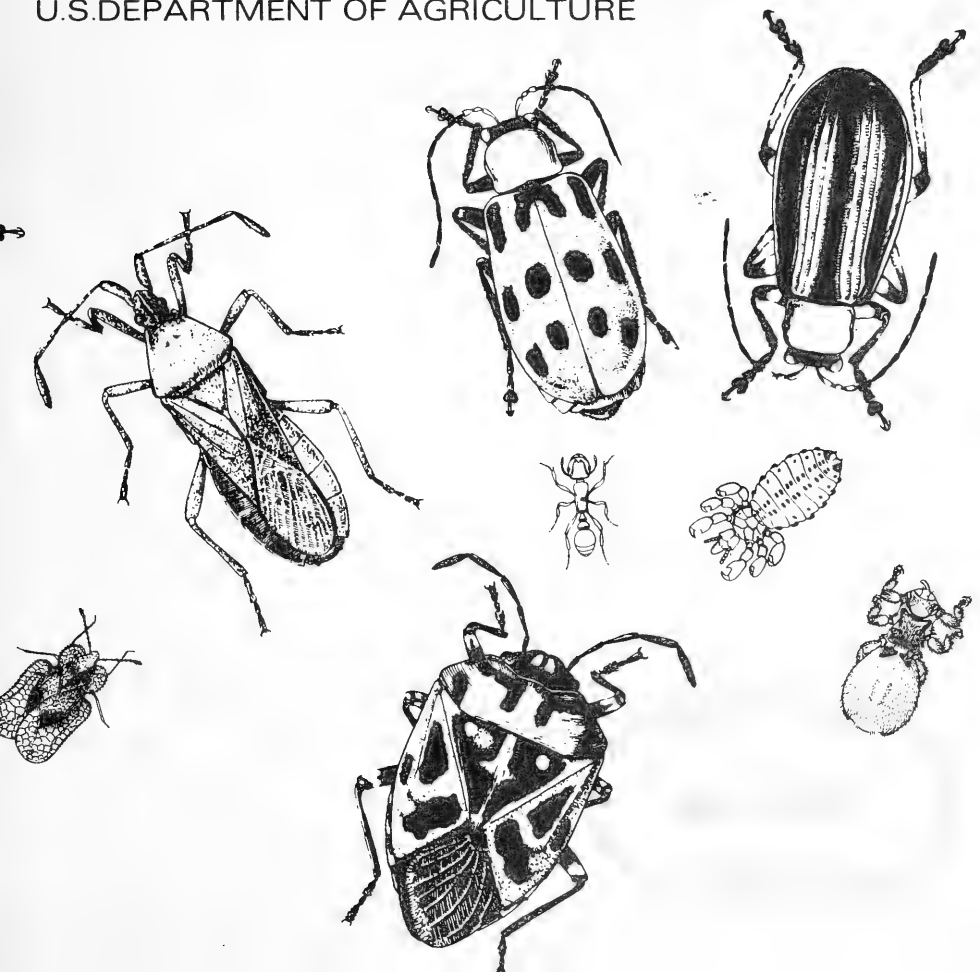
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Cooperative Economic Insect Report

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

CEIR

Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM damage in southeastern States. (p. 335).

First CORN EARWORM damage to corn. (p. 335).

LESSER CORNSTALK BORER reducing stands of corn in Florida. (p. 336).

ALFALFA WEEVIL economic in central U.S. (pp. 338-339).

BOLL WEEVIL appearing in southern area. (pp. 340-341).

GREENHOUSE WHITEFLY spotty on citrus in California. (p. 344).

Outbreaks of SPRING and FALL CANKERWORMS in South Dakota. (p. 344).

First emergence of PERIODICAL CICADA. (p. 345).

Detection

New State record for an ICHNEUMON WASP in Kansas. (p. 347).

For new county records see page 342.

Special Reports

Summary of Insect Conditions in the United States - 1973

Forest Insect Highlights (pp. 352-354).

Contributors (pp. 355-356).

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WEATHER OF THE WEEK ENDING MAY 13

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

HIGHLIGHTS: Rain drenched most of the Nation east of the Rockies last week with amounts over 2.50 inches reported in Texas, northern Florida, southeastern Georgia, and the northeastern States. While the trans pecos area of Texas got 0.80 inches of much needed precipitation last week, most of southwestern States remained dry. Unusually cool temperatures settled over New England and the Great Lakes areas. Temperatures averaged 11 below normal at La Crosse, Wisconsin, and Dubuque, Iowa, and 8 below normal at Scranton, Pennsylvania. In the southwestern States temperatures soared as much as 9 degrees above normal for the week.

PRECIPITATION: Thunderstorms and scattered showers dumped more than 2 inches of rain in sections of Nebraska, Kansas, Iowa, Missouri, and Arkansas. Over 3 inches of rain was reported in many sections of southeastern Texas, Savannah, Georgia, Tallahassee, and Apalachicola, Florida. Other soggy areas included Akron, Ohio with 2.46 inches, Syracuse, New York with 2.49 inches, and Erie, Pennsylvania with 2.82 inches. Early in the week a front slowly drifted across the gulf coast causing scattered showers from Louisiana into northern Florida. A Low pressure area centered in the lower Great Lakes basin produced rain from the eastern half of the Great Lakes into parts of the Northeast. Midweek, evening thunderstorms were numerous from eastern Michigan and western New York into the northern portions of Alabama, Mississippi, and Arkansas. Thursday scattered showers and thundershowers spread over much of the Nation's eastern two-thirds.

Weather of the week continued on page 351.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - First-generation adults flying in Barton and Greeley Counties. (Bell). WYOMING - Four per row foot on winter wheat in Campbell County and 2 per square foot on alfalfa in same area for week ending May 3. (Crosby). MONTANA - Destroyed several hundred acres of winter wheat in Broadwater County. (Pratt).

ARMYWORM (Pseudaletia unipuncta) - KANSAS - Third instar averaged 4 per 100 sweeps of headed wheat in Crawford County. (Bell). OKLAHOMA - Scattered light infestations on wheat checked in Hughes, Garvin, Stephens, Grady, and Caddo Counties. Highest count was 24 per 100 sweeps in Grady County. (Okla. Coop. Sur.). ARKANSAS - Infestations developed on wheat and oats in most east-central and northeast areas. Southern edge of infestations appear to be in Grand Prairie area, Arkansas County. Larvae present in large percentage of fields in infested areas. At treatment level in 15-20 percent of the fields. Heaviest infestation noted at 50 larvae per square foot in one east-central field. (Boyer). MISSOURI - Larvae ranged 4-5 per square foot in all wheat checked in Portageville area, Wyoming County. Larvae mostly second and third instar. (Jones). TENNESSEE - Damaged grains, pastures, and lawn grasses in Lake and Dyer Counties. (Mullett). NORTH CAROLINA - Damage in coastal counties continued. About 5,000 acres of wheat treated to date with plans for 1,000 more to be treated in Pamlico County. Scattered infestations reported from Beaufort and Pasquotank Counties. Infestations concentrated in wheat with light damage to oats and barley. (Ogle et al.). VIRGINIA - First report of small grain damage in Independent City of Virginia Beach on May 6. (Cockrell).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Spraying continued this week in Kern County with an additional 20,192 acres sprayed bringing the campaign total to 68,252 acres sprayed. Many beet leafhoppers have moved to crop land with counts as high as 9 per 10 sweeps on sugar beets in Buttonwillow area, Kern County. Some still remain in Belridge and Lokern areas and spraying will continue. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - OKLAHOMA - First larvae of season on alfalfa in Garvin and Grady Counties. (Okla. Coop. Sur.). KANSAS - First moth of season in Finney County blacklight trap. (Bell). ALABAMA - Early instar to almost full-grown larvae feeding in 50-acre Houston County cornfield. First report of larvae in corn. (Mathews).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Decreased significantly over south-central area in grain sorghum. Lady beetles and lacewing adults heavy in most fields. Increase indicated in some fields in Bell, Coryell, and Falls Counties. (Cole, Hoelscher). KANSAS - Light in heading wheat in Labette and Cherokee Counties, in whorls of volunteer sorghum in Chase County, and in seedling sorghum in Montgomery and Wilson Counties. (Bell).

GREENBUG (Schizaphis graminum) - TEXAS - Decreased in sorghum in Stephenville area, Erath County, during past 10 days. Isolated small colonies noted in Bell County. Beneficial insects in all fields examined. S. graminum light in Hill County. (Hoelscher, Buxkemper). Less than 5 per row foot on small grains in Archer, Baylor, Hardeman, Wilbarger, and Young Counties. (Boring). OKLAHOMA - Moderate on young sorghum in Love County. (Okla. Coop. Sur.). COLORADO - Damaged some wheat in Kit Carson County. (Pilcher).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Ranged 0-50 per 100 sweeps in most central area fields. (Ill. Ins. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Infestations increased on alfalfa in Bonita area and Steward District, Cochise County. (Ariz. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Stand loss ranged 20-30 percent in 800-acre planting of field and sweet corn at Lake Yale near Umatilla, Lake County, during early May; unfavorable weather a big factor. Destroyed 25 percent of stand in 45-acre planting of seedling corn at Lake Butler, Union County. (Cowan). Heavily damaged corn seedlings in 96-acre planting at Gainesville, Alachua County; 48 acres of this planting had been destroyed and 30 acres replanted to sorghum; then 15 acres of the sorghum was destroyed by May 8. Destroyed 55 acres of corn (30 percent of stand already destroyed) at Madison, Madison County. (Fla. Coop. Sur.). ALABAMA - Late instar larvae damaged some corn in Geneva and Dallas Counties. (Reynold, Hoomes).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Pupation at 72 percent in Massac County corn May 6. (Ill. Ins. Rpt.). DELAWARE - Pupation averaged about 60 percent; first adults collected in blacklight trap in Sussex County April 29. First fresh egg mass found May 7 on dock in western Sussex County. (Burbutis).

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Larvae and adults very heavy on field corn at Hastings, St. Johns County; heavy population forcing farmers to use control sprays. (Fla. Coop. Sur.).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Adults light in pheromone traps at Hastings, St. Johns County. (Fla. Coop. Sur.). ALABAMA - First larvae of season along with Heliothis zea (corn earworm) damaged 50-acre Houston County cornfield. Numerous egg masses and 3 age groups present. (Mathews).

BLACK CUTWORM (Agrotis ipsilon) - MISSOURI - Moderate to heavy in central area. In Cole County, 20+ acres replanted in one field. All larval stages present. (Munson).

STALK BORER (Papaipema nebris) - SOUTH CAROLINA - Specimen sent in from corn in Georgetown County by H.B. Hardee. Determined by C.A. Thomas. This is a new county record. (McCaskill).

CORN FLEA BEETLE (Chaetocnema pulicaria) - KANSAS - Damaged seedling corn in southeast district, especially in Bourbon, Allen, and Crawford Counties; treatments applied. Counts ranged 4-5 per plant in this area. Significant infestations noted in corn as far north as Franklin County. (Bell). NEBRASKA - Ranged 5-20 per plant. Damaged seedling corn in variety nursery at Lincoln, Lancaster County. (Keith).

A BILLBUG (Sphenophorus callosus) - SOUTH CAROLINA - Moderate; damaged corn in Barnwell, Orangeburg, and Chesterfield Counties. (Thomas).

MAIZE BILLBUG (Sphenophorus maidis) - SOUTH CAROLINA - Light on corn in Pee Dee section, Georgetown County. Determined by C.A. Thomas. This is a new county record. (McCaskill).

A WIREWORM (Melanotus communis) - FLORIDA - Stand loss ranged 20-40 percent in 2,200 acres of sweet and field corn at Oklawaha, Marion County, first week of May. (Fla. Coop. Sur.).

SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - MONTANA - Destroyed 180 acres of winter wheat north of Fort Benton, Chouteau County. (Pratt).

WHEAT HEAD ARMYWORM (Faronta diffusa) - OKLAHOMA - Light, up to 22 per 10 sweeps, in most wheat fields checked in Hughes, Garvin, Stephens, Grady, and Caddo Counties. (Okla. Coop. Sur.).

STALK BORER (Papaipema nebris) - SOUTH CAROLINA - Infested wheat in Clarendon and Sumter Counties. This is first record on wheat in State. (Thomas). Both counties are new county records. (McCaskill).

WHEAT STEM MAGGOT (Meromyza americana) - OKLAHOMA - Light numbers of "whiteheads" found in all 10 wheat fields checked in Hughes, Garvin, Stephens, Grady, Caddo, and Washita Counties. Averaged less than 1 percent of stems infested in all fields. Most fields showed "whiteheads" caused by root rot. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light, up to 12 per 10 sweeps, on wheat heads in scattered south-central, central, and west-central area fields. (Okla. Coop. Sur.). KANSAS - Averaged 25 per 10 sweeps of heading wheat in Wabaunsee County and 4 per 10 sweeps in Crawford County. (Bell). ARKANSAS - Infested wheat heads near Hughes, St. Francis County. (Boyer). TENNESSEE - Clusters on wheat heads in Macon and Sumner Counties. Infestations confined to spots within fields. Damage minor. (Gordon). WISCONSIN - Ranged 3-6 per 100 sweeps throughout State except one southern Sauk County site where specimens averaged 22 per 100 sweeps. Few if any winged forms present. (Wis. Ins. Sur.).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Moderate on wheat heads in scattered south-central, central, and west-central area fields. (Okla. Coop. Sur.). KANSAS - Trace in Wabaunsee County wheat. (Bell).

BROWN WHEAT MITE (Petrobia latens) - ARIZONA - Infestations treated in several barley and wheat fields at Sulfur Springs Valley, Cochise County. (Ariz. Coop. Sur.). MONTANA - Damaging numbers on wheat at Brady and Conrad, Pondera County, Big Sandy and Fort Benton, Chouteau County. (Pratt).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus leucopterus) - MASSACHUSETTS - Many complaints of damage to turf in eastern area. (Garland).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Adults 0.2-0.5 per sweep; young larvae 0.5-2 per sweep in alfalfa seed fields near Touchet (greatest numbers along south edge of area and in adjacent Oregon), Walla Walla County. (Alfalfa Seed Pest Mgt.). NEVADA - Larvae averaged 5 per sweep at Fallon, Churchill County. (Blalock, Hilbig). UTAH - Adults averaged one per sweep in general Logan, Cache County, area and 4 per 10 sweeps near Mendon. Larvae mostly first and second instars. (Davis). COLORADO - Larvae ranged 2-3 per sweep in Yuma County and 10 per sweep in Kit Carson County. (Pilcher, Hantsbarger). NEW MEXICO - Adults 0-3 and larvae 50-75 per 25 sweeps recovered in alfalfa in Los Lunas area, Valencia County; leaf damage noted. (N.M. Coop. Rpt.).

OKLAHOMA - Alfalfa weevil infested 40-50 percent of terminals in Beaver County. Larvae averaged 100 per 10 sweeps in Texas County. Fields in panhandle counties treated. Larvae 30-40 per 10 sweeps in Harper County; fields treated for second time. Heavy on alfalfa being cut in Grant County. Larvae 10-30 per 10 sweeps in Jackson and Greer Counties, larvae 15 and adults 10 per 10 sweeps in Custer, Washita, and Caddo Counties, and larvae 2-8 and adults 2-4 per 10 sweeps in Hughes, Garvin, Stephens, and Grady Counties. (Okla. Coop. Sur.).

KANSAS - Alfalfa weevil still a serious alfalfa pest in eastern two-thirds of State; damaging infestations increased in western area. Damaging infestations noted for first time in Logan and Wallace Counties. Cutting about half complete in southeast, east-central, and south-central districts south of U.S. Highway 50; some cutting noted as far north as Cloud County. Stubble in counties south and east of Yates Center, Woodson County, contained heavy first-generation adults and pupae but few larvae. Larvae heavy on regrowth in some cut fields in Cowley County and in south-central district. First-generation adults ranged 5-6 per sweep. Larvae often heavy in uncut southeast and south-central districts, especially in fields untreated or not treated recently. First and second instars predominant. Larvae averaged 10.2 per terminal in one Butler County field of 15-inch alfalfa. Mostly first and second instars. Infestations in Wabaunsee and Pottawatomie Counties stabilized over past 14 days. Top browning of most fields in Brown, Nemaha, Marshall, and Washington Counties and in about half of fields in Republic and Jewell Counties. Larvae averaged 260 per sweep, 60 percent foliar loss, in one Cloud County field of 15-inch alfalfa. (Bell).

NEBRASKA - Alfalfa weevil heaviest in counties along southern border of State; fields damaged from Richardson to Dundy County. Many fields treated or cut early. Larvae 480 per 100 sweeps in east district. Southeast district counts: Larval averages from 720 per 100 sweeps to 3,219.3 per 20 sweeps, adult averages from 2 to 13.5 per 20 sweeps, and infested tips ranged 15-100 percent. South district counts: Larvae 2,790 per 20 sweeps in one field and averaged 202.5 per 20 sweeps in another sample, and infested tips ranged 25-100 percent. Central district counts: Adults averaged 17 per 100 sweeps, larval averages ranged from 6 per 50 sweeps to 570 per 100 sweeps, and infested tips ranged 14-94 percent. North district counts: Larval averages ranged 3-20 per 50 sweeps. (Campbell et al.).

MISSOURI - Heavy alfalfa weevil larval population defoliated alfalfa in northern area. Larval counts noted at 641,933 and 1,183 per 100 plants in northeast area. Pupation underway in southern and central areas and has begun in northern area. (Munson). IOWA - Damage increased on southern area alfalfa. Treatments applied in Lee and Fremont Counties. Larvae ranged 2-10 per sweep with light tip feeding in Warren County. (DeWitt). WISCONSIN - Adult and larval activity increased significantly week ending May 3 but has decreased since. Larvae light in all fields as far north as Wood County. Heaviest near Mazomanie, Dane County, where 6 larvae per 50 sweeps observed. Mostly first or second instars. Adults did not exceed one per 50 sweeps in any field. (Wis. Ins. Sur.). ILLINOIS - Economic, 20 or more per sweep, on alfalfa as far north as Mercer County in the west, Marshall in the central, and Douglas in the east. Economic infestations treated south of these counties. (Ill. Ins. Rpt.). INDIANA - Mostly first or second instar larvae. Northwest area counts by May 3: Larvae averaged 1.3 per plant, infested 17 percent of plants, and alfalfa averaged 11.1 inches. Southeast area by May 9: Larvae averaged 5.7 per stem, fields averaged 92.8 percent infested, and alfalfa averaged 15 inches. East-central area: Larvae averaged 2.3 per stem. Central area: Larvae averaged 4.1 per stem. (Ballard, Meyer).

KENTUCKY - Averages of alfalfa weevil eggs ranged 16.2-45.0 per square foot. (Barnett, Parr). TENNESSEE - Average of 78 larvae infested 33 of 50 tips, damaged 48 percent, in Sumner County. Average of 3 larvae infested 3 of 50 tips, damaged 17 percent, in Tipton County. Few alfalfa fields cut for hay. (Gordon). VIRGINIA - Infested 52.6 percent of tips in 13 alfalfa fields (90 acres); estimated defoliation averaged 32 percent. Larvae one-eighth to three-eighths inch long and averaged 1.1 per tip. Above recommended treatment level in 54 percent of sampled fields or 57 percent of sampled acres. Damage continues economic in many fields. (Allen).

OHIO - Damaging infestations of alfalfa weevil still uncommon in counties north of Interstate 70. Adult averages ranged 10-25 per 50 sweeps; larval averages ranged 14-40 per 50 sweeps. (Fox). A Franklin County alfalfa field had 70-90 percent terminal feeding, late instar larvae, and pupae. (Dowell). Cold, wet weather kept larval development and feeding injury to a minimum. (Fox). NEW JERSEY - Ten larvae per sweep collected in field near Vincentown, Burlington County, May 2; strong possibility chemical control will be needed before first cutting. Alfalfa growth in most fields appears well ahead of larval feeding; controls should be unnecessary. Many parasites observed in several Salem County fields May 8. Larval

populations bear watching in Hunterdon County. (Ins.-Dis. Newsltr.).
NEW YORK - Alfalfa weevil eggs averaged 6.2 per 0.25-square-foot sample in 4-inch tall prebud alfalfa field in Tompkins County. (Cooley).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IOWA - Adults severely damaged new seeding of sweet clover in Story County. (DeWitt).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Larvae in several southeastern forage fields; slight damage noted. More common than usual in southeastern fields with an alfalfa and clover combination. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - This pest and Macrosiphum creelii, with 10 percent pink forms, averaged 6 per sweep in alfalfa seed fields near Touchet, Walla Walla County. (Alfalfa Seed Pest Mgt.). NEVADA - Pea aphid continued heavy in several alfalfa fields in Smith Valley, Lyon County. Treatments ineffective. (Quilici). UTAH - In second and third generation on Logan and Hyrum, Cache County, alfalfa and at Honeyville, Box Elder County. (Knowlton). Averaged 100-150 per 25 sweeps in Logan and north Logan area, Cache County. (Davis). NEW MEXICO - Counts per 10 sweeps of alfalfa: 0-5 in Valencia County, 2-20 in Eddy and Chaves Counties, and up to 40 in Dona Ana County. (N.M. Coop. Rpt.).

OKLAHOMA - Pea aphid averaged 300 per 10 sweeps of alfalfa checked in Garvin County. Ranged 45-185 per 10 sweeps in Hughes, Stephens, and Grady Counties. Light in Custer, Caddo, and Washita Counties. (Okla. Coop. Sur.). NEBRASKA - Averaged 1 per sweep of alfalfa in Custer, Blaine, Loup, Garfield and Valley Counties. Averaged 212.5 per 100 sweeps in Seward County. (Campbell, Roselle). MISSOURI - Ranged 140-600 per 10 sweeps on northeast area red clover. (Munson).

OHIO - Hot, dry weather the first week of May favored explosive increase of pea aphid. Some alfalfa fields hosting less than 5 per 50 sweeps during late April experienced as high as 150-fold increase. Counts per 50 sweeps by county: Columbiana 4, Holmes 9, Knox (red clover) 6, Allen 5, Summit 5, Shelby 17, Carroll 1 per 2-3 sweeps, Portage 3 per sweep, Wood 15-17 per sweep. (Fox). WISCONSIN - Still light. Heaviest in southeast district alfalfa at 5 per 10 sweeps. Full-grown individuals containing nymphs evident as far north as Marshfield, Wood County. Parasitism in all fields. A 95-percent decrease in one La Crosse County field, due to Praon sp. (a braconid wasp) parasitism and subfreezing temperatures. A. pisum alates indicate infestations in peas to begin soon. (Wis. Ins. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Overwintered adults fed on young cotton throughout south-central area. Activity increased in Stephenville area, Erath County. Trap catches of 1-12 weevils reported in Jonesboro area, Coryell County. Populations in Bell County averaged 1-4 per trap. Light in 4 of 12 traps in Hill County area. (Cole, Hoelscher). OKLAHOMA - First of season caught in pheromone traps in Jackson County. Up to 20 per trap in some areas. (Okla. Coop. Sur.). ALABAMA - Overwintered adults in sex-lure

traps by county: Fayette from 11 weevils in 6 traps to 41 in 6 traps; Tuscaloosa 77 in 18 traps; Autauga 16 in 14 traps. (Smith et al.). MISSISSIPPI - Catches in non-diapause area of Yalobusha County averaged 4.59 per Leggett trap as compared to 1.89 per trap in diapause area by May 1. (Collins). SOUTH CAROLINA - First weevils of season trapped in Calhoun County April 25 to May 2. Populations higher this year where fields were picked last in 1973. (Griffin).

COTTON APHID (Aphis gossypii) - ALABAMA - Ranged 10-50 per 2-leaf plant in parts of 100-acre Lowndes County cotton field. No preplant controls applied; treatments to be applied now. (McGukin). TEXAS - Light in Bell and Falls Counties. Treatments not needed; beneficial insects began to migrate into cotton fields. (Hoelscher).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This species and other thrips heavy on 2-leaf cotton along with aphids in 100-acre Lowndes County field. Treatments planned. (McGukin).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Larval treatment applied for this species and various cutworm species to cotton field in Gadsden area, Yuma County. (Ariz. Coop. Sur.).

CARMINE SPIDER MITE (Tetranychus cinnabarinus) - ARIZONA - Required treatment in several cotton fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

TOBACCO

GRANULATE CUTWORM (Feltia subterranea) - FLORIDA - Severely damaged stand in 10 acres of flue-cured type young tobacco at Trenton, Gilchrist County. (Alston). Larvae reducing stand in young 5-acre planting in southern Alachua County. (Fla. Coop. Sur.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - FLORIDA - Punctured stems of tobacco in 10-acre planting west of Gainesville, Alachua County; many plants wilted. Moderate over whole field. (Fla. Coop. Sur.).

SUGAR BEETS

A CARRION BEETLE (Silpha bituberosa) - MONTANA - Heavy on sugar beets in Bighorn County. (Pratt).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - TENNESSEE - Damaged untreated potatoes in west area. (Locke). NEW YORK - First overwintered adults in flight April 30 at Riverhead, Suffolk County. (Semel).

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH CAROLINA - Damaged potatoes in Sumter County. (Thomas).

BEANS AND PEAS

FALSE CHINCH BUG (Nysius ericae) - FLORIDA - Abundant and feeding on snap beans and southern peas, causing curling of leaves at Jay, Santa Rosa County. (Fla. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - On week ending April 29, 12 pheromone trap locations in Whatcom and Skagit Counties captured 21 moths. In Walla Walla County adults averaged 14 per trap the week ending April 29, 20 times higher than this period last year; 12 adults per trap for week ending May 3. (Eide et al.).

COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - CALIFORNIA - Larvae infesting roots of brussels sprouts in a commercial planting at Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - Adults first noted April 26 on eastern Long Island. (Sanok, Weber).

CUCURBITS

SEEDCORN MAGGOT (Hylemya platura) - TENNESSEE - Squash and cucumber seedlings especially hard hit in central area. (Mullett, Gordon).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Heavy numbers damaged garden pumpkins in Payne County. (Okla. Coop. Sur.).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Heavy on cabbage, cauliflower, and collards in Brazos and Burleson Counties. (Cole, Green).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Heavy on mustard greens and turnips in Brazos and Burleson Counties. (Cole, Green).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - ARKANSAS - Heavy on volunteer squash at university farm in Washington County. (Boyer).

DETECTION

New State Record - AN ICHNEUMON WASP (Bathyplectes tristis) - KANSAS - Riley County. (p. 347).

New County Records - A GEOMETRID MOTH (Thysanopyga intractata) ALABAMA - Lee (p. 344). LESSER PEACHTREE BORER (Synanthedon pictipes) SOUTH CAROLINA - Chester (p. 343). MAIZE BILLEBUG (Sphenophorus maidis) SOUTH CAROLINA - Georgetown (p. 337). PEACHTREE BORER (Sanninoidea exitiosa) SOUTH CAROLINA - Chester (p. 343). STALK BORER (Papaipema nebris) SOUTH CAROLINA - Clarendon, Sumter (p. 337). Georgetown (p. 336).

CORRECTIONS

CEIR 24(19):326 - ORNAMENTALS - "... Maricopa County ..." should read "... Marion County ..." (PPQ).

DECIDUOUS FRUITS AND NUTS

PEACHTREE BORER (Sanninoidea exitiosa) - SOUTH CAROLINA - This species and Synanthedon pictipes heavy in Chester County peach orchard. (Pollet). Both are new county records. (McCaskill).

LESSER PEACHTREE BORER (Synanthedon pictipes) - OHIO - Pupated in northeastern area. Pupae recorded from Kwanzan cherry host in Wayne County May 4. (Purrington, Kelley).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NEW YORK - Tents 2-3 inches long at Riverhead, Suffolk County, on May 3. (Jaffe, Brewster). Noted on Muit cherry tree in Schenectady, Schenectady County, May 1 (Rood), and throughout block of 25 cherry trees May 6 near Russel, St. Lawrence County (Berndt). Heavy in Monroe, Niagara, and Orleans Counties May 6. (Norton).

CODLING MOTH (Laspeyresia pomonella) - OREGON - Adults on apple in The Dalles, Wasco County, May 3, and Hood River, Hood River County, May 6. (Zwick).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - MASSACHUSETTS - Larvae fed in deciduous fruit orchards in Middlesex and Worcester Counties. (Costante, Jensen).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Moth emergence increased in south-central area. Oviposition may occur as early as May 8-10. (Cole, Hoelscher).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Wingless forms heavy and some alates noted on peach trees at Yakima, Yakima County. (Powell). UTAH - Moderate in peach orchards near St. George, Washington County (Huber, Roberts), and in Brigham and Perry area, Box Elder County (Knowlton), and Capitol Reef National Park, Garfield County (Roberts, Taylor).

GREEN STINK BUG (Acrosternum hilare) - TEXAS - Extremely heavy damage on untreated peaches in Falls and Bell Counties. (Hoelscher).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Newly emerged adults and new eggs indicate beginning of new generation at Buena, Yakima County, May 6. (Tree Fruits Pest Mgt.). NEW YORK - First egg hatch on April 26 in Ulster, Dutchess, and Orange Counties. (Smith).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Eggs mostly hatched, young and mature mites about 20 and 4.9 per leaf in two untreated apple orchards in Middlesex and Worcester Counties. (Costante, Jensen). OHIO - Egg hatch nearing completion in central area apple orchards. (Holdsworth). CALIFORNIA - This species and Tetranychus urticae present on prune and almond trees. Potential for heavy buildup with advent of warm weather. Some treatment planned in near future. (Cal. Coop. Rpt.). WASHINGTON - First overwintered eggs hatched April 30 at Rock Island, Douglas County. (Rushmore).

CITRUS

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Populations in Tulare, Kern, and Ventura Counties emerged early and "exploding" on dooryard plants. Sizeable spot infestations occurred in commercial citrus resulting in honeydew and black smut fungus. (Cal. Coop. Rpt.).

SMALL FRUITS

MEADOW SPITTLEBUG (Philaenus spumarius) - OREGON - Nymphs on strawberries in western Washington County, generally ranged 2-6 per plant in area extending from Scholls to Buxton and Manning, and from Aloha to Gales Creek, May 1-6. Most fields treated to control second instar nymphs. (Collins).

A GEOMETRID MOTH (Itame argillacearia) - NEW HAMPSHIRE - Larvae averaged 10.5 per 10 sweeps at Lyndeboro, Hillsborough County, and 3 per 10 sweeps at Alton, Belknap County. (Bowman).

ORNAMENTALS

ROSE LEAFHOPPER (Edwardsiana rosae) - UTAH - Nymphs heavy to very heavy on rose foliage at Brigham, Box Elder County. Some discoloration noted. (Knowlton).

POTATO APHID (Macrosiphum euphorbiae) - OKLAHOMA - Heavy on roses in Jackson County. Moderate in Payne County. (Okla. Coop. Sur.).

ROESLUG (Endelomyia aethiops) - SOUTH CAROLINA - Heavy on climbing roses in Pickens County. (Pollet).

A GEOMETRID MOTH (Thysanopyga intractata) - ALABAMA - Larvae destroyed 10-25 percent of new leaf growth on numerous holly plants at 5 Auburn homes in Lee County. This is a new county record. (McQueen).

LILAC BORER (Podosesia syringae syringae) - OHIO - Pupated in Wayne County, about 15 days earlier than average date of pupation for last four years. Two pupae parasitized by Lissonota sp. (an ichneumon wasp). (Purrington, Kelley).

FOREST AND SHADE TREES

SPRING CANKERWORM (Paleacrita vernata) - SOUTH DAKOTA - Outbreaks of this pest and Alsophila pometaria (fall cankerworm) occurred in southern half of State in shelterbelts. (Kantack).

FOREST TENT CATERPILLAR (Malacosoma disstria) - KENTUCKY - Larvae active in Muhlenberg County; trees defoliated at several locations. (Barnett, Scheibner).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - KENTUCKY - Larvae leaving tents at many western and southern area locations. (Barnett).

ELM LEAF BEETLE (Pyrrhalta luteola) - SOUTH CAROLINA - Eggs, larvae, adults, and damage noted on elms in Pickens County. (Jackson). ALABAMA - Numerous small larvae fed on elms at Montgomery, Montgomery County. (McCabe). NEW MEXICO - Heavy larval feeding noted in Mesilla Park, Dona Ana County. Heavy adult activity, ovipositing, and leaf feeding observed in and around Albuquerque, Bernalillo County. (N.M. Coop. Rpt.). NEVADA - Adults active and feeding heavily on elm leaves; no eggs to date in southern Washoe County. (Bechtel).

BRONZE BIRCH BORER (Agrilus anxius) - OREGON - Significant decrease of infested trees at Pendleton, Umatilla County, since survey began in 1971. Find of pupa with no eye pigmentation indicates development behind 1973. Late development due to cooler spring. (Westcott, Brog).

ALDER FLEA BEETLE (Altica ambiens) - OREGON - Heavy on trees at Grants Pass, Josephine County. (McLoughlin).

EASTERN SPRUCE GALL APHID (Adelges abietis) - OHIO - First galls formed on Norway spruce in Carroll County May 6. (Nielsen). NEW HAMPSHIRE - Stem mothers ovipositing on spruce trees May 8 in Grafton County. (Hutchins).

PERIODICAL CICADA (Magicicada septendecim) - TENNESSEE - Brood XIV observed in Blount County. (Gordon).

OAK LECANIUM (Lecanium quercifex) - ARKANSAS - Heavy on southeast area oak trees. Specimens collected at McGehee, Desha County. (Wall).

FLETCHER SCALE (Lecanium fletcheri) - OKLAHOMA - Heavy on eastern redcedar in Oklahoma County. (Okla. Coop. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - SOUTH CAROLINA - Moderate on maples in Newberry County. (Pollet).

PINE SPITTLEBUG (Aphrophora parallela) - TENNESSEE - Heavy on Scotch pine and light on loblolly pine in west area. (Locke).

AN APHID (Prociphilus fraxinifolii) - OKLAHOMA - Curled leaves of ash in Guymon, Texas County. (Okla. Coop. Sur.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Larvae fed on red, Scotch, and Austrian pines in Knox, Fulton, and Summit Counties. (Bower, Ehlers). Infestation spotty on Scotch pine in Carroll County; larval development about one week ahead of 1973. (Nielsen).

MAN AND ANIMALS

MOSQUITOES - TENNESSEE - Very heavy in lowlands of west area. (Locke). OHIO - Late larval instars and pupae of Aedes canadensis taken in Summit County April 30 to May 2. Some adults found. (Ohio Dept. Health). MINNESOTA - Total of 4,678 larval collections made since April 1. Total of 16 Aedes species taken to date with A. stimulans and A. excrucians predominant. A. cinereus becoming heavier. Light A. vexans brood present. All breeding sites of single-brooded Aedes to be inspected and treated if necessary by May 10. (Minn. Pest Rpt.). UTAH - Fourth

instar Anopheles freeborni and Culiseta inornata larvae light in Bloomington area, Washington County, May 1. (Roberts). Becoming troublesome in northern Skull Valley, Tooele County. (Knowlton).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged 175 per side on dairy cattle and 102 per side in 6 beef herds at Gainesville, Alachua County. (Fla. Coop. Sur.). MISSISSIPPI - Adults averaged 500+ on Angus, 400+ on Hereford, 300+ on Brahman, and 200+ on Barzona breeds of cattle in Oktibbeha County. (Combs). TENNESSEE - Ranged per head of cattle by county as follows: Hardeman 0-50, Madison 0-50 (May 1-8), Giles 0-100 (May 4-9). (Turpen, Watson). WISCONSIN - One per cow noted on Holstein cattle in Waushara County. (Wis. Ins. Sur.). OKLAHOMA - Averaged 600 per head in one herd and 100 per head in second herd of cattle in Payne County. (Okla. Coop. Sur.). TEXAS - Light to moderate on cattle in Stephenville area, Erath County. (Hoelscher).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Averaged 1+ per cow in herds near overwintering site in Monroe and Chickasaw Counties. Up to 10 per face noted on some cattle. Oviposition and some third instar larvae noted. (Robinson). TENNESSEE - Ranged 0-10 per herd May 4 and 0-5 per head May 9 on Giles County cattle. (Watson).

HOUSE FLY (Musca domestica) - FLORIDA - Heavily infested commercial cattle feedlot in Polk County. (Fla. Coop. Sur.). MISSISSIPPI - Adults attracted to watery secretion from eyes of some cattle in Lawrence County. Up to 15 flies noted on some cattle. (Robinson). OKLAHOMA - Averaged 5 per Scudder grid in untreated barns in Payne County. (Okla. Coop. Sur.).

A LOUSE FLY (Hippobosca longipennis) - CALIFORNIA - Conspicuous around cheetahs at San Pasquel, San Diego County, in San Diego Wild Animal Park. Up to 10 flies seen around one female while only one observed near males. Four flies noted on a four-month-old female cub. Aerial spray applied to entire compound May 7. Second treatment scheduled in 30 days. Fly population will be closely observed for treatment effect. Three newborn cubs to be hand raised found free of H. longipennis. (Cal. Coop. Rpt.).

A MARCH FLY (Plecia nearctica) - FLORIDA - Adults heavy nearly everywhere, center of heaviest populations shifted from northern half of State southward to area between Fort Pierce, Saint Lucie County, and Jupiter, Palm Beach County, and also vicinity of Okeechobee, Okeechobee County, Ona, Hardee County, and Fort Meade, Polk County. Populations not as heavy in northern area as in past seasons. Infestations reached Miami area, Dade County, for first time. (Fla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - TEXAS - Active in many Stephenville area counties during past 10 days. (Hoelscher).

LONE STAR TICK (Amblyomma americanum) - MISSISSIPPI - Adults averaged 4 per ear on 30 polled Hereford cattle in Oktibbeha County. (Combs). OKLAHOMA - Heavy on LeFlore County cattle. Annoyed farmers, campers, and fishermen. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - INDIANA - Heavy on dogs, frequently observed on humans; increasing rapidly in Warren County. (Chandler).

BROWN DOG TICK (Rhipicephalus sanguineus) - CALIFORNIA - Taken from neck of child at Lemoore, Kings County. Infested several dogs at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

HOUSEHOLDS AND STRUCTURES

VESPID WASPS (Polistes spp.) - INDIANA - P. fuscatus and P. metricus abnormally heavy in Tippecanoe and Warren Counties. Visible damage to weathered board fences and outbuildings observed. (Chandler).

A SUBTERRANEAN TERMITE (Reticulitermes tibialis) - NEVADA - Light to moderate alate populations emerged at Reno, Washoe County, May 5 and 8. (Bechtel).

BENEFICIAL INSECTS

ICHNEUMON WASPS - KANSAS - Bathyplectes tristis collected from alfalfa in Riley County May 6, 1974, by E. Eshbaugh. Determined by B. Puttler. This is a new State record. (Bell). OHIO - B. curculionis observed actively preying on Hypera postica (alfalfa weevil) larvae on alfalfa. Pupae noted May 2 in Wayne County. (Flessel).

A EULOPHID WASP (Aphytis lingnanensis) - FLORIDA - Increased releases in citrus groves resulted in control of Unaspis citri (an armored scale) in 4 areas of Lake and Polk Counties. (Fla. Coop. Sur.).

A BRACONID WASP (Microctonus colesi) - OHIO - Emerged from 5.5 percent of a 200-adult sample of Hypera postica (alfalfa weevil) collected April 22 in Wayne County. (Flessel).

LADY BEETLES - OKLAHOMA - All stages of Hippodamia convergens (convergent lady beetle) heavy in wheat and alfalfa in several south-central, central, and west-central counties. (Okla. Coop. Sur.). WASHINGTON - Coccinella transversoguttata (transverse lady beetle) adults and first instar larvae observed preying on Anuraphis helichrysi (an aphid) at Buena, Yakima County. Numerous Stethorus picipes (a lady beetle) noted preying on Tetranychus mcdanieli (McDaniel spider mite) on plums at Buena, Yakima County. (Tree Fruits Pest Mgt.).

PHYTOSEIID MITES (Metaseiulus occidentalis) - WASHINGTON - Adults observed preying on Panonychus ulmi (European red mite) on apple at Outlook, Yakima County. (Tree Fruits Pest Mgt.). OHIO - Overwintered Zetzellia mali adults noted preying on immatures of Panonychus ulmi (European red mite) and Vasates schlechtendali (apple rust mite) in central area apple orchards. Egg laying by Z. mali in progress. (Holdsworth).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BLACK IMPORTED FIRE ANT (Solenopsis richteri) - ALABAMA - Feeding destroyed 20-30 percent of Irish potato plants in 2 gardens at Fountain Community, Monroe County. Additional mounds noted near Douglas, Marshall County, in grass turf area. (Lemons, Barham).

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Adults averaged 9 per 50 sweeps in three-inch oats in Highland County. (Reckner, May 3). Statewide, adults leaving wheat fields to invade newly developing oat fields. (Fox). KENTUCKY - Survey conducted in 6 eastern counties May 8 and 9. Small populations of adults (1.5 per 100 sweeps) and larvae (0.2 per square foot) found in Boyd, Fleming, and Lewis Counties on wheat and oats. No eggs observed. All stages of larvae except earliest present in most fields. Damage to host crop negligible. (Barnett, Gregory).

A GRASS BUG (Labops hesperius) - NEBRASKA - Adults and nymphs observed in crested wheatgrass in Dawes, Box Butte, and Scottsbluff Counties. Populations ranged 30-40 per clump of wheatgrass. Populations noted at 275 and 384 per 10 sweeps in Dawes and Box Butte Counties. Some wheat near crested wheatgrass damaged in Sheridan County. (Hagen, Whetsal). SOUTH DAKOTA - Heavy, damaged winter wheat borders in Bennett County. (Kantack).

A GRASSHOPPER (Oedaleonotus enigma) - WASHINGTON - First instars noted on rangeland about 10 days later than 1973 in Klickitat, Franklin, and Walla Walla Counties. (Jackson).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - Larvae common on shade trees throughout central counties. Winds during early part of last week aided in larval dispersal. (Ins.-Dis. Newsltr.).

JAPANESE BEETLE (Popillia japonica) - NEW HAMPSHIRE - Larvae noted at 40 per square foot in lawn of rest area on major highway at Salem, Rockingham County. (Miller, Mason).

MORMON CRICKET (Anabrus simplex) - NEVADA - Recent surveys in Seven Troughs Range, Pershing County, indicated scattered infestations of mostly third and fourth instar nymphs. Averages ranged 3-4 per square yard on 20,000 acres. Observations indicate 5 or 6 distinct bands ranging 8-10 per square yard in same area. Treatments planned in late May. (Giles, Wilson). MONTANA - Hatching in large numbers in Pablo area and in the smaller area of Camas Prairie in Sanders County. (Pratt).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae damaged peas and beans in Wicksburg Community, Houston County. Treatments applied. (Stephenson, Wilson).

HAWAII INSECT REPORT

General Vegetables - LEAFMINER FLIES (Liriomyza spp.) infestations light in several acres of snap beans, cow peas, tomatoes, and eggplants at Hanapepe, Moloaa, Hanalei, and Kaunakani, Kauai. Light in about 0.25 acre of snap beans and 0.5 acre of eggplant at Kahaluu, Oahu; infested less than 10 percent of bean and tomato leaves. Moderate in 1.5 acres of snap beans at Waimanalo, Oahu, in yard planting of tomato at Hilo, Hawaii, and in about 4 acres of watermelon at Mana, Kauai. At least 30 percent of leaf area damaged at Waimanalo and at Mana. (Sugawa et al.). CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy, more than 30 mites per square inch of leaf, in 4 acres of watermelon at Mana. Damage severe and conspicuous throughout planting. Light to moderate (average 10-15 per square inch of leaf) on eggplant and snap beans throughout Kauai and in acre of eggplant at Kahaluu, Oahu. (Sugawa, Mau). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) not a problem this year; insecticide especially effective. (Mau). MELON FLY (Dacus cucurbitae) damage moderate to heavy in acre of tomato at Wailua, Kauai. Larvae in most of damaged tomatoes opened for inspection. Damaged fruits estimated at 20-30 percent in part of a field. No fruit harvested from another field due to damage. Damage nil in other tomato fields surveyed on Kauai. TARO LEAFHOPPER (Tarophagus proserpina) light, averaged less than 1 leafhopper per plant, in taro at Hanapepe, and Hanalei, Kauai, and at Kahaluu, Oahu. Very few nymphs and adults of Cyrtorhinus fulvus (a predacious mirid bug). (Sugawa, Mau).

Beneficial Insects - Larvae of MELASTOMA BORER (Selca brunella) infested over 40 percent of Melastoma malabathricum (Indian rhododendron) flower buds and fruits checked at Panaewa, Hawaii. During April, over 600 fruits, buds, and terminals inspected were found to be 44 percent infested. (Yoshioka). Eggs of a TACHINA FLY (Trichopoda pennipes) on 50 percent of Nezara viridula (southern green stink bug) adults collected from 20 yards of cow peas at Lihue, Kauai. (Melendes).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1973
(Continued from page 314)

FOREST INSECT HIGHLIGHTS 1/

Situation in the West

DOUGLAS FIR TUSSOCK MOTH was the most serious pest in the Western United States in 1973. BARK BEETLES were responsible for directly killing great numbers of trees.

DOUGLAS FIR TUSSOCK MOTH (*Orgyia pseudotsugata*) reached an outbreak level in eastern OREGON, WASHINGTON, and the Panhandle of IDAHO that has never before been recorded. Federal, State, and private ownerships were affected. In the three-State area, nearly 800,000 acres of Douglas-fir and true fir host type sustained some degree of defoliation. Direct tree killing of many host-type stands totalled several thousand acres. Thousands of additional acres sustained top killing with spotty, outright tree killing. By the end of the 1973 growing season, accumulated timber and growth losses in the area reached an estimated 1,001 million board feet of timber. Fire hazards in the area increased and added a great deal of concern. Most seriously affected were the Umatilla, Wallowa-Whitman, Coeur d'Alene National Forests, and the Colville Indian Reservation and immediately adjacent State and private lands. In lieu of an operational chemical control program, salvage logging was greatly accelerated, and several promising chemicals were tested. While several million dollars were recouped through salvage logging, about one-half of the killed trees are lost. Overall infestations have declined, but new infestations are expected. About 650,000 acres will probably sustain some degree of defoliation in 1974.

MOUNTAIN PINE BEETLE (*Dendroctonus ponderosae*) alone killed several million lodgepole, ponderosa, and white pines in the Western United States. The largest outbreaks occurred in ponderosa pine in the Black Hills of SOUTH DAKOTA and along the front range of COLORADO. Large numbers of lodgepole pine are being killed in Yellowstone National Park, and in adjacent lodgepole forests to the Northwest and Southwest. White pine is being lost on the Clearwater National Forest in IDAHO and lodgepole pine is being killed in western OREGON. A concentrated effort is underway in the Black Hills to minimize losses through commercial timber sales with some direct treatment with chemicals. Heavily infested, high-value units along the front range are being directly treated with chemicals or by piling and burning. In other parts of the West, salvage logging is conducted where feasible to minimize losses.

1/ The following summary is the highlights section from the "Forest Insect Conditions in the United States - 1973" which was compiled and published by the Forest Service, U.S. Department of Agriculture. Copies of the complete annual summary are available upon request from the Regional Forester or Area Director in your area. Addresses of the regional offices may be found on page 354 in this issue of the CEIR.

SPRUCE BEETLE (Dendroctonus rufipennis) has killed hundreds of thousands of white spruce on State and Indian lands near Tyonek, ALASKA. Somewhat older infestations in the vicinity show that nearly 65 percent of the white spruce, 5 inches diameter at breast height and larger, were killed. A substantial volume has been salvaged over the past 10 years, but most of the timber will probably be lost. Infestations of the spruce beetle in the continental United States were essentially under control except for a persistent infestation on the Manti-LaSal National Forest in UTAH.

WESTERN SPRUCE BUDWORM (Choristoneura occidentalis) defoliated, in varying degrees, nearly 3.5 million acres in MONTANA and IDAHO in 1973, which is a substantial decrease from that infested in 1972. In OREGON, WASHINGTON, CALIFORNIA, ARIZONA, NEW MEXICO, and COLORADO infestations seem to be increasing. Of considerable interest is the rather significant increase of the green form of the western spruce budworm in California

LARCH CASEBEARER (Coleophora laricella) continues to cause heavy defoliation of larch in lower elevations in northern IDAHO, northwestern MONTANA, and eastern WASHINGTON.

Situation in the East

SOUTHERN PINE BEETLE, GYPSY MOTH, and SPRUCE BUDWORM were at or near record levels in the Eastern United States in 1973.

The SOUTHERN PINE BEETLE (Dendroctonus frontalis) outbreak set new record levels of infestations in the loblolly-shortleaf pine type, extending from VIRGINIA to east TEXAS. About 47 million acres of commercial forests are infested to some degree. State, private, and Federal agencies concentrated efforts to mitigate timber losses and suppress populations of this insect. The principal means of control has been the removal of infested trees by commercial timber sales. This activity produced more than 250 million board feet of sawtimber and 42 million cubic feet of pulpwood from infested, dead, and dying trees. There is no indication that overall conditions will be better in 1974, although there are signs that high infestation centers are shifting.

GYPSY MOTH (Porthetria dispar) expanded its range. Defoliation intensified in the Northeastern United States. Varying degrees of defoliation were recorded on nearly 1.8 million acres of central hardwood forests. The largest increase was in PENNSYLVANIA where about one-half of the damage occurred. Infestations also increased in RHODE ISLAND and MASSACHUSETTS. CONNECTICUT infestations are decreasing and those in NEW YORK and NEW JERSEY appear to be stabilizing. Gypsy moth population collapses are common after 2 or 3 years of natural population cycle. Intensive surveys by the Animal and Plant Health Inspection Service using pheromone-baited traps have caught male adults in many counties outside of the generally infested zone. Infestations outside of the quarantine area have been discovered in central Lower MICHIGAN, at Hungry Mother State Park in southern VIRGINIA, and in the Winston-Salem area of NORTH CAROLINA.

SPRUCE BUDWORM (Choristoneura fumiferana) in MAINE covered about 2.5 million acres. The outbreak is in its third year with no signs of natural decline. Conditions are favorable for the budworm in the Northeast, as millions of acres in Ontario, Quebec, New Brunswick, MINNESOTA, and MAINE are affected. A suppression project in Maine covered about 450,000 acres of seriously infested spruce-fir forests in five different locations. Suppression activities are planned for additional areas in Maine and a tract of State-owned lands in Minnesota in 1974.

Other defoliating insects were the major cause of concern in the Northeast; of most significance was a GEOMETRID MOTH (Hydria prunivorata) in PENNSYLVANIA. Pine seed and cone insects continue as a major pest problem in the Southeast.

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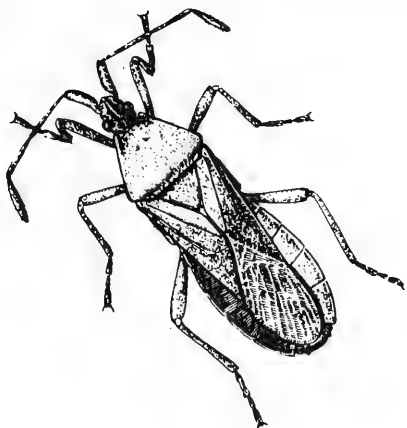
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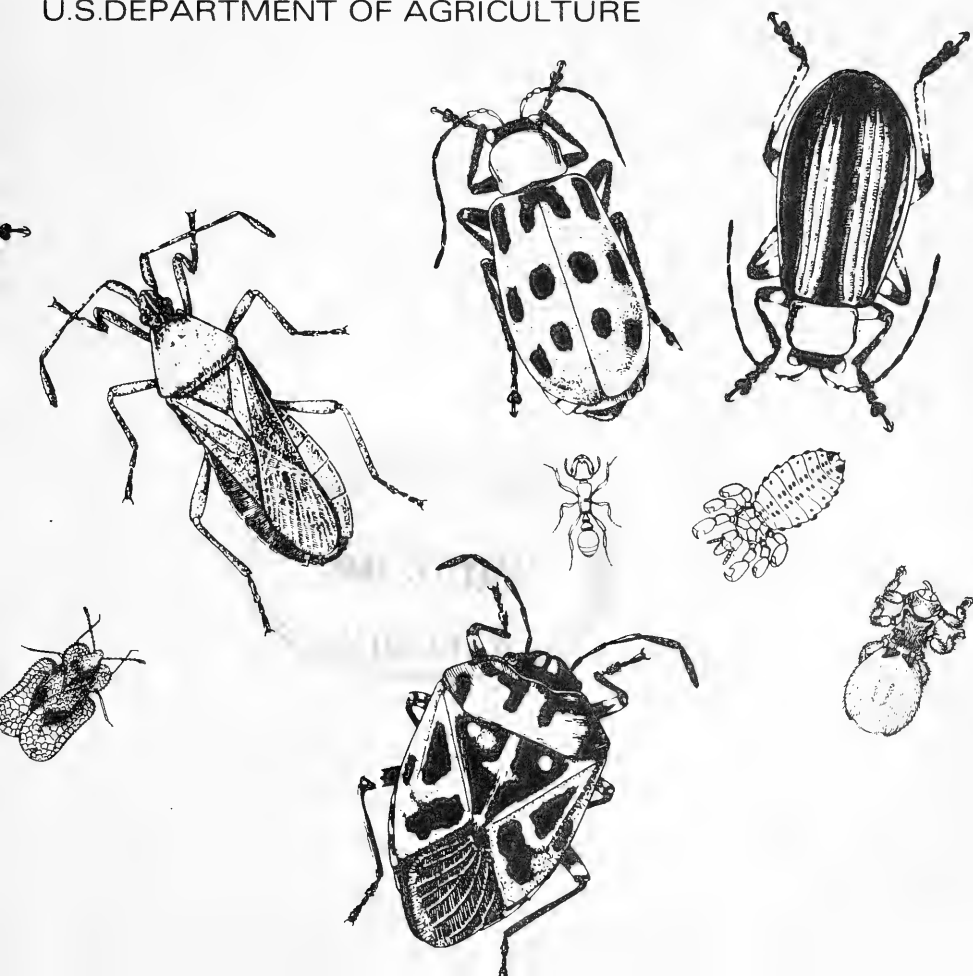
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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S. DEPARTMENT OF AGRICULTURE



**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF**

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

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM continued damaging in coastal North Carolina, damaged no-till corn in western Kentucky; outbreak occurred on small grains in east-central and northeast Arkansas. Moth flights heavier than usual in central Kansas. (p. 359).

BLACK CUTWORM infestations ranged up to heavy on riverbottom corn in central Missouri. (p. 361).

ALFALFA WEEVIL larvae damaged alfalfa in Nebraska along Platte Valley and southward, heavy in northern Missouri, economic in southern Iowa. Alfalfa weevil required treatment in southern Indiana; damage to alfalfa still above 1973 levels in north-central Maryland. (pp. 362-364).

BOLL WEEVIL heavy on cotton throughout south-central Texas. (p. 365).

COLORADO POTATO BEETLE heavily damaged potatoes on Eastern Shore of Virginia. (p. 365).

SOUTHERN PINE BEETLE continued severe over most of North Carolina; one of worst spring infestations encountered in more than 10 years. (p. 368).

PERIODICAL CICADA emerged in Kentucky and North Carolina. (p. 369).

Prediction

PAINTED LADY and related damage to various crops expected to be extremely rare during 1974. (p. 371).

Detection

A **MUSCID FLY** reported from Hawaii is a new United States record, but it is not known to occur in continental U.S. (p. 373).

A **NOCTUID MOTH** reported in West Virginia is a new State record. (p. 369).

For new county records see page 366.

Reports in this issue are for week ending May 17 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING MAY 20

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

PRECIPITATION: Rain fell on most of the Nation east of the Rockies last week. Locally heavy amounts for the week included: Edgerton, Missouri, 8 inches, Desmoines, Iowa, 3.73 inches, Peoria, Illinois, 2.93 inches, and Topeka, Kansas, 2.14 inches. Rain also fell in the Pacific Northwest and southward into the California mountains. North-central Montana received some needed precipitation. Havre, Montana, reported a total of 2.20 inches for the week. Early in the week, tornadoes and severe thunderstorms drifted off the central Plains into the middle Mississippi Valley. Wind gusts reached 67 m.p.h. at Fort Leavenworth, Kansas, and 75 m.p.h. at St. Joseph, Missouri. Hailstones the size of golf balls pelted Salina and Hutchinson, Kansas, Tecumseh, Nebraska, Victor and Williamsburg, Iowa, and Rockport, Missouri. During the storm, rains averaging 3-4 inches drenched eastern Kansas and over 1.50 inches fell within hours at Cedar Rapids, Iowa. Severe weather continued Tuesday dumping almost 2 inches of rain on West Plains, Missouri, and 2.33 inches on Springfield, Missouri. Later in the week, severe weather dumped heavy rains from Arkansas into northern Georgia and heavy thunderstorms occurred along a front from the lower Great Lakes to eastern Kansas. Late Thursday night, tornadoes caused property damage to Sherrard and Orion, Illinois, and a house trailer was demolished near Cass City, Michigan. The storm soaked St. Joseph, Missouri, with more than 4 inches of rain and Kansas City, Missouri, got more than 2 inches. On Friday, the front extended from the central Plains through the upper Ohio Valley into the Northeast and triggered from 2-4 inches of locally heavy rains. Rains forced streams to bankful or higher in many areas of Missouri, Illinois, Indiana, Wisconsin, Ohio, and Michigan. Earlier in the afternoon, Indianapolis, Indiana, reported high winds that damaged two schools and heavy rains that left submerged autos at many intersections. Weather of the week continued on page 376.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Euxoa auxiliaris*) - MONTANA - Infested winter wheat and alfalfa in Broadwater County. (Pratt).

ARMYWORM (*Pseudaletia unipuncta*) - DELAWARE - Some adults collected in Sussex County blacklight traps. (Burbutis). VIRGINIA - Damage reported from Independent City of Virginia Beach. Adult flights reached 266 at Blacksburg, Montgomery County. Small grain fields and no-till corn should be checked every other day for damage. (Allen). NORTH CAROLINA - Damage continued in coastal counties, primarily in wheat but also in ryegrass pastures; 500 acres treated in Hyde and Washington Counties. (Van Duyn). KENTUCKY - Damaged no-till corn in western area. Larvae averaged 20 per 100 sweeps in wheat and 32 per 100 sweeps in barley in Warren County. In Simpson County, larvae averaged 25 per 100 sweeps on wheat. Averaged 8 per 100 sweeps in Ohio County wheat. Most larvae third instar. (Barnett).

ILLINOIS - Armyworm larvae light in wheat, averaged 2 per 10 row feet, in Fayette County. Larvae up to one-half inch in length. Damage light to no-till corn in Monroe County. (Ill. Ins. Rpt.).

MISSOURI - Light to moderate infestations observed in fescue in south-central area. Ranged 1-6 per square foot. (Munson).

ARKANSAS - Outbreak occurred in east-central and northeast area small grains. No infestations observed in southwest, central, and northwest areas. Infestations occurred in large percent of fields in infested areas; only small percent of fields needed treatment. (Boyer). Some fields noted with small larvae and some fields still being treated at Jonesboro, Craighead County. (Kimbrough). KANSAS - Moth flights much heavier in Barton County than usual. Blacklight trap collections averaged 242 per night May 8-14. Growers in Barton and surrounding counties advised to check frequently from now through mid-June for damaging infestations in grains. Trap catches in Riley, Republic, Greeley, and Finney Counties light to date. Trace populations of small larvae found in wheat in McPherson, Marion, and Harvey Counties. Larvae one-fourth to one-half inch long averaged 1.8 per square foot in headed Pottawatomie County wheat. (Bell).

ASTER LEAFHOPPER (*Macrostoteles fascifrons*) - WISCONSIN - Sampling over central, south-central, and southwest district vegetable growing areas showed adults averaged less than 5 per 100 sweeps, except in Prairie du Chien area of Crawford County where counts averaged 22 per 100 sweeps, predominantly migrants as native population still in nymphal stage. Immatures averaged 55 per 100 sweeps of winter rye checked in southern Sauk County; indicates good winter survival which may be important in early summer. Infection rate in migrant population slightly more than 4 percent; not yet serious as leafhopper counts very light. Should migrant population suddenly increase there will be more reason for concern. (Wis. Ins. Sur.). NORTH DAKOTA - Adult spring migrants averaged 8 per 100 sweeps in roadside grasses in Cass, Ransom, and Richland Counties. (Brandvik, May 10).

BEEF LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Spring treatment concluded. Total sprayed acreage this season greater than for any spring control program to date; 76,569 acres treated in Fresno, Kings, and Kern Counties. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - FLORIDA - This species along with Spodoptera frugiperda (fall armyworm) damaged 57 percent of ears on untreated sweet corn in Everglades area, Palm Beach County. H. zea noted at 37 percent and S. frugiperda noted at 63 percent. Commercial growers treating daily. (Fla. Coop. Sur.). ARKANSAS - One H. zea moth taken in light trap at Kelso, Desha County, May 13. This is only moth trapped during past 21 days. (Boyer).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Infestations in sorghum decreased significantly in all south-central and central area fields. Beneficial insects plentiful in most fields and aiding in control of aphids. (Hoelscher, Cole).

GREENBUG (Schizaphis graminum) - TEXAS - Light in small grain fields in Archer, Baylor, Hardeman, and Wilbarger Counties. Populations ranged 1-2 per row foot. (Boring). This species and Sipha flava (yellow sugarcane aphid) continued to decline in grain sorghum in south-central area; currently difficult to find. Populations light in central area counties surrounding Erath County. Scattered colonies observed. (Cole, Hoelscher). ARIZONA - Up to 10 per milo plant observed at Sulfur Springs Valley, Cochise County. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Adults detected in alfalfa as far north as Washara County; averaged less than one per 50 sweeps in all fields checked. (Wis. Ins. Sur.). MICHIGAN - Especially damaging to young potato plants. Foliar treatment may be needed in spite of applied soil systemic at planting time. (Sauer, May 10).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Few well-developed nymphs found in alfalfa in Marquette and Crawford Counties. Counts did not exceed 5 per 50 sweeps. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintering larvae averaged about 80 percent with moths present in Sussex County blacklight trap collections. (Burbutis). INDIANA - Pupation observed in standing cornstalks in sheltered Morgan County valley. (Meyer). ILLINOIS - Development by county as follows: Massac, 80 percent pupae, 12 percent emergence; Champaign, 4 percent pupation, no emergence; Ogle, no pupation. (Ill. Ins. Rpt.). WISCONSIN - Dissection of cornstalks in Columbia County and observations of caged larvae in Dane County show no pupation by overwintering larvae. (Wis. Ins. Sur.). MINNESOTA - Preliminary observations indicate good overwintering in few fields left unplowed. Survival rates in southeast, south-central, and central districts 74, 85, and 62 percent, respectively. Fall plowing very complete and thorough; few moths will emerge. (Minn. Pest Rpt.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Caused severe damage to corn in Bacon, Brantley, Bulloch, Evans, Pierce, and Wayne Counties. (Deal et al.). Most damage occurred 14-21 days ago; some seedlings still infested and dying. Many fields replanted and many older fields with 10-60 percent stand reduction. (Harris, May 10). ALABAMA - Larvae heavy, destroyed field of young corn in Escambia County; infestations variable in Covington, Geneva, and other southern counties. (Wood et al.).

BLACK CUTWORM (Agrotis ipsilon) - MISSOURI - Moderate to heavy infestations reported in river bottom cornfields in central area. Heavy infestations found in spots ranging up to 25 acres in size. (Munson). ILLINOIS - Damaged 10 percent of corn plants in one Hancock County field. No moths taken in light traps in agricultural area in Champaign County, but very heavy in trap located in wooded Piatt County. (Ill. Ins. Rpt.). IOWA - First report of larvae damaging 1.5-inch field corn in Henry County; about 25 percent of corn damaged in 20-acre field. (Iowa Ins. Sur.).

BEEF ARMYWORM (Spodoptera exigua) - FLORIDA - Larvae of this species and S. frugiperda (fall armyworm) in young sweet corn required average of 3 treatments per week to prevent economic damage. (Fla. Coop. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - KENTUCKY - Caused minor damage to corn in Warren, Simpson, and Allen Counties. (Barnett). OHIO - Significant infestation, 1-3 per 3-inch tall plant, noted in one 10-acre Washington County cornfield. About 85 percent of plants already damaged. (Fox). INDIANA - Adults averaged about 2 per stalk in few cornfields in central district. Populations much heavier in southern districts. Averaged up to 5 per stalk in southeast district and up to 10 per stalk in southwest district. (Busching, Edwards). KANSAS - Damaged seedling corn in Segwick County, light in northeast area seedling corn. (Bell).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 1-24 per row foot of small grains in Archer, Baylor, and Hardeman Counties. Infestations decreased past 14 days. (Boring).

BROWN WHEAT MITE (Petrobia latens) - MONTANA - Ranged 2-3 per plant in 200 acres of 6-inch tall winter wheat. (Pratt).

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Significant populations noted in thin stands of wheat in Dickinson, Osage, and Lyon Counties. (Bell).

SAY STINK BUG (Chlorochroa sayi) - NEVADA - Adults averaged 6 per sweep in Overton, Clark County, wheat fields. (Hoff).

EUROPEAN CORN BORER (Ostrinia nubilalis) - GEORGIA - Lodged 40 percent of Coker variety 6819 wheat in one Screven County field. (Brannen, Suber, May 10).

PALE WESTERN CUTWORM (Agrotis orthogonia) - MONTANA - Infested winter wheat in several Cascade County locations. (Pratt).

TURF, PASTURES, RANGELAND

BLUEGRASS BILLBUG (Sphenophorus parvulus) - NEBRASKA - Adults ranged 0-818 (averaged 8.3) per square foot in bluegrass sod in Lancaster, Sarpy, and Cass Counties. Eggs ranged 3-9 per square foot, no larvae observed. This is first oviposition of season. (Kindler).

MEADOW PLANT BUG (Leptopterna dolabrata) - MISSOURI - Light populations observed in fescue in south-central area. Ranged 0-8 per sweep. Populations distributed throughout fields. (Munson).

A GROUND PEARL (Margarodes meridionalis) - ARIZONA - Bermudagrass and tift lawns treated at Salt River Valley, Maricopa County; crawler stage out of protective shell. (Ariz. Coop. Sur.).

BANKS GRASS MITE (Oligonychus pratensis) - IDAHO - Infestation severely damaged 15-acre stand of orchard grass north of Picabo, Blaine County. (Eakin).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEVADA - Larvae per sweep ranged 2-10 in untreated alfalfa hay fields in southern Washoe County, 0-14 in Douglas County, 3-20 in Smith Valley, Lyon County, and 4-60 in Fallon and Stillwater areas of Churchill County. Populations extremely variable between fields. Numerous first-instar larvae present indicate recent and continuing egg hatch in all areas. (Barclay, Bechtel). Larvae averaged 2 per sweep in Dixie Valley, Pershing County, alfalfa seed fields. (Adams). UTAH - Egg laying still on increase with many first-instar and larger larvae present in Cache County alfalfa. Earliest larvae found were from overwintered eggs. Due to cool weather, much of first-crop alfalfa in northern area may be cut before serious damage develops. (Davis).

COLORADO - H. postica ranged 40-100 per 100 sweeps in Mesa County alfalfa. (Bulla). NEW MEXICO - Adults ranged 1-5 and larvae up to 350 per 25 sweeps in Bernalillo and Sandoval County alfalfa. Leaf damage noted. (N.M. Coop. Rpt.). TEXAS - Observed in Swisher, Castro, Floyd, and Deaf Smith County alfalfa. Parasitism by Bathyplectes curculionis (an ichneumonid wasp) 7 percent in Hale County. (Latham). ARKANSAS - Larvae still active in northwest area alfalfa. Population of small larvae decreasing in proportion to larger larvae. Egg hatch declining and H. postica larval population expected to decrease. (Boyer).

KANSAS - Alfalfa weevil larval populations in alfalfa decreased in most areas except northwest and possibly west-central districts. Much treatment applied to uncut alfalfa in Sherman and Cheyenne Counties. About 20-25 percent of Cheyenne County noted with economic or near economic infestations. Most severe infestations concentrated in southwest part of county. Much pupation and some adult emergence noted as far north and west as Sheridan and Graham Counties. Stubble treatments planned after first cutting in most areas to prevent feeding of remaining larvae and first-generation adults from causing significant regrowth delay. (Bell). NEBRASKA - Continued to increase statewide. Damage to alfalfa noted in most counties along Platte Valley and south to State border. Treatments underway in all districts surveyed except north and northeast. (Keith).

MISSOURI - H. postica adults ranged 0-4 per sweep in south-central area alfalfa. All larval stages present in central area fields. Heavy larval populations still reported from northern areas. (Munson). IOWA - Larvae caused economic damage to alfalfa in southern counties. Average larval counts per sweep by county: Warren 1 (20 percent tip feeding); Lucas 3-5 (50 percent tip

feeding); Wayne 4 (80 percent tip feeding); and Appanoose 10 (90 percent tip feeding). One field in Davis County had up to 175 larvae per sweep with 100 percent tip feeding. Most larvae second to third instar. Treatments applied in most southern fields or early cutting underway. Alfalfa in Adams and Cass Counties showed lighter (0-15 percent) tip-feeding damage, larvae ranged 1-5 per sweep. (Iowa Ins. Sur.).

WISCONSIN - Alfalfa weevil larval and adult counts light; adults rarely exceeded one per 50 sweeps, larvae averaged 2 per 50 sweeps. Larval counts ranged 0-16 per 50 sweeps, with counts heaviest in western Dane and southern Sauk Counties. Larvae in first to second instars in all alfalfa checked from Illinois State line to central sands area. Available information indicates these larvae from overwintering eggs. Virtually no spring egg laying occurred as of May 6 at Arlington, Columbia County; few eggs laid by overwintered adults April 20 not hatched at Arlington by May 16. This indicates no significant damage by this pest will occur to first-growth alfalfa this year. Green chopping of alfalfa begun in advanced areas; silage and hay harvest will begin in about 14 days. (Wis. Ins. Sur.). MINNESOTA - Cold, wet weather along with late hard frost significantly reduced activity in almost all districts. Alfalfa in southeast and south-central districts appears most affected by frost. Little or no *H. postica* activity noted. Heaviest populations observed in southeast district. Ranged 10-12 per 100 sweeps in one Dakota County field and 9-10 per 100 sweeps in one Goodhue County field. No ovipositing noted and only one mating pair observed. (Minn. Pest Rpt.).

INDIANA - Most alfalfa in southern districts needed treatment or early cutting due to alfalfa weevil larval infestations. Infestations of 100 percent noted south of Interstate Highway 74 west of Indianapolis, especially along State line and south of Interstate Highway 70 east of Indianapolis. Few fields required treatment due to crop maturity at infestation peak; most growers cut early only if necessary. Few problems expected in central districts north of above locations; infestations ranged 8-70 percent. (Meyer).

MICHIGAN - Development slowed due to cold weather. Adults common and 1-3 larvae per 100 sweeps noted in Hillsdale County. (Ruppel).

OHIO - Terminal feeding more noticeable in alfalfa statewide. Larval damage light to moderate on 40-70 percent of plants in most central area fields. Larvae averaged about 20 and 40 per square foot in Clarke and Wayne Counties, respectively. Larval populations decreased 75 percent in one Wayne County field compared to same time in 1973. (Horn).

KENTUCKY - In Fayette County alfalfa, *H. postica* eggs averaged 86.1, 40, and 14.5 per square foot in 3 fields. In Barren County, eggs averaged 29.6, 23, and 15 per square foot. Larvae and adults continued to damage alfalfa, much nearing prebloom stage; many fields already cut. Damage statewide ranged from negligible to heavy with frosted appearance. Larval counts up to 800 per 100 sweeps in some fields. (Barnett). VIRGINIA - Based on 13 fields sampled (104 acres), 50.18 percent of tips infested. Average estimated defoliation 28.25 percent. Most larvae small and average 1.09 per tip based on 550 samples. Five fields (38 percent) passed recommended infestation control level. Based on total acreage sampled, 39 percent of all acres above recommended treatment level. Many fields being harvested and early harvest may be effective control. (Allen).

MARYLAND - Damage to alfalfa by Hypera postica still above 1973 levels in Frederick, northern Montgomery, Carroll, and Washington Counties. Most larvae second to fourth instar. No pupation noted to date. Damaged tips ranged 20-60 percent in several hundred acres surveyed. (U. Md., Ent. Dept., May 10). NEW JERSEY - First cutting of alfalfa underway in southern counties. Significant injury noted in field near Alpha, Warren County, and in several fields near Oldwick, Hunterdon County. Chemical treatments will be needed at both locations. (Ins.-Dis. Newsltr.).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Ranged 200-300 per sweep in several Dixie Valley, Pershing County, alfalfa seed fields; treatment required. Untreated fields averaged 50 per sweep. (Adams). Occasional specimens to light populations of up to 20 per sweep present in alfalfa hay fields in Churchill, Douglas, Lyon, and southern Washoe Counties. (Barclay, Bechtel). UTAH - Lighter than normal in Cache County alfalfa; ranged 50-150 per 25 sweeps. (Davis). NEW MEXICO - Ranged 1-30 per 25 sweeps in alfalfa, with some parasite activity observed, in Sandoval County. (N.M. Coop. Rpt.).

ARKANSAS - Pea aphid populations light in northwest area legumes. Species has not yet reached heavy infestation levels usually observed. (Boyer). KANSAS - No damaging alfalfa infestations noted. (Bell). WISCONSIN - Counts in alfalfa ranged 3-200 per 50 sweeps, average 12. Populations noticeably reduced in same fields where heavy parasitism noted previous week. Winged aphids common in many fields; up to 10 percent of population winged in some fields. To date, no A. pisum detected in peas, although trace populations probably present. (Wis. Ins. Sur.). KENTUCKY - Increased in many alfalfa fields in Allen, Simpson, and Warren Counties. (Barnett). WEST VIRGINIA - Averaged 6 per alfalfa tip in one Ohio County field. Populations seem to have increased due to continued cool temperatures. No stunting or wilting observed to date. (Hacker et al., May 10).

MEADOW SPITTLEBUG (Philaenus spumarius) - KENTUCKY - Heavy in alfalfa in southern area. Averaged 300 per 100 sweeps in some fields. (Barnett). IOWA - Nymphs averaged 8 per 10 stems on alfalfa in Appanoose County. (Iowa Ins. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - KANSAS - Populations much lighter in south-central district alfalfa than in 1973. Small larvae ranged 4-5 per square foot in stubble in one Barton County field and trace infestation noted in uncut Wabaunsee County alfalfa. (Bell).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Pheromone trap catches averaged 79.5 adults per trap (10+ per night) in Walla Walla County week ending May 10. Totaled 61 in 12 traps period ending May 6 in Whatcom and Skagit Counties, about 15 times less than for same period in 1973. Currently averaged 9.9 per trap May 13 and 14 in same area. (Halfhill et al.).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - NEW JERSEY - Heavy in many Burlington County alfalfa fields. Mines becoming evident. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Adults averaged 456 per 100 sweeps in alfalfa field at Fleetwood, Berks County, May 7. (Valley).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations heavy throughout most south-central counties. Activity indicated by pheromone traps and field observations continued to increase past 7 days in central area. Increased activity noted in Hill, Coryell, Bell, and Navarro Counties. (Hoelscher, Cole). MISSISSIPPI - Leggett trap catches increased in Yalobusha County. Total of 100 traps located in diapause and nondiapause areas. In diapause area 3.8 per trap recorded, while in nondiapause area 11 per trap recorded. (Collins). ALABAMA - Live weevil counts on 2 to 5-leaf cotton ranged zero to heavy in Henry, Covington, Monroe, Dallas, Montgomery, and Autauga Counties. Weevil counts in sex-lure traps about same as previous period but below 1973 counts. Counts by county: Fayette - 53 weevils in 6 traps in one field, 8 weevils in 5 traps on one farm, 11 weevils in 6 traps in one field; Tuscaloosa - 22 weevils in 6 traps on one farm, 47 weevils in 6 traps in one field; Autauga - 7 weevils in 14 traps in 14 fields. (Smith et al.).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This species and other thrips heavy in untreated fields in Henry, Dallas, and Montgomery Counties. Light in limited acreage in Chilton County. (Wilkins et al.).

SEEDCORN MAGGOT (Hylemya platura) - TEXAS - Infestations heavy on germinating cotton in Hale County; 300 acres replanted. (Latham).

TOBACCO

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - KENTUCKY - Damaged tobacco at one location in Daviess County. (Barnett, Scheibner).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Pupation 33 percent north of Cavalier in Pembina County; 75 percent north of Forest River in Walsh County. (Kaatz).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW JERSEY - First adults of season observed on tomato transplants in many southern counties. Chemical treatments advised every 7 days as needed. (Ins.-Dis. Newsltr.). DELAWARE - Adults noted on potatoes in most areas. Adults and eggs very heavy on Kent County tomatoes. (Burbutis). VIRGINIA - Heavy damage to potatoes noted in many fields in Accomack and Northampton Counties. Estimated yields may have been reduced 25 percent in some fields. (Hofmaster). OHIO - Adults averaged 14 per 25 potato plants and ranged 1-3 per plant in Washington County. (Dvola). No serious feeding injury noted to date. Unless controlled, feeding on vines may cause plants to die and prevent tuber development or greatly reduce yield. (Fox).

BEANS AND PEAS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae heavier than usual in southern area. Destroyed 80 percent of peas and beans at locations near Monroeville and Excel, Monroe County; destroyed 10+ percent of garden corn. Larvae damaged peas at Ashford, Houston County. (Gamble et al.).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - First early season treatments applied to cole crops on Eastern Shore and in Baltimore County week ending May 10. Damage appeared light in all fields surveyed. (U. Md., Ent. Dept.). MISSISSIPPI - Averaged 2 per head on cabbage in Coahoma County. (Craig).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Heavy populations damaged mustard in Dallas and Tarrant Counties. (Turney).

CUCURBITS

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Heavy populations damaged cucurbits in north-central area. (Turney).

GENERAL VEGETABLES

ASPARAGUS BEETLE (Crioceris asparagi) - NEVADA - Adult infestations heavy on asparagus at Fallon, Churchill County. (Alcorn).

LEAFMINER FLIES (Liriomyza spp.) - FLORIDA - Very damaging to celery in Everglades area, Palm Beach County. Also damaged celery in Zellwood area, Orange County, and reported on tomatoes along gulf coast area. (Fla. Coop. Sur.).

DETECTION

New United States Record - A MUSCID FLY (Atherigona reversura) - HAWAII - Oahu Island. (p. 373).

New State Record - A NOCTUID MOTH (Copipanolis styracis borealis) - WEST VIRGINIA - Grant County. (p. 369).

New County Records - GREEN STINK BUG (Acrosternum hilare) SOUTH CAROLINA - Greenville (p. 370). AN ICHNEUMON WASP (Bathyplectes curculionis) WEST VIRGINIA - Morgan, Hampshire (p. 371). JUNIPER SCALE (Carulaspis juniperi) MARYLAND - Garrett (p. 368).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - NEW MEXICO - Mean number of moths caught in pheromone traps by county: Bernalillo 12.5; Chaves 18.9; De Baca zero; Grant 4.6; Lincoln 4.8; Otero 11.5; Rio Arriba 6.5; San Juan 14.6; Sandoval 37; Santa Fe 10; Valencia 12.3. (N.M. Coop. Rpt.). COLORADO - Reached peak emergence, ranged 6-18 per pheromone trap in Mesa County May 9. (Bulla). UTAH - Moderate flight indicated by pheromone trap catches in Utah County orchards night of May 8; much heavier than in 1973. (Davis, Barlow).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - MAINE - Activity decreased due to cool temperatures. Pheromone trap catches indicate very light flight activity. No egg masses observed to date in Monmouth area. Earlier flight activity indicated significant populations in Kennebec County. (Gall).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MAINE - Webbing in forks of cherry, apple, and flowering crab very noticeable in Benton, Winslow, and Waterville areas of Kennebec County. Webs less noticeable in Ellsworth area of Hancock County. Present conditions indicate more severe infestations than 1973. (Gall).

WOOLLY APPLE APHID (Eriosoma lanigerum) - INDIANA - Extensive root knotting noted on estimated 40 standard apple trees (about 25 years old) in Madison area, Jefferson County. (Matthew).

PEAR RUST MITE (Epitrimerus pyri) - COLORADO - Ranged 50-100 per fruit in Mesa County pear orchards where no delayed dormant treatments applied. (Bulla).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - MASSACHUSETTS - Populations increased in some commercial deciduous fruit orchards in Hampden County. (Wilder).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Infestations reported from De Witt, Gonzales, Fayette, and Guadalupe Counties. Infestations appear widespread but lighter than 1973. (Cole).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Increased activity noted from all pecan producing areas. Indications are moth emergence and egg laying activities sporadic. Growers urged to check pecans for presence of eggs and larval entry into nutlets. Treatments should be applied if casebearer eggs red and larval entry into nutlets noted. (Green).

PECAN SPITTLEBUG (Clastoptera achatina) - MISSISSIPPI - Heavy on majority of Quitman County pecans; ranged 4-7 in some clusters. (Thompson).

BLACKMARGINED APHID (Monellia costalis) - ARIZONA - Heavy in pecan trees in many Salt River Valley areas, Maricopa County. (Ariz. Coop. Sur.).

SMALL FRUITS

OMNIVOROUS LEAFTIER (Cnephasia longana) - OREGON - First larval feeding on strawberries noted in Cornelius area, Washington County. Populations currently light on 150 acres observed, with

larvae estimated at one per 100 feet of row in interior of fields and up to one per 25 feet of row near trees on edges. (Collins).

IMPORTED CURRANTWORM (Nematus ribesi) - OREGON - Most larvae about full grown on gooseberry at Croisan Gulch, south Salem, Marion County. Single adult male observed previous period. (Westcott, Gray).

A SAWFLY (Pristophora rufipes) - OREGON - Single full-grown larva and 2 cocoons found on gooseberry at Croisan Gulch, south Salem, Marion County. Populations much lighter this year, probably due largely to treatment in spring 1973. Determined by D.R. Smith. (Westcott, Gray).

ORNAMENTALS

CALICO SCALE (Lecanium cerasorum) - MARYLAND - Heavier this season in Montgomery, Prince Georges, and Howard Counties. Most frequently collected on dogwood past 21 days with one collection on silver maple in Prince Georges County. (Md. Dept. Agric., May 10). CALIFORNIA - Common and destructive on liquidamber trees in Sacramento, Sacramento County. Eggs just hatched, crawlers covered limbs. Limbs up to one inch in diameter almost encased with mature scales. (Cal. Coop. Rpt.).

JUNIPER SCALE (Carulaspis juniperi) - MARYLAND - Very heavy in large block of Juniperus chinensis in Garrett County. Collected and determined by W.F. Gimpel. This is a new county record. (Md. Dept. Agric., May 10).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Continued severe problem over most of State. However, infestation levels heaviest in western Piedmont and eastern mountain counties. Latest North Carolina Forest Service information indicates 7,000+ active infested spots in State, not including Federal land. Forest Service personnel indicate this one of worst early spring infestations encountered in over 10 years. Since July 1973, about 31 million board feet of sawtimber and 61,000 cords of pulpwood salvaged from State and private lands. Salvage operations being hampered in some areas by railcar shortage. (N.C. For. Serv., For. Pest Newsltr.).

ENGRAVER BEETLES (Ips spp.) - ARIZONA - I. lecontei and I. calligraphus damaged stands of ponderosa pine below Mogollon Rim area, Gila County, in Tonto National Forest. Trees singly and in groups attacked. Beetles most damaging to trees under stress from drought, fire, and severe dwarf mistletoe infection. (USFS).

AN ADELGID (Pineus coloradensis) - UTAH - Infested 20 acres of Scotch pine raised for Christmas trees at Payson, Utah County, and Mugho pine at Logan, Cache County. (Davis, Knowlton).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WEST VIRGINIA - Heavily infested 60 percent of 10 acres of Scotch pine in Mercer County. Crawlers present May 16. (Gibson).

SPRING CANKERWORM (Paleacrita vernata) - SOUTH DAKOTA - This species and Alsophila pometaria (fall cankerworm) severely defoliated elm trees in shelterbelts in southern half of State. (Walgenbach, Kantack). KANSAS - P. vernata caused serious foliar damage to honeylocusts in several south-central district areas and in Riley County. (Bell).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Adults averaged 6 per night in blacklight traps at Las Cruces, Dona Ana County. (N.M. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - MISSOURI - First hatch of season observed on eastern redcedar in south-central area May 16. (Munson).

A NOCTUID MOTH (Copipanolis styracis borealis) - WEST VIRGINIA - Numerous adults taken in blacklight trap in oak and maple forest in Grant County March 15, 1974. Collected by A.R. Miller. Determined by E.L. Todd. This is a new State record. (Miller).

ELM LEAF BEETLE (Pyrrhalta luteola) - MISSOURI - Heavy larval populations observed in southern areas. Homeowners reported leaf feeding on elms. (Munson). UTAH - Active on elm foliage at Green River, Emery County. (Knowlton).

OAK LECANIUM (Lecanium quercifex) - MISSISSIPPI - Crawlers very active on Quitman County oaks; treatments needed. (Thompson).

PERIODICAL CICADA (Magicicada septendecim) - NORTH CAROLINA - Reported from Old Fort, Burke County, and Asheville, Buncombe County, area. First observation May 9 in Asheville; thousands reported in area. Oviposition and resulting twig punctures will begin 7-14 days. Emergence should be complete in about 14 days. (Bowen, Aston). VIRGINIA - Adults expected to appear soon in Augusta, Buchanan, Dickerson, Frederick, Lee, Tazewell, Wise, Fairfax, Nelson, Scott, Rockingham, and Shenandoah Counties, and in Independent City of Alexandria. Emergence should peak last 14 days of May with oviposition damage appearing later in summer. (Allen). KENTUCKY - Brood XIV of 17-year race emerged in Boyd, Fleming, Pulaski, and Estill Counties. (Barnett, Scheibner). See CEIR 24(19):331-332 for table of coincidence and maps of Brood XIV (17-year race) and Brood XXI (13-year race).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 73 cases reported from continental U.S. during period April 28-May 4 as follows: Texas 67, Arizona 6. Total of 111 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 120,964,200 as follows: Texas 101,200,200; Arizona 19,584,000; California 180,000. Total of 96,264,000 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 0.8 per animal on backs of 80 Holstein dairy cows of various ages in Fayette County. (Barnett).

FACE FLY (Musca autumnalis) - MARYLAND - First significant activity on cattle observed in Frederick and Carroll Counties. Adults ranged 10-17 per head in heaviest infested herds; ranged 5-12 per head in most herds. (U.Md., Ent. Dept., May 10). MISSISSIPPI - Adults averaged 3 per face on 25 head of Black Angus cattle in Calhoun County. Appeared at this location in 1973 for first time. Species seems established with good chance to spread. (Robinson).

HORN FLY (Haematobia irritans) - OHIO - Adults ranged 200-300 per one side of back on dairy cattle in Jackson County May 10. (Fox). FLORIDA - Averaged 162 adults per side on beef animals in 6 herds at Gainesville, Alachua County, May 10. (Fla. Coop. Sur.). MISSISSIPPI - Adults averaged 300+ per head on cattle in Oktibbeha, Clay, Chickasaw, and Calhoun Counties. (Robinson). TEXAS - Populations increased on livestock in central and north-central areas. (Hoelscher, Turney).

MOSQUITOES - CALIFORNIA - Populations at higher elevations increased rapidly due to warm weather. Farm animals showed much irritation. (Cal. Coop. Rpt.). WISCONSIN - Caused some annoyance to cattle in some Chippewa County areas. (Wis. Ins. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - RHODE ISLAND - Observed on pets, children, and adults; believed to be heavier than 1973 in Washington County. (Field). WEST VIRGINIA - Infested all animals in 48-head beef cattle herd in Upshur County, May 10. Many individuals recovered from head area of animals. (Cole). WISCONSIN - Active from central counties northward. Population appears heavy for this time of year in Washburn County. (Wis. Ins. Sur.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - UTAH - Active in Logan Canyon, Cache County, and in Ogden Valley, Weber County. (Knowlton).

HOUSEHOLDS AND STRUCTURES

GREEN STINK BUG (Acrosternum hilare) - SOUTH CAROLINA - Specimens taken from residence in Greenville County May 15. This is a new county record. (McCaskill).

MISCELLANEOUS WILD PLANTS

A COLEOPHORID MOTH (Coleophora parthenica) - CALIFORNIA - Adult releases made in cages over Russian thistle lands at Indio, Riverside County, at Boron, Kern County, and along Interstate Highway 5 in San Joaquin Valley; releases to be made in Sacramento County. Moths caged for about 7 days to allow mating and adjustment, then released. It is hoped there will be 3 moth generations this year. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - FLORIDA - Hippodamia convergens (convergent lady beetle) larvae moderate throughout 100-acre planting of southern peas in Jackson County. (Fla. Coop. Sur.). ARKANSAS - H. convergens main species found in northwest area, reproduction at light level. (Boyer). INDIANA - Coleomegilla maculata adults frequently noted mating in central district alfalfa fields south of Indianapolis. (Meyer).

PAINTED LADY (Cynthia cardui) - CALIFORNIA - Females returning from Midwest and Pacific Northwest to overwintering breeding grounds (southern California, Arizona, and northwestern Mexico) in late September and early October 1973 died before ovipositing. Winter rains did not occur in time to germinate desert host plants. Annual northward flights usually begin in late February and continue to mid-April. Only 5 adults observed in flight at Riverside, Riverside County, and 2 noted at Mammoth Mountain in Mono County. None observed in desert areas. C. cardui and related damage to soybeans, sunflower, vegetables, or home garden flowers expected to be extremely rare in 1974. (Stern, May 1).

ICHNEUMON WASPS - WEST VIRGINIA - Mass releases of Bathyplectes curculionis and B. anurus as adults and parasitized Hypera postica (alfalfa weevil) larvae made at two sites in each of following counties: Berkeley, Grant, Hampshire, Hardy, Jefferson, Morgan, and Mineral May 16. B. curculionis found established in Morgan and Hampshire Counties prior to releases. These are new county records. (Hacker, Weaver). MICHIGAN - Lemophagus curtus, a larval parasitoid of Oulema melanopus (cereal leaf beetle) taken from adult emergence trap located in Berrien County field insectary May 13 and 14. (DeWitt).

A BRACONID WASP (Microctonus colesi) - OHIO - Emerged from Hypera postica (alfalfa weevil) adult collected in Hancock County alfalfa April 27. (Lewis).

A MYMARID WASP (Anaphes flavipes) - MICHIGAN - Recovered from Oulema melanopus (cereal leaf beetle) eggs collected in wild grasses in Berrien County May 9. (DeWitt).

A MIRID BUG (Deraeocoris brevis) - WASHINGTON - Large numbers of this predator found in Laspeyresia pomonella (codling moth) pheromone traps May 15 in mixed apple and pear plantings at Rock Island, Douglas County. (Rushmore, Retan).

A PHYTOSEIID MITE (Zetzellia mali) - WASHINGTON - This predatory species noted feeding on Panonychus ulmi (European red mite) in orchards at Yakima, Yakima County, May 8. (Johnson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - Eggs averaged 2 per square foot in Morgan County oats May 7 and one per square foot in Berkeley County oats May 8. Cool, dry weather retarded cereal leaf beetle and oat growth. Oats only 2 inches tall. (Hacker). MICHIGAN - Adults common in Calhoun County wheat and scattered in Kalamazoo, Ingham, and Clinton Counties. Heavier infestations expected in 1974 than in 1973. (Netherton et al., May 10). KENTUCKY - Survey conducted in 21 counties during period May 13-17. Adults found only in Harrison, Lewis, and Mason Counties; averaged 1.3 per 100 sweeps of small grains. No eggs found. Second to fourth-instar larvae found in Fleming, Lewis, Mason, Garrard, and Wayne Counties. Larvae averaged 0.3 per 100 linear row feet, except 4.3 per 100 feet in Fleming County and 3 per square foot in Mason County. Third and fourth instars predominated in Fleming County, second and third instars in Mason County. Damage significant in all of 21 counties surveyed. (Barnett, Sperka).

A GRASSBUG (Labops hesperius) - SOUTH DAKOTA - Very heavy on crested wheatgrass and some winter wheatfield borders in Bennett County. Ranged 150-200 per linear foot in some wheatfield borders damage evident. Infestations also reported in Fall River, Meade, Haakon, and Sully Counties. (Kantack, Walgenbach). NEBRASKA - Averaged 347 per 10 sweeps in crested wheatgrass pasture in Scotts Bluff County. (Hagen). WYOMING - Noted at 60 per square foot on crested wheatgrass and winter wheat in Platte County. (Crosby). UTAH - Damaged bulbous bluegrass and intermediate wheatgrass in planted areas of Diamond Fork and Spanish Fork Canyon, Utah County. (Haws). Severe damage reported to planted grass areas at Porterville, Morgan County. (Knowlton).

GRASSHOPPERS - NORTH DAKOTA - No hatch noted in Cass, Ransom, and Richland Counties week ending May 10. Egg development ranged from coagulated to segmented with 3 percent coagulated, 70 percent eye spot, and 24 percent segmented. About 3 percent of egg pods desiccated. Currently, below normal temperatures and excessive moisture conditions delayed hatch in Bottineau, McHenry, and Pierce Counties. Egg development ranged from clear to segmented with 2 percent clear, 12 percent coagulated, 59 percent eye spot, and 24 percent segmented. About 3 percent of egg pods not viable. (Brandvik). WYOMING - First-instar larvae of Aulocara elliotti and Amphitornus coloradus observed in Hot Springs, Platte, and Big Horn Counties. (Crosby, Hardy).

UTAH - Grasshopper egg hatch ranged light to moderate in Curlew Valley portion of Box Elder County and in Brigham area; also in Logan, Hyrum, and Mendon areas of Cache County. (Knowlton). WASHINGTON - Scattered first-instar nymphs of Melanoplus spp. observed along Snake River Canyon and Penawawa Canyon, Whitman County. Cool, wet weather slowed development; only noneconomic counts noted. (PPQ).

GYPSY MOTH (Porthetria dispar) - MAINE - Hatch noted May 14 in Turner area of Kennebec County. This is about 12 days later than 1973. (Gall). MASSACHUSETTS - Heavy populations of small larvae migrating into Hampden County deciduous fruit orchards from nearby forested areas. (Wilder). RHODE ISLAND - Egg hatch continued, first-instar larvae moved to leaves to feed in Washington County. (Field). PENNSYLVANIA - Two egg masses noted in garage and on tree trunk at Manheim, Lancaster County, May 1. First-instar larvae present on egg mass. (Bruckhart).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Three native male adults taken from wild cotton at Plantation Key, Monroe County, April 24; 17 larvae collected from various wild cotton locations at Key Largo, Monroe County, April 29; one larva taken from wild cotton at Lower Matecumbe, Monroe County, April 29. (Fla. Coop. Sur.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae ranged 1-3 under 50-80 percent of young corn plants in 300-400 acres on several Geneva County farms. These pests along with low soil pH values ruined several hundred acres of corn. Older Graphognathus spp. larvae forming pupation cells. Larvae of several other pests also present, but counts much lighter. (Reynolds et al.). Graphognathus spp. larvae destroyed 25 percent of peas, beans, and corn at 2 locations near Excel, Monroe County; destroyed tomato plants at location near Eclectic, Elmore County. (Lemons et al.).

HAWAII INSECT REPORT

New State Record - Many adults of a MUSCID FLY (Atherigona reversura Villeneuve) found in light trap collections at Halawa, Ewa, Waipahu, Waialua, and Castle Junction on Oahu Island during April 1974 by J.W. Beardsley. Determined by A.C. Pont. This is a new United States record but this muscid fly is not known to occur in the continental U.S. A. reversura is reported to be a shoot borer, the only reported host being Cynodon dactylon (Bermuda grass). According to A.C. Pont, the larva does not feed on living tissue, but on the decaying core of the shoot after it bores from the stem into the central shoot. The larva apparently severs the central shoot, causing it to decay. This species is widespread in the Oriental region. There is no indication of the importance of A. reversura to Bermuda grass lawns and golf course turf. (Hardy, Beardsley).

General Vegetables - Heavy infestation of LEAFMINER FLIES (Liriomyza spp.) observed in 4,000 square feet of tomatoes at Panaewa, Hawaii Island. Nearly every leaf infested; 60+ percent of area of many leaves nonfunctional due to damage. Light infestation observed in 1.5-acre mixed planting of eggplant, mustard cabbage, daikon, squash, and tomato at Pearl City, Oahu. Mines averaged less than 5 per infested leaf; larvae damaged less than 5 percent of leaves. (Matayoshi, Mau). CARMINE SPIDER MITE (Tetranychus cinnabarinus) infested about 5 percent of 100+ papaya trees at Wailuku, Maui. Trees with heavy infestations also had moderate to heavy populations of Stethorus siphonulus (a lady beetle). Similar populations of both species noted in Kahului. Heavy infestation of 30+ T. cinnabarinus per square inch observed on small planting of eggplant at Pearl City, Oahu. Light infestation of less than 10 mites per square inch noted on another eggplant planting several hundred feet distant. T. cinnabarinus also light on several hundred square feet of daikon and mustard cabbage on same farm. (Miyahira, Mau). BEAN FLY (Melanagromyza phaseoli) light in backyard planting of snap beans at Honouliuli, Hawaii Island. About 5 percent of young (2 true-leaf stage) seedlings showed damage. (Matayoshi).

Turf and Pastures - Moderate damage by GRASS WEBWORM (Herpetogramma licarsisalis) observed in about 5 acres of Kikuyu grass pasture at Waihee, Maui. Larvae averaged 28 per square foot. All 58 eggs recovered parasitized by Trichogramma sp. (a minute egg parasite). H. licarsisalis larvae light at Kaupakulua (0.4 per square foot) and at Haiku (2.6 per square foot) on Maui. (Ah Sam).

Beneficial Insects - Survey of 0.25 acre of banana at Honouliuli, Oahu, indicated about 65 percent of Erionota thrax (banana skipper) larvae parasitized by a BRACONID WASP (Apanteles erionotae). Total of 40 banana skipper rolls checked; 26 contained A. erionotae pupae or pupal cases. This is same location where an ENCYRTID WASP (Ooencyrtus erionotae), a banana skipper egg parasite, being evaluated. At this site, 2 releases of A. erionotae adults made: 75 released January 17, 1974, and 350 released February 6, 1974. (Teramoto). Two DUNG BEETLES (Euoniticellus intermedius and E. africanus), 500 specimens of each, released April 5, 1974, at Parker Ranch (at Kumolo and Puu Pupapa), Hawaii Island. Introductions made as part of Haematobia irritans (horn fly) control program. (Mau).

LIGHT TRAP COLLECTIONS

Locality	Temp. (F)	Precip. (Inches)	Type of trap	Moths		Beetles		Crawlers		Crops	
				BL	BL	BL	BL	BL	BL	BL	BL
ARIZONA Mesa 5/6-12			BL	102	6						
FLORIDA Gainesville 5/10-14			BL			15					
INDIANA (Districts) East Central 5/3-9 West Central 5/3-9			BL 2BL		8						
IOWA Beaconsfield 5/7-13 Gilbert 5/7-13 Kanawha 5/7-13			BL BL BL	26 18 3							
KANSAS (Counties) Barton 5/8-14 Greeley 5/6, 5/9			BL BL	61	1840						
KENTUCKY Lexington 5/10-17			BL	4							
MICHIGAN (County) Lenawee 5/8-12			BL	5							
MISSISSIPPI Stoneville 5/10-16	58-89	1.30	2BL	18	1	6					
MISSOURI Parkville 4/24-5/7 Portageville 4/9-30			BL BL	15 10							
OHIO Wooster 5/11-17			BL	65							
OREGON Denver 5/9-15 Pleasant Hill 5/8-13			BL BL								

Weather of the week continued from page 358.

During the weekend, more thunderstorms and heavy rains deluged the middle Mississippi Valley. The heaviest rain was measured at Kansas City and St. Joseph, Missouri, Saturday morning. St. Joseph, Missouri, recorded 2 inches and Kansas City 2.50 inches. Both cities had recorded about 7 inches of rain in less than 2 days. Saturday, Kansas and Nebraska reported locally heavy rains at 3-4 inches in a little over an hour during the afternoon aggravating already flooded rivers. Some roads were flooded in northeastern Kansas and southeastern Nebraska, and heavy rains in northeastern Missouri caused flooding and forced the evacuation of some small towns. Sunday, a week-long siege of thunderstorms and tornadoes continued in the Southeast and upper Plains. Tornadoes were reported at Wagram, North Carolina, and Ladson, South Carolina, while in the Plains tornadoes roared through Philip, South Dakota, Nenzel, Nebraska. Widely scattered thunderstorms spread from the Plains through the Ohio Valley into the southern Atlantic coast.

TEMPERATURE: The Nation's northern half registered below normal temperatures last week while the southern half recorded temperatures averaging above normal readings. These contrasting temperatures mark a transition period between spring and summer seasons. Meanwhile, cooler air along the Pacific coast kept the temperatures between 2 and 8 degrees below normal in most of the area west of the Rockies during the week. Early in the week, cool air moved through the northern Rockies and northwestern Plains with most spots recording early morning temperatures only in the 30's. Early Tuesday afternoon, temperatures dipped 10 degrees to 25 degrees below seasonal normals from Wisconsin and Minnesota westward through the northern half of the Plains and Rockies into the Pacific Northwest. The morning temperature dropped to 25 degrees at Casper, Wyoming, the coldest May 14th on record. Midweek temperatures warmed to near 90 degrees northward into parts of the lower Plains and mid-Mississippi Valley. Eighty-degree readings were common in the lower Great Lakes and lower New England area. While cooler than normal temperatures were common from the northern Plains and Rockies to the Pacific coast Thursday, San Diego, California, only warmed into the mid-60's. Friday, temperatures soared into the 90's as far north as southern New England. Record highs were set at Richmond, Virginia--94 degrees, and Providence, Rhode Island--91 degrees. Lubbock, Texas, reported a record high Friday of 97 degrees while El Paso, Texas, reached a record high for so early in the season with 99 degrees. Saturday, Reno, Nevada, set a record low temperature with a morning reading of only 19 degrees. However, farther west it was even colder--Truckee, California, recorded the Nation's coldest reading of 6 degrees. Sunday, warm and humid air continued to flow off the Gulf of Mexico and covered the southern half of the Nation east of the Continental Divide. Temperatures at 2 p.m. ranged from 39 degrees at Ely, Nevada, to 95 degrees at Pueblo, Colorado, on the other side of the Rockies.

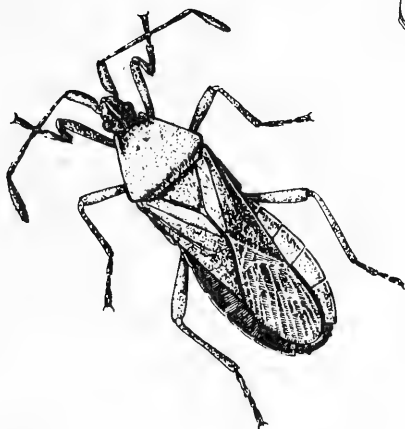
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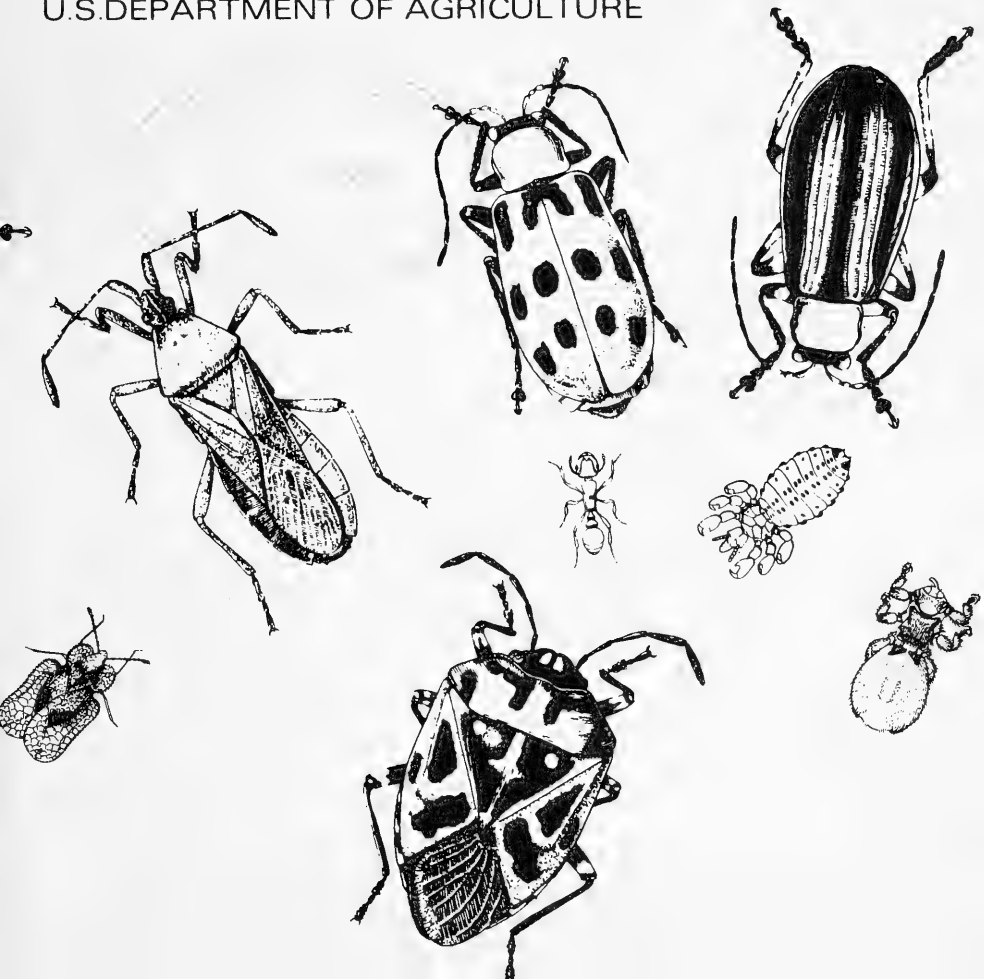


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Cooperative Economic Insect Report

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



ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

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Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM at outbreak levels in small grains on Maryland Eastern Shore, severely damaged small grains in Coastal Plain of Virginia. Above control levels on small grains in central Tennessee, heavy on corn in northwest Missouri. (p. 379). TOBACCO BUDWORM major insect problem on tobacco in southern South Carolina. (p. 380).

ALFALFA WEEVIL at control levels on alfalfa seed fields for first time in Washington. Egg laying peaked in Utah alfalfa; larvae heavy in central Colorado, populations leveling off in Nebraska with controls underway. Damage still above normal in Maryland. (pp. 383-384).

SOD WEBWORMS serious on 128,000 acres of rangeland in north-central South Dakota. (p. 382).

FACE FLY much heavier than usual on livestock in Alabama, control difficult. (p. 392).

GRASS BUGS heavy on grasslands in Idaho, Utah, and South Dakota; severely damaged several thousand acres of planted grasses in north-central Utah. (p. 394).

Prediction

TOBACCO FLEA BEETLE populations and damage expected to be above normal on tobacco in Maryland due to mild winter. (p. 385).

Detection

EUROPEAN ALFALFA BEETLE collected in New Jersey. This is a new United States record and first report of pest in North America. This phytophagous coccinellid has been reported as serious pest of alfalfa in Hungary, USSR, and Yugoslavia. Minor feeding on sugar beet has also been reported. (pp. 382-383).

For new county records see page 395.

Reports in this issue are for week ending May 24 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

JUNE 1974

The National Weather Service's 30 day outlook for June is for temperatures to average below seasonal normals in the Central and North Pacific Coast States and across the northern tier of States to the Northeast. Above normal averages are indicated from the southern Plateau to the South Atlantic Coast States and in central portions of both the Great Plains and the Mississippi Valley. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed the median value along the south Atlantic coast and over the northern half of the Nation with the exception of the Middle and North Atlantic Coast States. Elsewhere less than the median amount is expected.

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

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - DELAWARE - Larvae reported in cereal crops, including corn, in several areas; controls necessary in some fields. (Burbutis). MARYLAND - During week ending May 17, infestations below normal in wheat and barley. Heavily infested 200 acres of bluegrass sod planted in fall 1973. Ranged 2-7 per square foot, controls applied. Young specimens noted in outbreak populations on Eastern Shore week ending May 24. Heaviest counts ranged 5-6 per square foot in barley and wheat. About 10,000 acres in Dorchester, Caroline, Wicomico, and Talbot Counties needed treatment. Migration occurred from small grain into nearby cornfields in several areas. (U. Md., Ent. Dept.). VIRGINIA - Larvae severely damaged barley and wheat in Coastal Plain counties. Treatment should be applied prior to or as soon as larvae begin cutting. Estimates of acres treated by county May 21 as follows: Middlesex 400-500 (mostly wheat), Henrico 500-1,000 (mostly barley), Virginia Beach 3,000-4,000 (barley and wheat), Lancaster 500, Richmond 100. Some treatment applied in Charles City County. No treatments applied in Surry, Sussex, Essex, Isle of Wight, James City, and Hanover Counties. (Allen).

TENNESSEE - Armyworm larvae left barley week ending May 17 and damaged pastures in Fayette and Hardeman Counties. Damaged corn and small grains in Jefferson County, lawns in localized areas of Davidson County, and grains in localized central areas. Treatments applied in many cases. This species and Spodoptera ornithogalli (yellowstriped armyworm) above treatment levels in many central area grain fields week ending May 24. Ranged 3-6 per linear foot. P. unipuncta matured many fields of wheat, oats, and barley in western area. Damage severe to rank pastures where controls ineffective. P. unipuncta heavy on grain in Lake, Obion, and Weakley Counties, increased in Hardin County. S. ornithogalli heavy in Weakley County wheat and often present with P. unipuncta and Peridroma saucia (variegated cutworm). Leaves stripped in all fields and wheat heads being cut in one field surveyed. Larvae ranged half to full grown. Chemical treatments applied in most cases. (Gordon et al.).

KENTUCKY - Armyworm larvae still active on wheat and barley in Warren and Simpson Counties. (Barnett). ILLINOIS - Light on wheat in traditionally heavy infestation area. Some unconfirmed heavy infestations reported. Infestations ranged as follows per row foot by county (number of fields in parenthesis): Macoupin 0-2 (5), Madison 1-11 (4), Clinton 0-4 (2), Monroe 0-6 (8), Perry 0-11 (5), Washington 0-25 (5). (Ill. Ins. Rpt.). MISSOURI - Larvae heavy on corn in Livingston County. Counts, before controls applied, ranged 3-6 per plant. (Thomas). Larvae light to moderate in wheat and barley in southwest area. Counts in infested fields ranged 1-12 per square foot. (Munson).

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Adults increased slightly but still not of major importance to vegetable growers. Counts per 100 sweeps averaged less than 10 in southeast, south-central, southwest, and central districts, except for 12 in Buffalo County and 30 in western Crawford County. Nymphs continued to increase throughout State. Typical counts ranged 12-24 nymphs per 100 sweeps through central and southern districts, with 105 per 100 sweeps in location of winter grain in southern Sauk County.

Nymphs up to three-fifths grown in central district, those at southern Sauk County site more advanced and should be adults next 7-14 days if weather stays warm. (Wis. Ins. Sur.). MINNESOTA - Aster leafhopper light in south-central district alfalfa, averaged 8 per 100 sweeps. (Minn. Pest Rpt.). NORTH DAKOTA - Migrating spring adults averaged 6 per 100 sweeps in winter wheat and rye in Adams, Hettinger, and Stark Counties. (Brandvik).

CORN EARWORM (Heliothis zea) - ALABAMA - Larvae heavy, 1-2 per stalk, in 30 percent of corn in 8-acre planting at Wilmer, Mobile County. (Lockhart, Howell). Larvae damaged pods of snap beans in Crenshaw and Lee Counties. (Seibels et al.).

GREENBUG (Schizaphis graminum) - TEXAS - Very light populations averaged less than 3 per drilled row foot in few small grain fields in Hardeman County. Small grains maturing rapidly due to hot, dry winds. Greenbugs hard to find in Rolling Plains area. (Boring). S. graminum and Rhopalosiphum maidis (corn leaf aphid) very light on grain sorghum in south-central area. Populations continued to decline in central counties. (Cole, Hoelscher).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Averaged 4 per sweep in McLean County. (Ill. Ins. Rpt.). MINNESOTA - First adults of season taken in Steele and Waseca Counties, averaged 5 per 100 sweeps. (Minn. Pest Rpt.).

TOBACCO BUDWORM (Heliothis virescens) - SOUTH CAROLINA - Larvae continued major insect problem on tobacco in southern half of State. Infestations ranged up to 90 percent in some areas. Controls applied. (Benton).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW YORK - First pupation observed May 13 at Geneva, Ontario County, and May 16 in Highland area of Ulster County. (Davis, Straub). DELAWARE - Adults in blacklight trap in Sussex County averaged 36 per night during period May 15-21. These counts heavier than usual for first spring flight. (Burbutis). MARYLAND - Pupation 80-90 percent complete on Eastern Shore week ending May 17. Moth flight activity behind 1973 levels in most areas. Peak flights 7-14 days behind normal. Heaviest counts averaged 36 moths per night (May 14-16) in Dorchester and Caroline County area; 200 percent increase over normal first flight activity. First egg mass of season recovered from early planted field corn near Hurlock, Dorchester County, week ending May 24. Averaged less than 1 mass per 200 plants in 400 acres. Adults averaged up to 12 per night in Dorchester County. Other Eastern Shore areas averaged 3 per night. Adult flights decreased. (U. Md., Ent. Dept.).

OHIO - European corn borer moth taken in blacklight trap May 23 at Wooster, Wayne County. About 7 days earlier than in 1973. (Rings). ILLINOIS - Development by county as follows: Massac - 48 percent pupation, 52 percent emergence; Champaign - 40 percent pupation, no emergence; Ogle - 100 percent larvae. One male moth and one female moth taken in Champaign County. (Ill. Ins. Rpt.). MISSOURI - Moths observed in cornfields in southwest area. Egg masses and leaf feeding observed in north-central area corn. (Thomas). WISCONSIN - Dissections of cornstalks at Portage, Columbia County,

showed 10 percent pupation as of May 22. Caged larvae in Dane County not pupated by same date. Few moths should appear in black-light traps about June 3. (Wis. Ins. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae heavy and damaged entire field of corn in Escambia County. Larvae damaged field of corn in Jellico Community, Houston County. (Wood, Roney). GEORGIA - Damage light to heavy on corn in southern area; many fields replanted and insecticide treatments applied week ending May 18. (Suber). SOUTH CAROLINA - Damaged corn in Charleston County, some fields replanted. Controls applied. (Thomas).

BLACK CUTWORM (Agrotis ipsilon) - MARYLAND - Damage still light to moderate on several thousand acres of corn. Heaviest damage (6-8 percent) noted in Dorchester and Wicomico Counties. Treatments applied. (U. Md., Ent. Dept.). ILLINOIS - Less than one damaged plant per 500 plants in field corn observed in west-southwest and southwest districts. Very few adults taken in Champaign County blacklight trap. (Ill. Ins. Rpt.). OKLAHOMA - This species and probably A. venerabilis damaged Osage County corn. About 15 percent of stalks cut in one field. (Okla. Coop. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Populations increased on Eastern Shore. Most fields ranged 5-50 adults per 100 plants; heaviest counts ranged 1-2 per plant in Dorchester County. (U. Md., Ent. Dept.). OHIO - Injury to seedling field corn increased statewide. Adults ranged up to 5-6 per 2 to 5-inch tall plant in 2 or more fields in Adams, Harrison, Allen, and Richland Counties. (Fox). Growers inquiries increased sharply as adults and injury became more noticeable. (Blair). ILLINOIS - Populations in Madison and Monroe Counties averaged 32 and 37 per 10 plants, respectively, on field corn 5-12 inches tall. All plants showed evidence of feeding and individual plants had up to 12 beetles per plant. (Ill. Ins. Rpt.). KENTUCKY - Damage to corn minor in eastern area. (Barnett).

A BILLBUG (Sphenophorus callosus) - SOUTH CAROLINA - Infestations economic in most cornfields in Marion, Bamberg, Barnwell, Orangeburg, and Williamsburg Counties. Completely destroyed some stands. Treatment presently not giving control. (Thomas).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Very light in grain sorghum in south-central and central areas. (Cole, Hoelscher). OKLAHOMA - Ranged 0-15 per plant on young corn in Muskogee County and 0-10 per plant on young sorghum in Wagoner County; first of season. (Okla. Coop. Sur.).

SMALL GRAINS

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - ARKANSAS - Surveys conducted to determine extent of adult feeding on newly formed leaves of rice in fields flooded for short time in Lonoke, Arkansas, Prairie, Monroe, and Jefferson Counties. In fields examined, 46 percent of newly formed leaves showed damage. This above 35 percent found in 1973. Since pest now resistant to insecticide used as seed treatment for many years, there is concern that species is building up to higher levels than existed for some time; previous data and observations indicate this. (Boyer).

YELLOWSTRIPED ARMYWORM (*Spodoptera ornithogalli*) - ARKANSAS - Occasional second-instar larva observed on rice in Lonoke, Arkansas, Prairie, Monroe, and Jefferson Counties; overall counts very light. However, species has been somewhat more common in early summer on several crops in recent years. Found on rice in few fields in State in 1973. (Boyer).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - MONTANA - Infested wheat in area from Three Forks, Gallatin County, to Toston, Broadwater County. About 10,000 acres lightly to very heavily infested. (Pratt).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - WISCONSIN - Averaged 15 or less per 100 sweeps of grain at most locations in State. Averaged 30 per 100 sweeps of rye at one Marquette County site. (Wis. Ins. Sur.). **MISSISSIPPI** - Averaged 10 per head on average sized heads (2.5 inches) of 200 acres of rapidly maturing wheat in Clay County. (Robinson).

HESSIAN FLY (*Mayetiola destructor*) - ALABAMA - Very heavy population all but destroyed wheat crop in Houston County; 6-8 pupae common per stalk. Infestation worse than in 1973 when first discovered. (Mathews).

WINTER GRAIN MITE (*Penthaleus major*) - TEXAS - Populations ranged 1-20 per foot of row in some small grain fields in Archer, Baylor, and Hardeman Counties. (Boring).

BROWN WHEAT MITE (*Petrobia latens*) - NEVADA - Heavy in several winter wheat fields with damage noted at Lovelock, Pershing County. Irrigation has not provided satisfactory control and chemical treatments planned. (Munk).

TURF, PASTURES, RANGELAND

SOD WEBWORMS (*Crambus* spp.) - SOUTH DAKOTA - Found infested 128,000 acres of rangeland in Corson, Dewey, and Ziebach Counties May 24; 20,000 acres have been destroyed, additional 50,000 acres being destroyed. (Kantack).

FORAGE LEGUMES

EUROPEAN ALFALFA BEETLE (*Subcoccinella vigintiquatuorpunctata* (L.)) - NEW JERSEY - Two live adults collected in meadowlands near Hackensack, Bergen County, June 28, 1973, by R.L. Jacques. Recently determined by R.D. Gordon. This is a new United States record and first report of this coccinellid in North America. *S. vigintiquatuorpunctata* is a phytophagous species in the same subfamily (*Epilachninae*) as *Epilachna varivestis* (Mexican bean beetle). European alfalfa beetle has been reported as a serious pest of alfalfa in Hungary, USSR, and Yugoslavia. Minor feeding on sugar beet, carnation, and bouncing-bet has been reported. General distribution includes southeast Europe and Turkey. Also recorded in the Netherlands, Germany, and Italy. There is one interception record of this pest in the U.S. It was found on *Crataegus* sp. for propagation at Hoboken, New Jersey, February 26, 1948, in passenger baggage from Germany.

European alfalfa beetle has 2 generations a year in Yugoslavia, adults overwintering at bases of alfalfa stems or among remains of adjacent plants. Some seek sheltered places in nearby wooded areas or other locations. Activity is resumed when temperatures are about 45 degrees F. Adults leave overwintering sites during mid-March in alfalfa fields. Females usually oviposit from early April to mid-May. Eggs are laid mainly on lower, but also upper, surfaces of leaves, rarely on stems. Larvae feed exclusively on leaves, being full grown by mid to late May if weather remains warm. All stages are present by the end of May in Yugoslavia. First-generation adults emerge during late May and June, feed voraciously, and oviposit from mid-June to July. Second-generation larvae are present during late June and July. Pupation occurs in late July, adults appearing in 7-12 days. Second-generation adults usually enter overwintering sites in October. (PPQ).

ALFALFA WEEVIL (*Hypera postica*) - WASHINGTON - First through fourth-instar larvae ranged up to 20 per sweep in alfalfa seed fields in Touchet area, Walla Walla County, May 17. First occurrence of pest at control levels in seed fields in State. Larvae averaged 6 per sweep in 10 fields surveyed. Cool weather slowed development; larvae increased from 2 per sweep May 3 to 10 per sweep May 17. (Alfalfa Seed Pest Mgt.). NEVADA - Larvae per sweep in alfalfa ranged 8-20 at Lovelock, Pershing County, (Arnett, Barclay); 2-25 in Mason Valley and 4-30 at Fernley, Lyon County, (Barclay); 2-17 at Schurz, Mineral County; and 2-10 in northern end of Fish Lake Valley, Esmeralda County. (Barclay, Bechtel).

UTAH - Alfalfa weevil egg laying just reached peak. More eggs laid this spring in Cache County than in 1973, but plant growth much ahead of last season in relation to larval size and numbers. No conspicuous injury noted yet in northern area. About one adult and one larva per sweep. Most alfalfa will be cut before control, with most control being applied as stubble spray after harvest in area. (Davis). Control applied and some damage noted in Delta and Fillmore areas of Millard County. (Chapman). COLORADO - Populations very heavy in Pueblo County area, larvae ranged 20-25 per sweep in some fields. (Hantsbarger). OKLAHOMA - Light in alfalfa stubble checked in Wagoner and Muskogee Counties week ending May 17. (Okla. Coop. Sur.).

NEBRASKA - Alfalfa weevil counts apparently leveling off in southern third of State; first to third-instar larvae, pupae, and new adults present in all alfalfa. Controls underway in all districts surveyed, many fields cut early. In Dawson County, 40 percent of first cutting made, 5-10 percent harvested in Otoe County. Counts per 20 sweeps by county as follows: Dawson (23 fields), adults 0-37, larvae 75-908; Franklin (2 fields) adults 10-30, larvae 520-1,900 (tip feeding 100 percent in these fields); Otoe (22 fields) adults 0-37, larvae 75-908; Thayer (3 fields) adults 10-320, larvae 160-1,740 (tip feeding 100 percent in these fields); York (2 fields) adults 10-30, larvae 1,200-1,240 (tip feeding 100 percent both fields). (Manglitz et al.). IOWA - Larvae averaged less than one per sweep in Wayne County alfalfa. (Iowa Ins. Sur.). MINNESOTA - Activity in southeast and south-central districts still very light. First to second-instar larvae ranged 1-3 per 100 sweeps of alfalfa. (Minn. Pest Rpt.).

WISCONSIN - Alfalfa weevil larvae continued light in most alfalfa; first to fourth instars ranged 0-28 (average 4) per 50 sweeps. In very advanced fields few larvae appear ready to pupate. Adults ranged 0-7 (average 1) per 50 sweeps. Some feeding evident in most alfalfa, but only about 10 percent of tips showed injury in any of fields surveyed. (Wis. Ins. Sur.). ILLINOIS - Populations averaged 2 per sweep with light damage to spring-seeded alfalfa in Adams County. (Ill. Ins. Rpt.). MICHIGAN - Damage appeared in alfalfa and expected to increase rapidly with warm weather. One field cut early due to extensive damage. (Sauer).

OHIO - Percentage of alfalfa terminals with injury and intensity of damage by alfalfa weevil larvae increased Statewide. However, serious injury still very uncommon. Few treatments reported. Situation in direct contrast to same period in 1972 and 1973 when economic damage already widespread; much treating had begun and early cutting to avoid injury was common. (Fox). Currently, heavy damage may still occur, especially in northwest area if harvest not completed within next 14 days. Egg hatch and larval development in area behind most of State. Thus, full-grown larvae can quickly cause economic damage to alfalfa during this period. (Blair). KENTUCKY - Eggs averaged 21.1, 3.0, 3.0, 27.8, 22.0, 17.2, and 18.6 per square foot in forage legumes at various Fayette County locations. Larval populations peaked about 14 days ago. (Barnett, Parr).

VIRGINIA - Based on 7 fields sampled (49 acres) 39.4 percent of tips infested with alfalfa weevil larvae. Average estimated defoliation noted at 20.3 percent. Most larvae small and averaged 1.13 per tip based on 350 sampled. Two fields (29 percent) exceeded control levels. Based on total acreage sampled, 47 percent of all acres above recommended treatment level. Many fields being harvested and early harvest may be effective control. Percent of acres treated by county as follows: Roanoke 50, Rockbridge 40-50, Culpeper almost 100. (Allen). MARYLAND - Damage still above normal in forage crops in Frederick, Washington, Carroll, and Montgomery Counties. First cuttings underway in central area. Damage levels peaked and pupation should reduce larval populations within next 14 days. Most treatment applied. Heaviest larval populations ranged 150-200 per 10 sweeps in several central area locations. (U. Md., Ent. Dept.).

ALFALFA SNOUT BEETLE (Otiorhynchus ligustici) - NEW YORK - Beetles observed May 15 and 16 moving across roads, generally from fields with low density of alfalfa or clover toward fields with heavier growth. Beetle density about 13 per 100 linear meters, based on 2 observations in Jefferson County and one observation in Wayne County. In Wayne County, beetles averaged about 6 per 100 linear meters moving across same road May 21. (Sliwa).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Moths taken in pheromone traps at 12 locations in northwest counties totaled 131 May 20, 1974, compared to 12,013 for same localities May 20, 1973; catches for 1973 peaked that date. Reflected difference probably due to recent cold, wet weather. Currently, moths averaged 7.3 per trap in 32 of 50 pheromone traps in Walla Walla County. Averaged one per night week ending May 17. (Eide et al.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larvae ranged 4-6 per 25 sweeps in alfalfa near Tucumcari, Quay County. (N.M. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Ranged 1-450 per 50 sweeps in alfalfa. Return of warm weather greatly increased activity of Praon sp. (a braconid wasp); observed attacking aphids. Continued activity of this parasite should again cause decline of A. pisum populations next period. Lady beetles also abundant in alfalfa and preying on aphids. (Wis. Ins. Sur.). MINNESOTA - Ranged 20-25 per 100 sweeps in southeast and south-central area alfalfa. No alates noted. Populations remained relatively stable despite favorable weather conditions. (Minn. Pest Rpt.). OKLAHOMA - Pea aphid ranged 150-200 per 10 sweeps of alfalfa in Wagoner and Muskogee Counties. (Okla. Coop. Sur.). NEW MEXICO - Ranged 15-20 per 25 sweeps of alfalfa in Chaves County. (N.M. Coop. Rpt.). UTAH - Ranged 2-6 per sweep in Cache County alfalfa (Davis); moderate in Millard County (Chapman). NEVADA - Occasional specimens to light populations of up to 15 per sweep present in alfalfa checked in Esmeralda, Mineral, and Pershing Counties. (Barclay, Bechtel).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Spittle masses exceed economic threshold of one spittle mass per alfalfa plant in Shelby and Harrison Counties. (Fox). MICHIGAN - Spittle masses evident in alfalfa, clover, and other crops and weeds. Appear to be more common than past years. (Sauer).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Adults and nymphs very heavy in alfalfa in Washita, Custer, and Caddo Counties. (Okla. Coop. Sur.).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - NORTH CAROLINA - Spot checks in 12 fields in Sampson, Wayne, Johnston, and Robeson Counties indicate damaging population of E. varivestis and Cerotoma trifurcata (bean leaf beetle) on 2 and 4-leaf plants in some fields. In 3 of 12 fields observed in Sampson County, foliage loss about 20 percent. Growers in Coastal Plain area should survey fields. (Hunt, Johnson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ILLINOIS - Averaged one per row foot in damaged areas of Madison County field of 3-inch plants. All plants not emerged, damage spotty. (Ill. Ins. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - SOUTH CAROLINA - Larvae averaged about one per 5 sweeps in vetch near soybean fields in Anderson County May 15, 1974. Larvae will probably move to soybeans when vetch dries. Collected by G.R. Carner. (McCaskill).

PEANUTS

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This species and other thrips very heavy and damaged several hundred acres of peanuts in untreated areas of Coffee County, and in some areas where preplant systemics applied but not taken into plants due to drought conditions. (Bond).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Some adults feeding in cotton terminals; emergence not yet peaked. Can be serious problem in regularly infested areas if weather conditions favorable for development in these areas during last week of June through mid-July. (Locke). GEORGIA - Average number of adults per Leggett trap during period May 8-16 by county: Dooley 4.7, Burke 6.6. (Boone). ALABAMA - Live weevil counts on 4 to 6-leaf cotton in Monroe County zero. One weevil collected on 4-leaf cotton on farm in Shelby County; one weevil on farm in Limestone County, and none taken on 11 other farms in Limestone, Morgan, and Colbert Counties. Collections on 2 to 5-leaf cotton lighter than usual. (Gambel et al.). MISSISSIPPI - Averaged 25.6 per trap in 100 Leggett traps in nondiapause area of Yalobusha County and 7.4 per trap in 100 traps in diapause area. (Collins).

ARKANSAS - Boll weevil trapping begun; 200 in-field traps in operation. In Craighead County, 13 weevils taken in 5 traps at one location (average 2.6 per trap) May 21. At another location, 47 weevils taken in 5 traps May 21 (average 9.4 per trap). In Clay County, 2 traps operated at each of 5 locations. On May 21, weevil averages ranged 3-42 per trap. (Boyer). OKLAHOMA - Adults collected in pheromone traps totaled 34 from 32 traps in Muskogee County, 9 in 10 traps in Caddo County, and 19 in Jackson County. (Okla. Coop. Sur.). TEXAS - Populations very heavy in most south-central area fields. Pheromone catches continued to increase. Insecticide treatments for overwintering weevils applied in heavily infested areas of Calhoun, Victoria, Wharton, and Milam Counties. Heavy populations also reported in most central counties (Cole, Hoelscher).

BOLLWORM (Heliothis zea) - ARKANSAS - No moths taken in blacklight trap at Kelso, Desha County; 14 moths taken in two traps April 25 through May 20 at Coy, Lonoke County. (Boyer).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This species and other thrips heavy on untreated cotton in northern area. Several hundred acres treated. (McQueen).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - First infestations of season noted in St. Marys and Charles Counties. Adults ranged 1-2 per 10 plants in newly set fields. Population will increase rapidly in next 10 days with much acreage being planted in southern area. Damage and populations expected to be well above normal due to mild winter. (U. Md., Ent. Dept.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW JERSEY - This pest and various flea beetles common on potatoes and other crops in central and southern counties. Treatments should be applied as needed. (Ins.-Dis. Newsltr.). MARYLAND - Adults still ovipositing in commercial and garden potatoes throughout State. First and second-instar larvae noted in most untreated fields, damage still light. Treatments will be needed within next 14 days. Peak oviposition expected within 7-10 days in Wicomico and

Worcester Counties. (U. Md., Ent. Dept.). TENNESSEE - Colorado potato beetle caused extensive damage to potatoes where no controls applied. (Gordon, Bruer). OKLAHOMA - Adults, eggs, and larvae moderate and increased on home garden potatoes in Mayes County; larvae active in Payne County. (Okla. Coop. Sur.).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults active on beans throughout Eastern Shore. Populations light but expected to increase next 14 days. Oviposition underway in Somerset and Wicomico Counties. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults light, 1-2 per 10 row feet, but active in all snap bean fields on Eastern Shore. Beans expected to keep ahead of damage. (U. Md., Ent. Dept.).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Appeared in pea fields. Averaged one winged aphid per 50 sweeps in southern area. Few small nymphs noted in one Rock County pea field, indicating reproduction well underway. Surveys in La Crosse, Trempealeau, Portage, and Waushara County pea fields revealed no aphids. (Wis. Ins. Sur.). MARYLAND - Some activity noted in late planted peas in Wicomico and Talbot Counties. Populations ranged 2-3 per square foot in heaviest infested fields (60 acres). Most Eastern Shore fields still clean to date. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Larvae damaged beans and peas in Charleston County. Controls applied. (Thomas). ALABAMA - Larvae caused light to medium damage to all field peas examined in Ashford and Columbia areas of Houston County. (Roney).

DECIDUOUS FRUITS AND NUTS

PEACHTREE BORER (Sanninoidea exitiosa) - SOUTH CAROLINA - Larvae heavy in 12 to 15-year-old Coronet peach orchard in Edgefield County; damage heavy to 15-20 acres of trees. Larvae averaged 10 per tree. Collected May 12, 1974, by G.R. Carner. This is a new county record. (McCaskill).

WHITEMARKED TUSSOCK MOTH (Hemerocampa leucostigma) - MICHIGAN - Larvae became serious in southwest and Grand Rapids areas where limited treatments applied especially on young fruit orchards. (Sauer).

BAGWORM (Thyridopteryx ephemeraeformis) - GEORGIA - Heavy infestation on home orchard Muscadine vines and apple trees in Laurens County. (Brown).

CODLING MOTH (Laspeyresia pomonella) - ARIZONA - Larvae observed in developing apples and apricots at Safford, Graham County. (Ariz. Coop. Sur.).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - Blacklight traps in Wayne County indicate adult activity begun in apple orchards. (Hall).

EUROPEAN RED MITE (Panonychus ulmi) - MAINE - Overwintering eggs began hatch in apple orchards May 14; 11 days later than 1973 and 5 days earlier than 1972. Warm temperatures during middle of past week increased egg hatch and about 80 percent of overwintering eggs hatched by weekend. Populations seem heavy in some orchards. Treatments should be applied before summer eggs laid in early June. (Gall). MICHIGAN - Nymphs found across fruit belt. Heaviest concentration noted in lower northwest area where no treatments applied. (Sauer).

TARNISHED PLANT BUG (Lygus lineolaris) - SOUTH CAROLINA - Collected from peach tree in Greenwood County May 20, 1974, by T.J. Bryson. Determined by D.K. Pollet. This is a new county record. (McCaskill).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - GEORGIA - Eggs present for about 10 days; peak crawler population expected about mid-June. (Lawrence et al.).

FALL WEBWORM (Hyphantria cunea) - TEXAS - First-generation infestations observed in Victoria, Lavaca, Fayette, Lee, Williamson, De Witt, and Travis Counties. Up to 15 tents per pecan tree observed in these counties. Increased activity noted in Uvalde area and in other central counties. (Green et al.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First eggs of season found May 20 on pecans in southern Love County. Ranged 3-8 percent of clusters infested and about 50 percent of eggs turning pink. On May 21, counts averaged 8 percent (25 percent of eggs pink) in Marshall County, 18 percent (55 percent pink) in Johnston County, and 22 percent (81 percent pink) in Bryan County; first eggs reported from Tulsa County. Counts averaged 16 percent (62 percent pink) May 22 in Carter County, 50 percent (46 percent pink) and 25 percent (40 percent pink) in Murray County, 18 percent (88 percent pink) in Pontotoc County, and 4 percent

(100 percent pink) in Garvin County. On May 23, counts averaged 14 percent (71 percent pink) in Garvin County, 12 percent (50 percent pink) in Pottawatomie County, 14 percent (28 percent pink) in Seminole County, 4 percent (100 percent pink) and 14 percent (25 percent pink) in Lincoln County, 12 percent (17 percent pink) in Okfuskee County, and 9 percent (10 percent pink) in Payne County. (Okla. Coop. Sur.).

TEXAS - First-generation emergence of pecan nut casebearer has been underway over long period in most south-central areas. Resulted in prolonged oviposition period; 2 treatments will be necessary for effective control. Treatments applied in Medina, Maverick, Uvalde, and Edwards Counties. Maverick County groves treated May 9-14, treatment applied in Edwards County May 11-16. Populations developed sporadically in San Angelo area. Suggested treatment date in Llano County May 15-17. Treatment for other counties in area should be applied May 24-27. Small pupal population collected May 8-11 from trees in Wilbarger and Hardeman Counties. Moth emergence from these pupae indicated treatment should be applied earlier this year than in most years. Larvae continue to be found under bands, 2 treatments will be needed in Wilbarger, Wichita, Jones, and Young Counties. First application should be applied May 24-27 and second 5-7 days later. (Green).

PECAN PHYLLOXERAS (Phylloxera spp.) - OKLAHOMA - P. devastatrix (pecan phylloxera) moderate on Tulsa County pecans week ending May 17; also reported on pecan tree in Blaine County. Currently, scattered heavy infestations seen or reported on pecan trees in Payne, Pottawatomie, Seminole, Muskogee, Marshall, and Garvin Counties. Scattered heavy infestations of P. notabilis (pecan leaf phylloxera) seen on pecan trees in Carter, Garvin, and Seminole Counties. (Okla. Coop. Sur.).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - SOUTH CAROLINA - Collected from deodar cedar in Colleton County May 20, 1974, by J.D. Walters. This is a new county record. (McCaskill).

ALABAMA - All eggs hatched, first and second-instar larvae fed on host trees and shrubs in northern area. (Sticher et al.).

TENNESSEE - Eggs hatched in many central areas. Populations expected to be heavy. Treatments should be applied now while larvae small. (Gordon, Bruer). OHIO - Overwintered eggs hatched in southeast area. First and second-instar larvae fed on juniper, arborvitae, and various ornamental and shade trees. (Purrington). Treatments should be applied now. (Nielsen). MISSOURI - Small larvae observed throughout southern and central areas. (Munson).

OKLAHOMA - Heavy on evergreens in Jackson, Custer, Caddo, and Washita Counties, moderate in McCurtain County. (Okla. Coop. Sur.).

A TORTRICID MOTH (Choristoneura houstonana) - OKLAHOMA - Larvae heavy on ornamental evergreens in Altus area, Jackson County. (Okla. Coop. Sur.).

A LEAFMINING WEEVIL (Odontopus calceatus) - MISSISSIPPI - Adult emergence during mid-May heavy from 1974 foliage of Magnolia grandiflora (southern magnolia) near Pass Christian, Harrison County. Determined by V.H. Owens. (Coyne).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ARKANSAS - Still problem in southern area of State. Reports from Arkansas Forestry Commission indicate salvage operations in Ashley and Union Counties in March and April totaled 697 stems removed, 113 cords of pulp wood cut, and 29,000 board feet of saw timber cut. Flights and subsequent ground checks in Lafayette and Columbia Counties showed no new infestations evident beyond previously known infested area. (Boyer).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - First-generation larvae mostly pupated in pine trees on lawns and along roads in northern area. Infestations heavy in some areas, especially Decatur and Morgan Counties, and light in other areas. (Eich et al.). OKLAHOMA - First-generation larvae moderate in young pine trees (3 feet tall or less) in Latimer County; larvae ranged half to full grown and some have already pupated. (Okla. Coop. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Surveys underway since mid-April about 75 percent complete with no infestations noted. Along with visual inspection for larval damage on nursery grown pines, sticky traps with synthetic sex pheromone placed in host trees. During May, 85 traps placed in 26 nurseries, private residences, and landscaped areas of public parks in Multnomah, Washington, Clackamas, Marion, and Umatilla Counties. Periodic inspections to be made during adult emergence period. (Larson).

DOUGLAS FIR TUSSOCK MOTH (Orgyia pseudotsugata) - NEW MEXICO - Larvae caused noticeable damage to Douglas-fir at Los Alamos, Los Alamos County, and Sante Fe, Santa Fe County. Populations increased in these areas. (N.M. Coop. Rpt.).

REDHEADED PINE SAWFLY (Neodiprion lecontei) - ARKANSAS - Arkansas Forestry Commission reports moderate to heavy defoliation of shortleaf pine in Fordyce to Warren area in Dallas and Bradley Counties. (Boyer).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - KENTUCKY - Tents averaged 2 per mile driven in Campbell County, 6.3 per mile driven in Boyd County, and 0.2 per mile driven in Fleming County. Tents increased slightly in Boyd County compared to 1973. (Barnett). OHIO - Populations decreased statewide for second consecutive year, although egg masses ranged up to 3-4 per 1.5-inch diameter wild cherry tree in isolated areas. Larvae seeking pupation sites in southern area; should be complete by end of May. Light populations doubtfully due to parasitism. Primary ichneumonid parasitoids, Hyposoter fugitivus fugitivus and Phobocampe clisiocampae, accounted for 8-50 percent mortality of M. americanum second and third-instar larvae sampled during 1972. These ichneumonids not yet detected in several counties in 1974, or, where present, have caused less than 8 percent parasitism of M. americanum. Larval mortality appears light in most counties, indicating possible potentially heavier population during 1975 in many areas. (Fox).

WESTERN TENT CATERPILLAR (Malacosoma californicum) - CALIFORNIA - Larvae heavily infested oak trees at Anderson, Shasta County, at Ramona, San Diego County, and at Red Bluff, Tehama County. (Cal. Coop. Rpt.).

OAK LEAFTIER (Croesia albicomana) - MASSACHUSETTS - Larvae heavy on oaks in Hampshire County. (Capinera).

SPRING CANKERWORM (Paleacrita vernata) - MARYLAND - Defoliation ranged 40-80 percent in several hundred acres of oak forest in Wicomico, Worcester, and Somerset Counties. (U.Md., Ent. Dept.).

ASH BORER (Podosesia syringae fraxini) - NORTH DAKOTA - Infested 0.5 to 2-inch diameter green ash trees in Bowman County planting; 77 percent of trees infested. Seven percent of trees broken over due to tunnels. Larvae pupated but no adult emergence observed. Some tree mortality expected. (Brandvik).

ELM LEAF BEETLE (Pyrrhalta luteola) INDIANA - Oviposition began in West Lafayette, Tippecanoe County. (Schuder). OKLAHOMA - Heavy on elm trees in McCurtain and Tillman Counties, light in Muskogee County. (Okla. Coop. Sur.).

PERIODICAL CICADA (Magicicada septendecim) - MARYLAND - First singing of Brood XIV recorded from Washington County. Nymph emergence should peak week ending June 7 in Allegany and Garrett Counties. (U.Md., Ent. Dept.). KENTUCKY - Emerged in Caldwell, Jefferson, Rowan, Bracken, and Knox Counties. (Barnett). TENNESSEE - Observed in Grainger, Warren, Robertson, Sumner, and Carter Counties. When populations heavy female can damage fruit and young shade trees when ovipositing. (Mullett et al.). Emergence of 17-year race noted in Overton, Knox, Roane, Sevier, Cocke, Clay, and Grundy Counties. (Gordon et al.). OHIO - Cicadas emerged in 17-county area in southern part of State. Egg-laying punctures evident on various commercial and homegrown ornamentals, shade trees, and fruit trees. (Fox).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Infested elm nursery stock at Bakersfield, Kern County, and heavy on street and park elms at Sacramento, Sacramento County, and at Ramona, San Diego County. (Cal. Coop. Rpt.).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax)-Total of 81 cases reported from continental U.S. during period May 5-11 as follows: Texas 67, New Mexico 4, Arizona 6, California 4. Total of 340 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 137,810,200 as follows: Texas 116,750,200; New Mexico 540,000; Arizona 20,340,000; California 180,000. Total of 84,098,000 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - MARYLAND - Heaviest populations ranged 60-160 adults per head on beef cattle near Manokin, Somerset County. (U.Md., Ent. Dept.). TENNESSEE - Ranged 0-50 per head on cattle in Giles, Madison, Dyer, Henry, and Carroll Counties. (Watson et al.). MISSISSIPPI - Adults increased throughout State. Ranged 1,500-2,000 on bulls of different breeds in Oktibbeha, Grenada, Yalobusha, and Calhoun Counties. (Robinson).

TEXAS - Horn fly increased throughout State. Light populations reported from Guadalupe County in south-central area as well as from San Angelo and central areas. (Cole et al.). OKLAHOMA - Averaged 600 per head on cows and 3,000 per head on bulls in Payne County, and 400 per head on cows in Jackson County. (Okla. Coop. Sur.). NEBRASKA - Ranged 100-150 per animal on cattle in Arthur, Keith, and Lincoln Counties. (Campbell).

FACE FLY (Musca autumnalis) - MARYLAND - Ranged 7-20 per head on dairy and beef herds in Frederick, Montgomery, Carroll, and Howard Counties week ending May 17. Currently averaged 10 adults per head on beef and dairy cattle in Frederick and Carroll Counties. Populations expected to increase rapidly as season progresses. (U.Md., Ent. Dept.). ALABAMA - Ranged 2-25 per face in Morgan and Colbert Counties on several cattle herds. Controls difficult, infestations much heavier than usual. (Rose et al.). MISSISSIPPI - Adults averaged 8 per face on one herd of 75 Black Angus cattle in Chickasaw County; ranged up to 16 per face. Populations expected to increase rapidly by June 5. Full-grown larvae observed in Chickasaw and Monroe Counties. (Robinson). TENNESSEE - Ranged 5-25 per head in Giles County; none found in Madison, Dyer, Henry, and Carroll Counties. (Turpen et al.).

KENTUCKY - Face fly ranged 20-30 per animal on horses at one Fayette County location. (Barnett, Knapp). INDIANA - Adults numerous on cow and new-born calf in Gibson County; occasional specimens present on other cattle in this scattered herd. Ranged 2-5 per face on herd of young black steers in Clark County. (Meyer). NEBRASKA - Averaged 5 per face on cattle in pastures along river bottoms in Arthur, Keith, and Lincoln Counties. (Campbell).

HOUSE FLY (Musca domestica) - OKLAHOMA - Ranged 6-30 per Scudder grid in untreated barns in Payne County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Heavy on cattle in Jackson County. Also reported biting people and dogs, 30 adults taken on one dog. (Okla. Coop. Sur.).

MOSQUITOES - OKLAHOMA - Biting rates by Psorophora spp. ranged up to 15 per minute in some Payne County areas. (Okla. Coop. Sur.).

MINNESOTA - Light trap collections during period May 12-18 mainly Culiseta inornata. Of 870 larval collections throughout Metropolitan Mosquito Control District, 32 percent contained C. inornata, 14 percent Aedes cineris, 14 percent A. excrucians, and 13 percent A. vexans. Rains May 12 and 18 resulted in small to medium A. vexans brood. An A. triseriatus brood (vector of California encephalitis virus) hatched in breeding areas. (Minn. Pest Rpt.). WISCONSIN - Mosquitoes very light, although some annoyance to dairy cattle reported in Chippewa County. Recent heavy rains and warmer weather will soon result in heavy adult emergence. (Wis. Ins. Sur.).

INDIANA - Aedes vexans and Culex restuans larvae taken from ditch in Delaware County May 14; C. restuans taken May 15 in Shelby County. Male C. restuans taken in Dubois County May 21, female Aedes canadensis canadensis taken in Jefferson County May 22.

Determinations by D. Sanders. (Meyer). OHIO - At upper Arlington, Franklin County, 13 light traps operated at well-drained locality May 22 collected 67 adults of Culex pipiens ssp., Anopheles punctipennis, and Aedes vexans. About 1,400 A. vexans larvae taken in 2 collections, primarily third instars. Mosquitoes biting in Ottawa County, adult controls begun. (Ohio Dept. Health).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - Very heavy in Prince Georges, Montgomery, Anne Arundel, Calvert, Charles, and Baltimore Counties. Reports of ticks on children much more numerous than 1973. (U.Md., Ent. Dept.).

GULF COAST TICK (Amblyomma maculatum) - OKLAHOMA - Ranged 0-2 per ear on 10 calves checked in southern Mayes County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

AN ICHNEUMON WASP (Bathyplectes curculionis) - OHIO - Parasitized 10 percent of Hypera postica (alfalfa weevil) larvae collected in Clarke County alfalfa field May 17. (Horn). WEST VIRGINIA - Four adults of this alfalfa weevil parasitoid collected in 25 sweeps of alfalfa in Cabell County, May 22, 1974, by J.D. Hacker. This is a new county recovery. (Hacker). NORTH CAROLINA - Annual survey for parasites of alfalfa weevil extended to include Buncombe and Macon Counties; B. curculionis collected in these counties extending known range in State. B. curculionis parasitized 8.6 percent of H. postica larvae collected in Buncombe County, 5.2 percent of those collected in Macon County. Survey indicated dramatic increase in percent parasitism in Rowan, Wake, and Ashe Counties since 1972. Heaviest parasitism of H. postica larvae was 58 percent in one Rowan County field. B. curculionis released in Wake, Rowan, and Ashe Counties during 1971. (Campbell).

A TIPHIID WASP (Tiphia vernalis) - WEST VIRGINIA - Adults of this Popillia japonica (Japanese beetle) parasite noted near Elkins, Randolph County, May 21, 1974. (Tustin).

LADY BEETLES - INDIANA - Half-grown larvae of several species observed in wheat fields and roadsides in Gibson County. (Meyer).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - First eggs of season observed May 13 and first larvae May 16 in Steuben County; counts of each ranged 1-2 per square foot in 2 to 3-inch oats in field of about 6 acres near Cohocton. Data based on sample of 3 square feet. (Gaines, Lemaire). WEST VIRGINIA - Larvae averaged 62 and eggs 4 per square foot in early spring oats, and larvae averaged 8 and eggs 35 per square foot in late oats in Pleasants County. In Randolph County, larvae averaged 4 and eggs 8 in oats. (Tustin). Counts averaged 4 larvae and 5 eggs per square foot in oats in Putnam County. (Hacker). KENTUCKY - No adults or eggs observed in wheat fields surveyed in 9 counties. Small larval populations, 0.3-1 per 100 linear row feet, noted in Franklin, Nelson, Oldham, Shelby, Spencer, Trimble, and Washington Counties. Damage characteristic of O. melanopus noted in Boyle and Grant

Counties, no specimens observed. Damage minor at all locations. (Barnett, Sperka). TENNESSEE - All survey for cereal leaf beetle to date negative. Survey to continue 14-21 days to determine present infestation status. (Gordon, Bruer).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Larval populations declined by one-third between April 16 and May 7 due to natural causes at Ferndale, Whatcom County. Damage ended May 7, pastures recovering (Campbell).

GRASS BUGS - IDAHO - Labops hesperius very heavy in several spots over several hundred acres of grassland in Picab and Gannet area of Blaine County May 20. (Eakin). Small nymphs to adults infested 1,000 acres of intermediate and crested wheatgrass stands in eastern Elmore County May 13. Grass growth stopped, leaving little forage. (Edwards). UTAH - Several thousand acres of planted grasses on Billys Mountain and in Diamond Fork Canyon, Utah County, severely damaged by L. hesperius. Crested and intermediate wheatgrasses severely damaged, no damage to smooth brome grass. In Morgan County, 700 acres in one field at Porterville decimated by two species of Irbisia and light numbers of L. hesperius. Adjacent areas appeared equally damaged. (Haws). NEW MEXICO - L. hesperius light over 800-square-mile area from El Rito, Rio Arriba County, to near Lindrith and south to Cuba, Sandoval County. About 10 percent reached alate stage. Treatments unsuccessful on several local crested wheatgrass fields. (N.M. Coop. Rpt.). SOUTH DAKOTA - Very heavy populations of L. hesperius (150-200) per linear foot) noted in some western counties. Damage to crested wheatgrass and winter field borders occurred in some areas. (Kantack, Walgenbach).

GRASSHOPPERS - WASHINGTON - Apote notabilis and Steiroxys sp. averaged 10 per square yard on 2,000 acres of rangeland south of Wallula, Walla Walla County; mostly second instars May 17. (PPQ). OREGON - Survey for Melanoplus spp. and Oedaleonotus enigma began on eastern area rangeland. Cold weather slowed development and made accurate nymphal counts difficult. No economic counts observed in Morrow, Gilliam, Baker, and Umatilla Counties May 14-18. (Brown). NEVADA - O. enigma (early instar nymphs) ranged 9-15 per square yard on 240 acres of rangeland in Kings River Valley, Humboldt County. (Kail). M. sanguinipes (first to third-instar nymphs) ranged 5-60 (average 20) per square yard on 160 acres of alfalfa hay at Whiskey Flat, Mineral County. (Barclay, Bechtel). UTAH - Grasshopper nymphs numerous and migrating from range into alfalfa and small grains of McCormick and Fillmore area of Millard County; 60 acres of pasture range heavily infested in Park Valley, Box Elder County. (James et al.).

NEW MEXICO - Adult grasshoppers ranged 2-4 and nymphs 6-8 per square yard in Sante Fe National Forest areas, Rio Arriba County. (N.M. Coop. Rpt.). OKLAHOMA - Nymphs heavy and reported damaging gardens and ornamentals in Lincoln County, gardens and blackjack oaks in Cleveland County, and alfalfa, pastures, and gardens in Washita, Custer, and Caddo Counties. (Okla. Coop. Sur.). NORTH DAKOTA - Light egg hatch occurred in Hettinger County. Up to 2 first-instar M. bivittatus nymphs per square yard present in field margins. In 1973, first hatch observed May 11. Current cold, wet weather will contribute to some nymphal mortality. (Brandvik).

MORMON CRICKET (Anabrus simplex) - MONTANA - Heavily infested 1,800 acres in Camas Prairie area of Sanders County; averaged 200 per square yard. Survey not complete. (Pratt). UTAH - Band found in Oak City and Oak Creek Canyon area of Millard County. (Chapman, Knowlton).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Larvae more noticeable in eastern area. Observed feeding on white spruce, oak, maple, crab apple, blueberry, and grape at one location. Treatments should be applied. (Savos). NEW JERSEY - Some heavy infestations noted in some Burlington County fields; only few noted in Atlantic County. Regular treatment schedule should control most situations without serious damage. More frequent treatments may be necessary in some cases where daily larval migration from defoliated trees occurs along field margins. (Ins.-Dis. Newsltr.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae damaged strawberry plants in commercial planting in Cullman County. (Whisenant). Larvae damaged beans in Montgomery County home garden. (McCabe).

DETECTION

New United State Record - EUROPEAN ALFALFA BEETLE (Subcoccinella vigintiquatuorpuntata) - NEW JERSEY - Bergen County. (p. 382).

New County Records

RED IMPORTED FIRE ANT (Solenopsis invicta) TEXAS - Taken in Limestone and Calhoun Counties April 17 and May 6, 1974, respectively. (Rosier).

BAGWORM (Thyridopteryx ephemeraeformis) SOUTH CAROLINA - Colleton (p. 389). PEACHTREE BORER (Sanninoidea exitiosa) SOUTH CAROLINA - Edgefield (p. 388). TARNISHED PLANT BUG (Lygus lineolaris) SOUTH CAROLINA - Greenwood (p. 388).

CORRECTIONS

CEIR 24(18):311 - BURROWING NEMATODE (Radolphus similis) should read (Radophilus similis).

CEIR 24(18):315 - Last paragraph: WHITEFRINGED BEETLES (Graphognothus spp.) should read (Graphognathus spp.).

CEIR 24(20):347 - "PHYTOSEIID MITES (Metaseiulus occidentalis) - WASHINGTON - " should read "PHYTOSEIID MITES - WASHINGTON - Metaseiulus occidentalis adults observed ..."

CEIR 24(20):347 - PHYTOSEIID MITES - OHIO - "...Vasates schlechtendali (apple rust mite) ..." should read "... Aculus schlechtendali (apple rust mite) ..."

HAWAII INSECT REPORT

General Vegetables - Infestations of a LEAFMINER FLY (Liriomyza sp.) light in about 2.5 acres of green onions at Waianae, Oahu. Less than 10 percent of leaves damaged. Each infested leaf averaged 2 mines. Heavier damage occurred during previous summers and expected again this summer. PEPPER WEEVIL (Anthonomus eugenii) caused light damage to bell peppers at Waianae; less than 5 percent of fruits infested. BET ARMYWORM (Spodoptera exigua) light in about 2.5 acres of green onions at Waianae; less than 10 percent of leaves damaged. Damage appears to be on increase. (Mau). TOMATO PINWORM (Keiferia lycopersicella) heavy in small abandoned tomato field and in 0.5 acre of eggplant at Hilo, Hawaii. Virtually every leaf in eggplant field infested. BEAN FLY (Ophiomyia* phaseoli) larvae and adults heavy in one acre of soybeans at Maulua, Hawaii; 90+ percent of plants with larval mines. About 5 percent of seedlings dead or dying, remaining plants growing poorly. (Matayoshi). CABBAGE WEBWORM (Hellula rogatalis) caused heavy damage in backyard planting of chard at Haiku, Maui; 20+ larvae found on each leaf. Moderate infestation and damage also observed on beets at same location. (Miyahira).

Fruits and Nuts - Larvae of a NOCTUID MOTH (Phlegetonia delatrix) caused heavy damage on about 75 Eugenia trees at Waihee, Maui; defoliation ranged 60-75 percent. Light damage also observed on Java plum trees in Iao Valley, Maui. (Ah Sam).

Turf and Pastures - Light trap catches on Oahu indicate a MUSCID FLY (Atherigona reversura) widely distributed around island. (See CEIR 24(21):373 for first report in State). Adult specimens found in catches at Kaaawa, Punaluu, Laie, Kailua, Heeia, Waialua, and Sunset Beach. Possible damage due to A. reversura observed in Bermuda grass lawn at Wahiawa. Adults easily caught by sweeping over the lawn. (Toyama, Mau). All stages of a GRASS SCOLYTID (Hypothenemus pubescens) found in Bermuda grass at Aiea, Oahu. This very small beetle first discovered on Maui in 1964; occurs on all islands. Beetles breeding within stems; entrance and exit holes found at nodes. (Mau).

Man and Animals - Mosquito collections from 70 light traps operated on Oahu during March totaled 499 Aedes vexans nocturnus and 3,977 Culex pipiens quinquefasciatus. Aedes catches averaged 7.1 females per trap and Culex catch averaged 56.8 females per trap. (Vector Control Br., State Dept. Health). Total of 42 human infestations of ITCH MITE (Sarcoptes scabiei) reported during April. As reporting of scabies is not mandatory, these cases probably represent only portion of total cases actually present in Hawaii. (Ikeda).

*Spencer, K.A. 1973. Agromyzidae (Diptera) of Economic Importance, p. 61. The Hague. Dr. W. Junk, B.V.

WEATHER OF THE WEEK ENDING MAY 27

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

HIGHLIGHTS: Rain fell across the eastern two-thirds of the Nation last week with amounts over 2.25 inches reported in an area from Oklahoma stretching southward through the Gulf Coast States. Spring thunderstorms and scattered showers brought much needed precipitation to significantly dry areas of western Kansas and north-central Montana during the week. Some weekly rainfall totals included Kansas, Dodge City 2.51 inches and Wichita 2.49 inches, Montana, Glasgow 2.3 inches and Havre 1.89 inches. Again, little or no precipitation was reported in the dry southwestern States. While most of the Nation enjoyed a mild spring week, temperatures averaged 4 degrees to 6 degrees above normal in western Texas and throughout California's Central Valley. The Nation's north-central section, including parts of Montana, North Dakota, and South Dakota, reported temperatures averaging as much as 6 degrees below normal.

PRECIPITATION: Locally heavy precipitation of 2 inches or more soaked the Nation's midsection including Nebraska, Iowa, Indiana, Wisconsin, Missouri, Illinois, and Oklahoma. Rain also fell across the Pacific Northwest. Some of the heaviest rainfall during the week occurred in the following cities: Tulsa, Oklahoma, 4.16 inches, Lake Charles, Louisiana, 4.76 inches, Birmingham, Alabama, 3.22 inches, and Knoxville, Tennessee, 4.11 inches. Early in the week, thunderstorms spread from the Plains east through the Mississippi and Ohio Valley to the lower Atlantic coast. The storm produced heavy rain, hail, and damaging winds throughout Alabama. Tuscaloosa, Alabama, reported numerous downed power lines and several small buildings were demolished at Rainbow City Monday night. Severe weather swept through the Nation's midsection Tuesday. Rains averaging from 3 inches to 5 inches fell within an hour and a half on top of the already saturated ground and caused flooding in Clermont, Indiana. Damaging winds knocked down trees and power lines at Caledonia in southeast Minnesota and golf-ball size hail struck near Minnesota City, Minnesota, and at Bridgeview, Illinois. Before the storm diminished, high winds destroyed 35 buildings and damaged about 150 other buildings between Morrison and Lyndon in west-central Illinois. Wednesday, heavy rains fell from the Great Lakes to the Gulf of Mexico ahead of a cold front reaching from Michigan through Missouri into western Texas. Thunderstorms developed before daybreak on Thursday and spread over most of eastern Kansas and into parts of Missouri, Iowa, and Oklahoma by midday. The heaviest rains during the day occurred over southeast Kansas where several places reported 1 to 2-inch amounts. Friday, a narrow band of thunderstorms erupted along a cold front from the Northeast coast across the Ohio River south-eastward through Oklahoma. Locally heavy rains caused minor flooding in Tulsa, Oklahoma, during the day. Late Friday evening, more severe thunderstorms occurred in the Plains region. Heavy rain accompanied by 50 m.p.h. gusts swept across Pleasanton and Bladen, Nebraska, measured 1.75 inches of rain in only 45 minutes during the storm. Saturday morning, Tulsa, Oklahoma, already soggy from heavy rains earlier in the week, got another 1 inch of rain.

TEMPERATURE: Mild temperatures dominated the Nation's weather last week. Only sections of western Texas and the California Central Valley reported temperatures 3 degrees to 6 degrees above normal for the week. Temperatures averaged 3 to 6 degrees below normal in Montana, South Dakota, and North Dakota. Some New England coastal cities reported temperatures averaging 6 to 9 degrees below normal for the week. Early in the week, unseasonably cold weather spread from the northern Rockies through the southern Plateau. The lowest temperatures for this late in the spring were recorded Monday morning at Tucson, Arizona, 44 degrees, Winslow, Arizona, 31 degrees, and Grand Junction, Colorado, 34. Cold weather continued in the Rocky Mountain region and northern Atlantic Coast States on Tuesday morning. Record lows for this date were set at Concord, New Hampshire, 28 degrees, Caribou, Maine, 31 degrees, and Albany, New York, 34 degrees. Wednesday, a cold front lying from the Great Lakes to the southwestern Plains separated warm humid air in the East and South from cooler, drier air in the North Central States. A warm front dipped into New England. Temperatures in Vermont, Massachusetts, Connecticut, and Rhode Island reached the 80's and low 90's while most spots in Maine stayed in the 40's and 50's. Portions of the northern Pacific coast and extreme north-central U.S. also stayed in the 50's. Readings in the 90's were reached from southern California to Texas and in a few spots in Florida. Thursday it was chilly in the upper Plains where readings were 10 to 20 degrees below normal. Ninety-degree readings indicated temperatures around 5 degrees above normal in parts of the Southwest. Generally fair skies over the Gulf States and in the southwest quarter of the country caused most spots to reach the 80's and 90's and a few places in the desert Southwest even topped 100 degrees. Friday, temperatures soared into the 90's in the interior of northern California and continued hot from southern California to Texas. Few readings in the 90's were found along the southern Atlantic coast. The coolest spots were under clouds in New England, the Great Lakes, and the Pacific Northwest where it only reached the 50's. During the weekend, chilly temperatures spread from the upper and middle Mississippi Valley into the Northeast where clouds and rain held temperatures into the 60's and low 70's. Clear skies in the desert Southwest pushed temperatures into the upper 90's.

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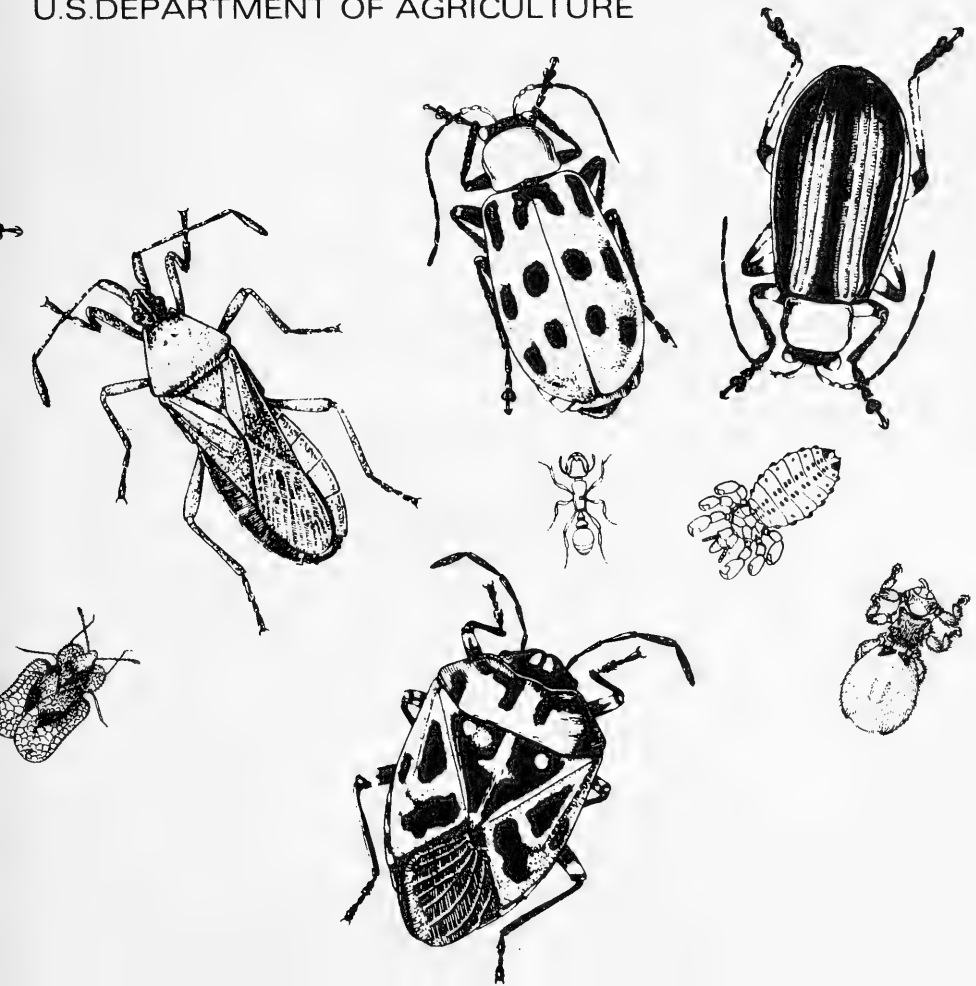
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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM outbreak in small grains continued on Eastern Shore of Maryland; several hundred acres of barley lost due to clipping of maturing heads. Armyworm caused moderate to heavy damage to small grains in Kentucky; decreased rapidly in wheat in Illinois. Some heavy concentrations of ASTER LEAFHOPPER detected in south-central Minnesota, adults increased in central and southeast Wisconsin. TOBACCO HORNWORM economic on some Florida tobacco, TOBACCO BUDWORM heavy on this crop in North Carolina. (pp. 403-404, 409).

EUROPEAN CORN BORER egg laying expected to increase on Maryland Eastern Shore when wet weather ends; egg masses common on corn in Delaware, first moths of season observed in Indiana and Wisconsin. (p. 405).

A SOD WEBWORM very heavy in north-central South Dakota, damage to sod increasing. (p. 406).

ALFALFA WEEVIL populations declined rapidly in forage legumes in Maryland, pupation underway; damage to alfalfa increased rapidly in Michigan; populations decreased in Nebraska. (pp. 407-408).

THRIPS heavier than most years on peanuts in southeast Alabama. BOLL WEEVIL heavy in south-central and north-central Texas this season. (p. 409).

AMERICAN DOG TICK heaviest within past four years in Maryland. (p. 414).

GRASS BUGS continued to damage planted grasses in Utah. (p. 415).

Detection

A PTEROMALID WASP reported in Hawaii is a new United States record, but is not known to occur in continental U.S. (p. 417).

A SOFT SCALE detected on leaves of orange plant from Florida is a new continental record. Has been recorded from Hawaii. There are no reports of damage by this coccid. (p. 416).

New State records include an ARMORED SCALE in Delaware (p. 412), a LEAF BEETLE in West Virginia (p. 413), and a MYMARID WASP in Maryland (p. 414).

For new county records see page 416.

Reports in this issue are for week ending May 31 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JUNE 3

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

PRECIPITATION: Scattered precipitation fell across the Nation east of the Rockies last week. Some of heaviest rainfall occurred in the following cities: Memphis, Tennessee, 3.54 inches; Charleston, West Virginia, 3.96; Washington, D.C., 2.48; Cincinnati, Ohio, 2.03; St. Louis, Missouri, 3.18; Little Rock, Arkansas, 2.78; Port Arthur, Texas, 3; and Lake Charles, Louisiana, 2.58. Early in the week, severe thunderstorms and high winds struck the middle Missouri Valley. Wind gusts up to 60 m.p.h. hit Rapid City, South Dakota, and Brewster, Nebraska. Pierre, South Dakota, got more than one inch of rain while more than 2 inches fell in Nebraska between North Platte and McCook on Monday evening. Thunderstorms dumped locally heavy rains over the southern half of Florida and gradually spread to southeast Louisiana on Tuesday. After 6 hours of rainfall Homestead, Florida, measured 1.55 inches. Wednesday, strong thunderstorms spread over the central Plains and middle Mississippi Valley. Some local flooding was reported in eastern Iowa after 2 inches of rain. Thursday, intense thunderstorms moved from southeast Nebraska into northern Missouri producing locally heavy rains. Shenandoah, Iowa, reported more than 3.50 inches of rain in about one hour and nearby Bedford, Iowa, got 2.25 inches in only 45 minutes. Randolph, Iowa, got 2 inches of rain in half an hour. High winds, hail, and numerous tornadoes were reported in Illinois, Indiana, Kansas, and Minnesota throughout the day. Friday, thunderstorms moved through the central and southern United States along a strong cold front. Both Columbia and St. Louis, Missouri, received nearly 3 inches of rain; 2.50 inches fell at Fayetteville, Arkansas; and 2 inches soaked Kirksville, Missouri; Evansville, Indiana; and Houston, Texas. By late afternoon, an isolated thunderstorm caused local flooding in the Texas Panhandle town of Turkey and in several towns in Arkansas, including Little Rock. Saturday, a cold front reaching from New England to the western Gulf States triggered numerous showers and thunderstorms. Weather of the week continued on page 420.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Euxoa auxiliaris*) - MONTANA - Complete loss of 200 acres of winter wheat noted near Townsend, Broadwater County. Most larvae ready to pupate. (Pratt).

ARMYWORM (*Pseudaletia unipuncta*) - NEW JERSEY - Few reports of larvae in corn; fields, especially those near small grains, should be checked. Feeding signs observed in several Burlington County cornfields May 29. (Ins.-Dis. Newsltr.). MARYLAND - Outbreak continued in Caroline, Queen Annes, Dorchester, and Wicomico Counties. Several hundred acres of barley lost due to larvae clipping off maturing heads. About 20,000 acres needed treatment during past 14 days. Larvae stripped rough fescue grasses off roadsides where larvae left barley and "marched" across roads in some areas of Dorchester County. Larvae heavy, ranged 7-10 per square foot in some fields. Damage expected to rapidly decrease within next 7 days. Activity also detected in Howard, Carroll, and Prince Georges Counties; counts light, 1-5 larvae per square yard. (U. Md., Ent. Dept.).

VIRGINIA - Armyworm larvae damaged 500 acres of small grain in Lancaster County, treatment applied to 400+ acres. Various larval sizes observed. No economic infestation noted on Montgomery County corn. (McSwain, Allen, May 24). KENTUCKY - Caused moderate to heavy damage to wheat, barley, and oats in south-central, central, and western areas. Treatments applied to about 10,000 acres in western area. Some fields totally lost. Heaviest damage occurred in Union, Caldwell, Crittenden, Hopkins, Ballard, Henderson, and Grayson Counties. Damaged no-till corn in Caldwell County. About 1 percent of plants in regular tillage field infested. In Grayson County, damaged regular tillage corn. (Barnett).

TENNESSEE - Armyworm and *Spodoptera ornithogalli* (yellowstriped armyworm) continued to damage grains in middle and western areas. Larvae near full grown, should cause little damage in future. (Gordon, Bruer). MISSOURI - Armyworm light to moderate in small grains throughout central and southern areas. Larvae ranged 1-16 per square foot in infested fields of wheat and barley. (Munson). ILLINOIS - Populations in wheat decreased rapidly in west-southwest and southwest districts where counts heaviest last period. All counties in area averaged less than 4 larvae per 10 row feet. Some populations infected with undetermined disease, larvae dead and dying. (Ill. Ins. Rpt.).

ASTER LEAFHOPPER (*Macrosteles fascifrons*) - MICHIGAN - Found in lettuce field in Stockbridge area of Ingham and Jackson Counties. Lettuce, celery, carrot, and onion growers advised to check fields closely. (Lacy). WISCONSIN - Adult counts increased over previous period, principally due to maturing of native nymphs. Counts generally ranged 10-15 adults per 100 sweeps in central and south-east districts. Counts in south-central district ranged 12-22 adults per 100 sweeps; adult counts heaviest in southwest district, with 92 per 100 sweeps at one site near Prairie du Chien. These populations probably combination of migrant and native adults. (Wis. Ins. Sur.).

MINNESOTA - Aster leafhopper remained light in areas immediately south of St. Paul and Minneapolis. Some heavy concentrations detected in Blue Earth, Watonwan, and Martin Counties. Heaviest counts, 1,000-1,200 per 100 sweeps, found in Blue Earth County grain field. Counts of 400-500 per 100 sweeps found in one field each in Martin and Watonwan Counties. Strong sustained south winds could bring these leafhoppers into St. Paul and Minneapolis area. Growers should prepare to treat to prevent aster yellows in carrots, lettuce, potatoes, petunias, and other crops. (Minn. Pest Rpt.). NORTH DAKOTA - Spring migrants per 100 sweeps in rye ranged up to 140 in Kidder County, up to 30 in Sargent County. Rye in boot stage. Spring migrants, up to 22 per 100 sweeps, common in roadside grasses in Kidder County. (Brandvik, Kaatz).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Crop survey continued in Fresno County. Infection ranged 3-7 percent in tomato fields near Kettleman City. Pole tomatoes east of Fresno (2,000 plants checked) showed no curly top nor did 300 pepper plants examined. Survey of tomato fields in Imperial County showed less than one percent curly top. Harvesting of beets nearly complete and bumper crop expected. Beet leafhopper shifting, due to loss of beet plants. Monitoring will continue to see effect on tomato crop. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - FLORIDA - Heavily damaged 200 acres of silage corn at Chipley, Washington County. (Fla. Coop. Sur.). NEW JERSEY - First moth of season taken in blacklight trap near Riverton, Burlington County, May 26; one trapped near Delamo, May 28. (Ins.-Dis. Newsltr.).

GREENBUG (Schizaphis graminum) - TEXAS - Very light on sorghum in south-central and central areas. Surveys made in 14 Panhandle counties May 20-27. Heaviest counts, 10 per sorghum plant, found in Sherman, Randall, and Deaf Smith Counties; 400 per plant on Johnson grass found in Swisher County. Ranged from zero to one per foot of planted row in wheat in same 14 counties. (Green, Daniels). ARKANSAS - Survey negative on young sorghum on university farm at Fayetteville, Washington County. (Boyer).

POTATO LEAFHOPPER (Empoasca fabae) - MINNESOTA - Counts remained at low level, light increase noted. Adults ranged 6-8 per 100 sweeps in south-central district alfalfa field. (Minn. Pest Rpt.). WISCONSIN - Light in most legume fields surveyed. Counts rarely exceeded one per 50 sweeps in central or eastern districts, but ranged up to 5 per 50 sweeps in Rock County. Counts as high as 16 per 50 sweeps in Prairie due Chien area of Crawford County. No nymphs yet noted. (Wis. Ins. Sur.). WEST VIRGINIA - Adults averaged 44 per 50 sweeps in alfalfa. No "hopperburn" found in Jackson County to date. (Hacker).

TOBACCO HORNWORM (Manduca sexta) - FLORIDA - Larvae in first to fourth instar, populations economic and increasing on flue-cured tobacco at Live Oak, Suwannee County, May 22; 70-80 percent of untreated plants noted with at least one larva. (Fla. Coop. Sur.).

See page 409 for TOBACCO BUDWORM (Heliothis virescens).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MISSOURI - Light on corn in west-central and southwest areas. Leaf feeding observed on 1-26 percent of plants. Counts heaviest on popcorn in southwest area. (Munson). ILLINOIS - Percent development as follows by county: Massac, pupation 6, emergence 94; Champaign, pupation 68, emergence 20; and Ogle, pupation 32, no emergence. (Ill. Ins. Rpt.). WISCONSIN - Pupation of overwintered larvae well underway. First moths of season taken in blacklight traps at Mazomanie and Hancock; heavy flights probably will not occur for 14 days. (Wis. Ins. Sur.). INDIANA - First adults of season taken at windows in Warren County, light traps in agricultural and nonagricultural areas in Tippecanoe County, and in blacklight trap in Randolph County May 27. (Sillings). Adults noted in southern districts; empty pupal cases present in cornstalks still erect. (Meyer).

MARYLAND - European corn borer adult flight activity in corn stopped due to week of rain. First-instar larvae rare to date. Increased egg laying on Eastern Shore expected after wet weather breaks. (U. Md., Ent. Dept.). DELAWARE - Adults averaged 35 per night May 22-27 in Sussex County blacklight trap. Egg masses common on corn and weeds (dock) in area. (Burbutis). MAINE - Overwintering larvae active in corn, no pupation observed. Active larvae found in 0.5 percent of remaining stalks in 20-acre cornfield cut for silage in Penobscot County. This field heavily infested early in 1973, about 10 percent of stalks infested. One larva found in 10-acre cornfield in Waldo County. (Gall).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae damaged corn throughout Mobile County. (Vickery). FLORIDA - Infested 400-acre field of silage sorghum, with 200 acres of stand already destroyed at Bartow, Polk County. (Fla. Coop. Sur.). GEORGIA - Destroyed 2 fields of corn replanted due to earlier damage in Berrien County. (Wood, Suber, May 25).

BLACK CUTWORM (Agrotis ipsilon) - ILLINOIS - Occasional corn damage reported from counties throughout western and central parts of State. Fields in Shelby and Montgomery Counties showed 7 and 10 percent feeding damage, respectively, on 10-inch corn. One Hancock County field showed 8 percent feeding damage on 14-inch corn. (Ill. Ins. Rpt.). IOWA - Larvae damaged corn in several Plymouth County fields. (Iowa Ins. Sur.).

SUGARCANE BEETLE (Euethola rugiceps) - ALABAMA - Damaged 100+ acres of corn in Randolph, Walker, and Tuscaloosa Counties. (Easterwood et al.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Light to heavy in sorghum checked in Falls, Coryell, Hill, and Bell Counties. About 50-60 percent of heads in individual fields in bloom. Midges ranged 6-10 per head in heavily infested fields; absent to light in other fields. Midges reported in sorghum in south-central area counties. (Hoelscher, Cole).

SEEDCORN MAGGOT (Hylemya platura) - IOWA - Damaged two cornfields in Cerro Gordo County; replanting necessary. (Iowa Ins. Sur.). CALIFORNIA - Larvae damaged corn seedlings at Redding, Shasta County. Populations unusually prevalent this season. (Cal. Coop. Rpt.).

CORN BLOTCH LEAFMINER (Agromyza parvicornis) - NORTH CAROLINA - Reports and observations indicate general infestation on corn throughout Coastal Plain. Lower leaves severely mined in many fields. Although damage unattractive, yield loss due to this insect very rare. Very fast growing young corn will outgrow damage. (Falter, Hunt).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Infested corn in several High Plains counties; heaviest in Deaf Smith, Randall, and Castro Counties. (Teetes).

SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - MONTANA - Infested several thousand acres of winter wheat in Gallatin and Jefferson Counties. Larvae one-half inch long to date. Grain ranged 6-10 inches tall. Infested 3-inch spring grain in Pondera County and spring wheat in Jefferson County. In same area, 1,100 acres of winter wheat treated and reseeded. (Pratt).

EUROPEAN CORN BORER (Ostrinia nubilalis) - VIRGINIA - Larvae damaged 100 acres of wheat in Lancaster County. Damage not economic to date but caused concern to growers. (McSwain, May 24).

ENGLISH GRAIN APHID (Macrosiphum avenae) - NORTH DAKOTA - Wingless adults averaged 2 per 100 sweeps of rye in Sargent County. First occurrence of season. (Kaatz).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Survey conducted in 14 Panhandle counties May 20-27. Heaviest on wheat in Sherman, Potter, Randall, and Deaf Smith Counties. (Daniels).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Chemical treatments applied to heavy infestations in wheat at Lovelock, Pershing County. (Martinelli, Munk).

TURF, PASTURES, RANGELAND

A SOD WEBWORM (Crambus spp.) - SOUTH DAKOTA - Severely damaged native sod in Dewey, Corson, and Ziebach Counties. Infestations extremely heavy, larvae noted at 115 per 114 square inches of soil surface. Damage increasing. (Kantack, Walgenbach). See CEIR 24(22) 382 for original report. (PPQ).

CHINCH BUG (Blissus leucopterus leucopterus) - MARYLAND - Nymphs and adults active in Washington County, damage light but treatment applied to 3 acres of bluegrass lawns. (U. Md., Ent. Dept.).

GRASSHOPPERS - KENTUCKY - Populations of various species increased suddenly in pastures and grasslands. (Barnett).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Adults averaged 15 (range 10-20) in 30-acre field of 20-inch Iroquois alfalfa near La Grange, Wyoming County, May 22. Counts based on sample of four sets of 25 sweeps each. (Fendick). MARYLAND - Populations declined rapidly in forage legumes in all areas, pupation underway. About 85 percent of first cuttings made to date. No treatments applied. (U. Md., Ent. Dept.). VIRGINIA - Based on 2 fields sampled (4 acres) in Campbell and Montgomery Counties, 29 percent of alfalfa tips infested. Average estimated defoliation 52.5 percent. Most larvae small and averaged 0.8 per tip based on 100 tips sampled. One field exceeded control level. Based on total acreage sampled, 50 percent of all acres above treatment level. Most fields harvested. (McSwain, Allen).

WEST VIRGINIA - Alfalfa weevil larvae averaged 24 and adults 2 per 50 sweeps in second-cutting, treated alfalfa. Slight damage visible in Jackson County. (Hacker). KENTUCKY - Eggs in alfalfa averaged 21.1, 1.0, 13.2, 18.2, and 6.8 per square foot at various locations in Fayette County. Eggs averaged 10.3 at one Barren County location. (Barnett, Parr). INDIANA - Larvae present, in some cases caused visible damage, in second-growth alfalfa in south-central district even where treatments applied on first growth. Larvae ranged 2-6 per sweep in heavier infested fields in Washington and Jackson Counties. Alfalfa about 20 inches tall and in early bud stage. (Meyer). MICHIGAN - Damage to alfalfa increased rapidly. Rains halted hay cutting and spraying, but pest still active. Growers urged to check fields, cut or spray where pest active. (Webster).

WISCONSIN - Alfalfa weevil larvae still light in most alfalfa, averaged about 5 per 50 sweeps. First-instar larvae increased sharply in some fields, leading to speculation some spring-laid eggs hatched. Exceptional fields in Spring Green and Sauk City areas of Sauk County with larvae in all instars, averaged 5 per sweep; up to 40 per sweep in portions of one field. Tip feeding in latter field up to 30 percent in heavily infested portions. Tip feeding generally well below 5 percent in southern half of State. Introductions of Bathyplectes anurus (an ichneumon wasp), a parasite of H. postica, well underway. Releases made May 29 near Arlington, Columbia County; release planned near Oregon in southern Dane County May 30. B. anurus field collected out of State. (Wis. Ins. Sur.). MINNESOTA - No significant increase of alfalfa weevil detected in south-central area alfalfa. Although populations more general, counts remained light, usually 1-5 per 100 sweeps. Few larvae in fourth instar, most in second and third instars. (Minn. Pest Rpt.).

NEBRASKA - Alfalfa weevil larval populations in alfalfa leveled off and decreased. Partially due to treatment and cutting of fields. About 71 percent of first cutting harvested in Dawson County, about 25 percent in Otoe County. Larvae ranged 2-389 (average 70.5) and adults 0-41 (average 3.8) per 20 sweeps in 15 Dawson County fields. In 19 Otoe County fields, larvae ranged 53-870 (average 427) and adults 12-309 (average 74.9) per 20 sweeps. (Manglitz, Stevens). Counts per 100 sweeps by county: Antelope (2 fields), larvae ranged 55-124 (average 89.5) and adults 0-12 (average 6); Pierce (2 fields), larvae ranged 75-335 (average 205) and adults 5-10 (average 7.5). (Koinzan, Keith). Larvae per 100 sweeps by county: Brown 64 May 27;

Cedar 42 May 28; Holt 3 May 28; Keya Paha 3 May 27; Rock 38 May 27. Collected by S. Koinzan. Determined by G. Manglitz. These are new county records. No adults collected. (Keith). MISSOURI - Adults in southwest area alfalfa ranged 4-23 per 10 sweeps. Larvae of all sizes light in all fields checked. (Munson).

NEW MEXICO - Up to 90 alfalfa weevil larvae and 15 adults per 25 sweeps recovered from alfalfa in Bernalillo County, along with up to 20 adult lygus bugs (*Lygus* spp.). (N.M. Coop. Rpt.). UTAH - Populations in alfalfa peaked about May 23 in northern area. Larvae in first and second instars in Cache County; many adults still active in fields. (Davis). Treatments underway since May 6 in Millard County; damage observed where no controls applied. (Chapman, Knowlton). NEVADA - Larvae averaged 50 per sweep in untreated alfalfa in southern Washoe County (Barclay), ranged 60-120 per sweep in untreated fields at Lovelock, Pershing County, (Arnett). Chemical treatments underway in Churchill, Douglas, Lyon, Pershing, and Washoe Counties. (Bechtel).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - KENTUCKY - Damaged clover in Crittenden and other western counties. (Barnett, Raney).

PEA APHID (*Acyrtosiphon pisum*) - WASHINGTON - Ranged 30-50 per 10 sweeps of alfalfa grown for seed at West Wapato and North Sunnyside, Yakima County, May 20. Most control started week of May 26. (Baird et al.). NEBRASKA - Building up on vetch in combined plantings of rye and vetch in Antelope County; 540 per 100 sweeps taken in one field. No damage observed. (Koinzan). MINNESOTA - Weather apparently too cool; expected increase failed to develop in alfalfa. Counts increased slightly, ranged 50-60 per 100 sweeps. (Minn. Pest Rpt.). WISCONSIN - Ranged 20-550 (average 50) per 50 sweeps of alfalfa. Activity of *Praon* sp. (a braconid wasp), an aphid parasite, appeared reduced; no evidence of significant reductions in aphid populations due to parasitism. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - KENTUCKY - Counts per 100 sweeps ranged 100-300 in field of mixed clover, alfalfa, and fescue in Grayson County, ranged 100-200 in timothy and red clover fields in Shelby County, and averaged 300 per 100 sweeps in fescue in Crittenden County. (Barnett).

ALFALFA LEAF BLOTCH-MINER (*Agromyza frontella*) - NEW HAMPSHIRE - Adult activity in alfalfa first noted May 19 in Rockingham and Strafford Counties. Numerous adult oviposition punctures and egg laying observed May 22 in same fields; no hatch detected by May 29. (Bowman).

SOYBEANS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - NORTH CAROLINA - Spot checks in Cumberland and Robeson Counties revealed eggs and first-instar larvae on soybeans. Populations in 10 fields ranged 11-40 adults per 100 row feet with eggs in every field. Population currently not economic; threat of larval buildup warrants checking young soybeans. (Hunt, Harper). INDIANA - Adults ranged trace to 20 per 50 sweeps in nearly all southern district alfalfa fields. (Meyer).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Averaged one adult per 2 row feet on 150 acres of soybeans in Chicakasaw County. Some holes noted in some leaves. (Robinson).

PEANUTS

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This species and other thrips damaged several thousand acres of peanuts in most of 9 peanut-growing counties of southeast area; heavier than in most years. Caused problems in preplant treated and untreated fields. Treatments applied. (Curtis et al.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Heavy in south-central and north-central areas this season. Activity increased in cotton beginning to square in Stephenville area. Trap catches in Coryell and Bell Counties decreased, but activity still heavy in Hill, Falls, and Navarro Counties. Cotton becoming more attractive to weevils than traps in Coryell and Bell Counties. Overwintered weevils heavier in north-central area than in 1973. (Cole et al.). ARKANSAS - Population decreased from average of 15.1 per trap to 11.6 in Clay and Craighead Counties. Average per trap for 6 counties 8.4. Combined average for 14-day period 10.1 per trap. No weevils taken at four of nine traps in Lafayette County. Populations at other five locations ranged 1-170. (Boyer). ALABAMA - Populations leaving hibernation and attracted to sex-lure traps and 4 to 6-leaf cotton increased in southern and central area. Collections ranged 90-247 weevils per week in several Lee and Macon County traps, lighter in other traps. (Gilliland, Smith). Populations ranged 50-1,200 per acre in several Lee County cotton fields; 17-50 per acre observed in some fields in Covington and Monroe Counties. (Gamble, Pike).

BOLLWORM (Heliothis zea) - TEXAS - Eggs reported on cotton in several central area counties. Averaged 4 per 100 terminals in one McLennan County field checked. (Green).

THRIPS - TEXAS - Heavy infestations of Thrips spp. and Frankliniella spp. continued to damage untreated cotton in north-central area. Reported heavy on late cotton in Stephenville area. Infestations decreased in south-central area. (Turney et al.). ALABAMA - F. fusca (tobacco thrips) and other thrips damaged several thousand acres of cotton in Colbert, Morgan, Lawrence, Dallas, and Elmore Counties. (McLendon et al.).

TOBACCO

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - Spot checks in about 25 tobacco fields in Robeson, Cumberland, Harnett, and Wake Counties indicate heavy infestations. Fifty percent of fields in Robeson County and south Cumberland County at threshold level (10 percent of plants infested). Infestation levels ranged 2-80 percent. (Hunt, Harper).

BLACK CUTWORM (Agrotis ipsilon) - MARYLAND - Young larvae ranged 1-3 per 20 row feet in two acres of tobacco. About 5 percent of plants damaged. Chemical treatments inadequate to date. (U. Md., Ent. Dept.).

VEGETABLE WEEVIL (Listroderes costirotris obliquus) - MARYLAND - Young larvae slightly damaged 2,000 square-foot tobacco bed in Charles County, controls applied. (U. Md., Ent. Dept.).

BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - IDAHO - Winged adults appeared on peavines at Moscow, Latah County, May 28. (Barr). WISCONSIN - Counts still very light in peas; ranged 0-4 per 50 sweeps, but averaged less than one per sweep. Nymphs apparent in some pea-fields, indicates reproduction well underway. (Wis. Ins. Sur.). ALABAMA - Continued to infest peas in Monroe County, one planting replanted at Excell due to damage. (Lemons).

MEXICAN BEAN BEETLE (Epilachna variviestis) - ALABAMA - Adults and larvae very heavy in many small plantings of peas, beans, eggplant, and young turnips at Dothan, Houston County. Larvae damaged beans and peas in Lee, Macon, Tallapoosa, and Elmore Counties. (Stephenson et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults caused light to moderate feeding injury on newly emerging snap beans. Adults ranged 1-2 per row foot in heaviest infested fields on Eastern Shore. (U. Md., Ent. Dept.).

CORRECTIONS

CEIR 24(21):368 - IMPORTED CURRANTWORM (Nematus ribesi) should read (Nematus ribesii).

CEIR 24(21):371 - CEREAL LEAF BEETLE - KENTUCKY - "Damage significant in all of 21 counties surveyed," should read "Damage insignificant in all of 21 counties surveyed." (PPQ).

DECIDUOUS FRUITS AND NUTS

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) - WASHINGTON - First adult emergence on cherries observed about May 24 in Grandview area, Yakima County. (Tree Fruit Pest Mgt.).

PEACHTREE BORER (Sanninoidea exitiosa) - UTAH - Larvae damaged many untreated stone fruit orchards in Salt Lake, Davis, and Tooele Counties. (Burningham).

A STINK BUG (Euschistus conspersus) - CALIFORNIA - Present in pear orchards in some areas. Some damage to fruit observed. Populations local and treatment not usually needed. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - CALIFORNIA - Infested apple trees at Strathmore, Tulare County. Species quite prevalent on dooryard apple trees. *Pyracantha* shrubs perpetrate infestations. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Curled leaves on many peach and plum trees around Albuquerque, Bernalillo County, and Corrales, Sandoval County. (N.M. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Broods well established on many pecan trees at Lockhart, Covington County. Some larvae migrated to nearby holly shrubs at Semmes, Mobile County. (Stephenson et al.). TEXAS - Continued to increase on pecans in south-central and central areas. Webs ranged 4-6 per tree in Stephenville area. Damaged pecans in Dallas and Fort Worth area. (Cole).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Heavy on pecans near Georgetown and Taylor, Williamson County, along San Gabriel River bottoms. Colonies on 25 percent of branches. Also noted on pecans in Travis and Brazos Counties. (Harris et al.).

WESTERN BOXELDER BUG (Leptocoris rubrolineatus) - CALIFORNIA - Deposited eggs on almond trees in some northern counties. Some treatment may be needed; damage observed on developing almond nuts, caused shriveling and some fruit drop. (Cal. Coop. Rpt.).

A DUSKY-VEINED WALNUT APHID (Panaphis juglandis) - CALIFORNIA - Increased in many northern area walnut orchards. This species replacing Chromaphis juglandicola (walnut aphid) which has been successfully removed by Trioxys sp. (a braconid wasp), parasite of C. juglandicola. (Cal. Coop. Rpt.).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TENNESSEE - Heavy on pecans in Tipton and McNairy Counties, infested leaves and fruit. (Johnson et al.).

ORNAMENTALS

ARMORED SCALES - DELAWARE - Parlatoria camelliae infested leaves of camellia plant at Wilmington, New Castle County. Specimens collected May 14, 1974, by F.E. Boys. Determined by D.F. Bray. This is a new State record. (Burbutis). FLORIDA - Phenacaspis cockerelli infested pindo palms (Butia capitata) in nursery at Panama City, Bay County, May 22. Gymnaspis aechmeae infested leaves of bromeliads at same location May 23. Specimens of both species collected by R.W. Albritton and A.F. Graham. These are new county records. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MAINE - Larvae 85 percent third instar and 15 percent second instar in Washington County. Development in Oxbow area of Aroostook County slow, 100 percent of larvae second instar. (Gall). WISCONSIN - Second-instar larvae feeding in expanding buds of balsam in Oneida County; few in needles and hibernaculae. Also found under budcaps of white fir and some noted in needles and hibernaculae of this host. (Wis. Ins. Sur.).

JACK PINE BUDWORM (Choristoneura pinus) - WISCONSIN - First larva of season observed feeding on jack pine in Douglas County. (Wis. Ins. Sur.).

A MARGARODID SCALE (Matsucoccus acalyptus) - NEW MEXICO - Heavy feeding and extensive defoliation noted on 250 acres of pinyon pine near Questa, Taos County. Damage most severe along dusty roads. (N.M. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - COLORADO - Common on blue spruce in Chaffee County. (Hantsbarger).

SPRING CANKERWORM (Paleacrita vernata) - MARYLAND - About two square miles of hardwood forest damaged near Sugar Loaf Mountain, Montgomery County. Some areas 60-80 percent defoliated. (U. Md., Ent. Dept.). ILLINOIS - Hatched and feeding on elm and other trees in Cook County area. (Ill. Ins. Rpt.).

FALL CANKERWORM (Alsophila pometaria) - VIRGINIA - Heavily infested western section of Prince William County. Wooded areas of Bull Run Mountains extending over 9 miles infested with heavy population. More than 2,000 acres of forestland defoliated. (Arbogast, May 24).

WESTERN TENT CATERPILLAR (Malacosoma californicum) - OREGON - Larvae heavy on Oregon oak (Quercus garryana) at a Marion County park in southeast Salem. Up to 4 larvae per square foot noted beneath infested trees. (Penrose).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Fed on elms in Dallas, Dallas County, and Fort Worth, Tarrant County, areas. Homeowners in area began control measures. (Turney). NEW MEXICO - Adults caused heavy damage to shade trees. Egg laying and first instar feeding observed at Albuquerque, Bernalillo County. (N.M. Coop. Rpt.). UTAH - Adults active on elms at Green River, Emery County. (Knowlton).

LOCUST LEAFMINER (Xenochalepus dorsalis) - WEST VIRGINIA - Adults heavy on all black locust trees in Jackson County. Heavy damage to black locust expected due to this pest again in 1974. (Hacker).

A LEAF BEETLE (Chalepus scapularis) - WEST VIRGINIA - Adults taken on red oak in Calhoun County by J.M. Atkins and determined by A.E. Cole, May 23, 1974. This is a new State record. (Cole).

PERIODICAL CICADA (Magicicada septendecim) - PENNSYLVANIA - Emergence of Brood XIV (17-year race) observed in Huntingdon County May 25-28 (Kadow, Gesell) and in Centre County May 26 (Shetlar). NORTH CAROLINA - Oviposition occurring at Old Fort, McDowell County, and Asheville, Buncombe County. Emergence continued in mountains. Infestations observed May 23 and 24 near Burnsville, Yancey County, and Ingalls, Avery County. (Hillman, Johnson). TENNESSEE - Observed in Anderson, Loudon, Morgan, Washington, and Jefferson Counties. (Hammett). KENTUCKY - Emerged over much of eastern area, many plants being subjected to oviposition punctures. (Barnett).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 133 cases reported from continental U.S. during period May 12-18 as follows: Texas 124, New Mexico 1, Arizona 7, California 1. Total of 276 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 132,599,400 as follows: Texas 116,210,400; New Mexico 630,000; Arizona 15,219,000; California 540,000. Total of 85,186,800 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - FLORIDA - Ranged 211-372 per animal side on untreated beef herds in Gainesville area, Alachua County, May 24. Averaged 12 per animal on riding horses at Gainesville May 22 and 23. (Fla. Coop. Sur.). ALABAMA - Extremely heavy on cattle throughout Lawrence County. Populations increased in Wilcox County. (McLendon, Farquhar). TENNESSEE - Ranged 0-45 per head in Tipton County and 0-40 per head in Fayette County. (Swindol). INDIANA - Adults ranged from 50 to several hundred on small herd of mixed breed cattle in Dubois County. Elsewhere, populations minor or uncountable due to weather. (Meyer). IOWA - Ranged 0-100 per head on 4 Story County cattle herds. (Iowa Ins. Sur.). TEXAS - Ranged 800-1,000 per animal on livestock in Coryell, Bell, Falls, and McLennan Counties. Dust bags gave effective control in Bell and Hill Counties. Populations reduced due to dry weather in most parts of north-central area. (Hoelscher, Turney).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Populations still stable in Monroe, Lee, and Chickasaw Counties. (Robinson). TENNESSEE - Surveys negative in Tipton, Fayette, and Shelby Counties. (Swindol, Jackson).

MOSQUITOES - RHODE ISLAND - Aedes spp. adults biting in Washington County. (Field). INDIANA - Larvae of A. vexans taken in Vigo, Pike, and Jefferson Counties about May 22. A. canadensis taken in Jefferson County; A. trivittatus with Culex restuans also taken. (Meyer). WISCONSIN - Biting increased in northern counties; some annoyance reported in southern localities. Annoyance light in

most instances. Increase in biting likely at any time, whenever prolonged warm periods occur. (Wis. Ins. Sur.). UTAH - Mosquito adults annoying in southern part of Curlew Valley in Box Elder County; some annoyance reported in Logan and Benson area of Cache County, and in Deseret and Topaz areas of Millard County. (Chapman, Knowlton). NEVADA - Culex tarsalis and Culiseta inornata larval populations increased in Reno, Sparks, and Stead areas of Washoe County. (Alcorn).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - Outbreak of Rocky Mountain spotted fever noted in Prince Georges, Charles, Montgomery, Anne Arundel, and Baltimore Counties. One death and 20 reported cases attributed to tick-borne disease. Tick populations well above normal this year, heaviest within past four years. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

A MYMARID WASP (Anaphes flavipes) - MARYLAND - This egg parasitoid of Oulema melanopus (cereal leaf beetle) collected near Antietam, Washington County, and near Ijamsville, Frederick County, May 31, 1974. This mymarid has not been released in the State. These collections constitute a new State record. PENNSYLVANIA - Collected near Marion and Mercersburg, Franklin County, May 30, 1974. First time recovered in county. WEST VIRGINIA - Collected near Charles Town, Jefferson County, May 31, 1974. First time recovered in this county. All collections by R. Dysert and Bingham. (Berger).

AN ICHNEUMON WASP (Bathyplectes curculionis) - WEST VIRGINIA - Adults taken in alfalfa at Clinton, Ohio County, May 9. No releases previously made in county. Collected by J.D. Hacker. Determined J.E. Weaver. This is a new county record. Six adults recovered from 50 sweeps in alfalfa in Jackson County May 28. First time recovered in this county. (Hacker).

A BRACONID WASP (Microctonus aethiops) - MICHIGAN - Parasitized 50 percent of Hypera postica (alfalfa weevil) adults collected May 30 at Gull Lake, Kalamazoo County. (Sauer, Stehr).

ALFALFA LEAFCUTTER BEE (Megachile rotundata) - WASHINGTON - Emergence timed to begin during period June 8-12 on alfalfa grown for seed at West Wapato and North Sunnyside, Yakima County. (Menke).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - Eggs averaged two per square foot in Monroe County spring oats May 25. (Faulk). Two eggs per square foot with second-instar larvae noted in Randolph and Monongalia Counties. (Tustin). In Wood County, 5 eggs per square foot with first and second-instar larvae observed. (Moore). PENNSYLVANIA - Eggs per 20-inch row by county: Crawford, 4 in 2 fields of 3-inch oats May 23; Lawrence, 11 in 2 fields of 3-inch oats May 24; Indiana, 7 in 4-inch oats May 24; Centre, 3 in 5 fields of 5 to 6-inch oats and 3 in spring barley May 28; Huntington, 81 in 6-inch oats May 28. First through third-instar larvae observed in winter barley and winter wheat May 24 in Lawrence County, and currently in wheat, oats, and spring barley

in Centre County. (Keim). NEW YORK - Cereal leaf beetle adults averaged 8 (range 6-10) in 24-inch tall wheatfield of about 25 acres near Perry, Wyoming County, May 22. Counts based on sample of two sets of 24 sweeps each. (Fendick).

KENTUCKY - Surveys for cereal leaf beetle negative in Christian and Crittenden Counties. (Barnett). INDIANA - Populations very light in east-central district as well as southeast district where populations increased rapidly prior to 1973. (Clark). MICHIGAN - Eggs averaged 3.1 per oat stem in field south of Galien, Berrien County, May 30; larvae scarce. Larvae averaged 2.2 per flagleaf in wheatfield across road from this oatfield; few unhatched eggs still present. Wheat between late-boot stage and heading. Eggs ranged up to 300 (average 100) per 2 linear feet in nearby field of spring barley. (Webster).

GRASS BUGS - UTAH - Labops spp. and Irbisia spp. caused much damage to crested wheatgrass and other planted grasses in large areas of Ephraim Canyon in Sanpete County. Damage, apparently by Irbisia spp., serious in Pinto Mountains and on Bureau of Land Management land in Paroway area and in Iron County. (Jensen). Damaged grasses in Moab area, Grand County. (Haws).

GRASSHOPPERS - NORTH DAKOTA - Cold, wet weather continued to delay egg hatch and retard nymphal development. Up to 20 nymphs per square yard noted in weedy alfalfa fields on lighter soil areas of Kidder County. Melanoplus bivittatus and M. sanguinipes first and second instars present. (Brandvik). NEW MEXICO - Hatch, mainly Drepanopterna femoratum and Boopedon nubilum, continued on 140,000 acres of range and crop lands south of Roswell, Chaves County. Up to 40 nymphs per square yard observed and treatments contemplated. (N.M. Coop. Rpt.). WYOMING - Amphitornus coloradus, Ageneotettix deorum, and Melanoplus confusus noted at 10 per square yard in Natrona County week ending May 24. (Crosby, Hardy). First-instar Camnula pellucida just hatching in Big Horn County; less than 1 per square yard. First and second-instar A. deorum, Aulocara eliotti, and Cordillacris occipitalis ranged 5-10 per square yard. First, second, and third instars of Melanoplus sp. and A. eliotti ranged 10-15 per square yard in Washakie County. (Patch). OREGON - Cool, wet weather delayed hatch of grasshopper eggs, mainly Oedaleonotus enigma, on eastern rangelands. No economic infestations noted in Gilliam, Morrow, Umatilla, Baker, or Wallowa Counties during May. Hatch generally limited to warmer areas of State. Instars up to third in these areas. (Goeden).

MORMON CRICKET (Anabrus simplex) - NEVADA - Ranged 0-30, averaged about 5, per square yard on 80+ acres of rangeland in Red Rock area, Washoe County. (Barclay, Bechtel).

GYPSY MOTH (Porthetria dispar) - MASSACHUSETTS - Heavy larval populations observed in ornamentals throughout State. (Lilly, Jensen).

JAPANESE BEETLE (Popillia japonica) - CALIFORNIA - Foliar treatment began in infested area in Balboa Park, San Diego, San Diego County, May 21. About seventeen adults trapped or collected in 1973. Ground treatment applied in summer of 1973, as well as foliar treatment. Some resistance to treatment noted in local areas. Trapping program negative for adults to date, although it is early for adult emergence. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae damaged peas and beans in home garden at Auburn, Lee County. (Higgins). Larvae damaged 10 acres of corn on farm near Rahoboth, Houston County, some acreage replanted. (Roney). These pests, along with wireworms, destroyed young peas on farm in Mobile County. (Goff, Straham). Larvae ranged 3-4 per hill, seriously damaged watermelons and corn in several fields in Chilton County. Growers seeking assistance. (Wilkins). Larvae damaged peanuts throughout Covington County. (Linder). Larvae caused 30 percent loss of stand on 10 acres of cotton in 30-acre field at Excel, Monroe County. (Lemons). GEORGIA - Economic on potatoes in Colquitt County week ending May 25. (Durham, Barry).

DETECTION

New United States Record - A PTEROMALID WASP (Cerocephala dinoderi Gahan) - HAWAII - Oahu Island. (p. 417).

New Continental United States Record

A SOFT SCALE (Coccus capparidis (Green)) - Intercepted at Yermo, San Bernardino County, California, March 25, 1974, on orange plant (leaves) from Florida by H.L. Scotton. Determined by S. Nakahara. This is a new continental United States record. C. capparidis was described from Capparis moonii in India, and has been recorded from Hawaii. This coccid has been intercepted in agriculture quarantine on Codieum, Cyprideum, and Dendrobium from India; on Codiaeum from the Bahamas and Honduras; and Alyxia olivaeformis and Murrya paniculata (mock orange) from Hawaii. There are no reports of damage by this coccid. It has been suspected that C. capparidis had been present in Florida for some time. (PPQ).

New State Records - AN ARMORED SCALE (Parlatoria camelliae) - DELAWARE - New Castle County. (p. 412). A LEAF BEETLE (Chalepus scapularis) - WEST VIRGINIA - Calhoun County. (p. 413). A MYMARID WASP (Anaphes flavipes) - MARYLAND - Washington and Frederick Counties. (p. 414).

New County Records - ALFALFA WEEVIL (Hypera postica) NEBRASKA - Brown, Cedar, Holt, Keya Paha, Rock (pp. 407-408). ARMORED SCALES - Phenacaspis cockerelli, Gymnaspis aechmeae - FLORIDA - Bay (p. 412). AN ICHNEUMON WASP (Bathyplectes curculionis) WEST VIRGINIA - Ohio (p. 414).

HAWAII INSECT REPORT

New State Record - Adults of a PTEROMALID WASP (Cerocephala dinoderi Gahan) collected from beetle-infested cattle feed in Kipapa, Oahu, during March 1974. This hymenopterous parasite described from Luzon, Philippine Islands, as parasite of Dinoderus minutus (bamboo powderpost beetle); also recorded as being reared from Sitophilus oryzae (rice weevil) in Java. It is not known what insect C. dinoderi parasitizes in Hawaii; however, D. minutus and S. oryzae occur in the State. Only other species of Cerocephala recorded in Hawaii is C. aquila (Girault), found associated with D. minutus in culms of dry bamboo in June 1950. C. dinoderi determined by G.Y. Funasaki, confirmed by B.D. Burks. This is a new United States record, but C. dinoderi is not known to occur in the continental U.S. (Mau).

General Vegetables - Variable damage by LEAFMINER FLIES (Liriomyza spp.) observed in 0.25 acre of snap beans at Waimanalo, Oahu. Damage heavy on plants of harvesting age; most plants lost 50+ percent of leaves. Light infestations and damage observed on 6-inch plants and on plants about 14 days from harvest in same field. Oviposition punctures numerous on young leaves of all plants. Infestations and damage variable in 4+ acres of tomato at Kona, Hawaii Island. Heavy damage (90+ percent of leaf area damaged) found in 0.5-acre planting. Infestations light at all other farms surveyed. Mining damage about nil in several plantings. (Yoshioka, Mau). Damage by SWEETPOTATO LEAFMINER (Bedellia orchilella) heavy in 100 square yards of sweetpotatoes at Waimanalo, Oahu; 20 percent of planting damaged so severely that plants in that part of field appeared defoliated. Cocoons, probably Apanteles bedelliae (a braconid wasp), parasitic in B. orchilella, prevalent on damaged leaves. Control by parasite probably prevented similar damage to remainder of this small planting. Infestation and damage near nil in other parts of planting. (Ito, Mau). CHINESE ROSE BEETLE (Adoretus sinicus) severely damaged backyard planting of snap beans at Puunene, Maui. All leaves with 50-90 percent of leaf area eaten. Light damage also noted on various palms at Lahaina and on roses at Kahului, Maui. (Ah Sam, Miyahira).

Fruits and Nuts - FLORIDA RED SCALE (Chrysomphalus aonidum) moderate on 20 citrus trees at Lahaina, Maui; scales ranged 7-40 per leaf on 20 percent of leaves. (Miyahira).

Beneficial Insects - Larvae and pupae of a CECIDOMYIID MIDGE (Zeuxidiplosis giardi) found in galls on Hypericum perforatum (Klamath weed) and adults of a KLAMATHWEED BEETLE (Chrysolina quadrigemina) found feeding on foliage at Mt. Hualalai, Hawaii Island. These insects introduced in 1965 for control of Klamath weed and have been successful. Now difficult to find Klamath weed in all areas where once abundant. (Yoshioka, Mau).

LIGHT TRAP COLLECTIONS

Precipitation Tempora- ture of 4 inches	Type of trap	Type of insect	Number of specimens	Crops	
				Number of specimens	Number of specimens
PENNSYLVANIA (Districts) North West 5/21-28 South East 5/21-28	2BL	4	1	2	40
	4BL	2	1	2	8
	BL	13		8	20
TENNESSEE (Counties) Hardeman 5/27-31 Madison 5/27-31	BL	7		8	9
	BL	2			3
WEST VIRGINIA (Counties) Jefferson 5/28 Monroe 5/28	BL				11
	BL				4
WISCONSIN Hancock 5/23-29 Lancaster 5/23-29	BL			2	4
	BL			1	34

Weather of the week continued from page 402.

The heaviest rainfall occurred from Kentucky to Louisiana and across southeastern Texas. Saturday night, heavy storms caused flooding along Embarras River in Illinois, the Wabash River and White River, Indiana, and the Little Kanawha River in West Virginia. Early Sunday, thunderstorms again dumped heavy rain from the central gulf coast through the southeastern Ohio Valley into the Middle Atlantic States. Washington, D.C., and Atlantic City, New Jersey, got over one inch of rain in a 6-hour period.

TEMPERATURES: Most of the Nation enjoyed another mild spring week with temperatures averaging near normal for the season. Cities reporting weekly temperatures averaging 4 to 6 degrees above normal included Ely and Las Vegas, Nevada; Bakersfield, California; Roswell, New Mexico; Denver, Colorado; and Midland, Texas. Along the New England coast, Boston, Massachusetts, and Atlantic City, New Jersey, reported temperatures averaging as much as 6 degrees below normal for the week. In Montana, Billings and Miles City recorded weekly temperatures averaging 5 degrees below normal. Early in the week, east coast State temperatures were below normal for June while the sun managed to push readings well above normal from central Texas into southern California. Temperature extremes ranged from a hot 106 degrees at Needles, California, to 45 degrees at Nantucket, Massachusetts. Tuesday, temperatures were quite warm in the southern half of the Nation, with readings in the 80's or 90's common in the Southwest and as far north as Colorado. In contrast, clouds held early afternoon temperatures to the 50's in parts of New England, Montana, North Dakota, and the northern Pacific coast. During predawn hours on Wednesday, a sudden blast of warm air along the trailing edge of a thunderstorm sent the temperature at Wichita, Kansas, rising to 96 degrees, setting a new record for this date. Thursday, fair weather reached from the southern Plains to central and southern Pacific coast areas with the exception of a few cloudy spots in southern California. Warm and very humid weather continued in the southeastern quarter of the Nation, with most places in the 80's and low 90's. A High pressure center in Montana brought much cooler readings to the north-central and northwestern United States. Casper, Wyoming, set a new record morning low for the date with 31 degrees. Saturday, maximum temperatures were generally in the 70's and 80's, but the thermometer topped 100 degrees in portions of the desert Southwest, while the central Pacific coast was only in the 50's.

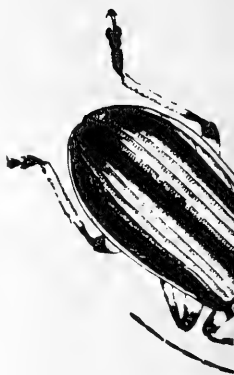
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Cooperative Economic Insect Report

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM heavy in barley in central New Jersey with some cut grain apparent; outbreak continued on Maryland Eastern Shore with damage heaviest in wheat and corn. Armyworm damaged corn in southwest Virginia and central Kentucky. (p. 423).

First EUROPEAN CORN BORER moth of season reported in Michigan, first egg hatch reported in Illinois; moths increased slightly in Wisconsin, egg masses moderate on corn in central and north-central Missouri. (pp. 424-425).

A SOD WEBWORM still active on rangeland in South Dakota. (p. 426).

BOLLWORM moth flight and egg laying observed on early square cotton in east-central and southern Alabama. (p. 429).

MEXICAN BEAN BEETLE adult feeding heavy on snap beans in southern and Eastern Shore areas of Maryland. (p. 429).

PECAN PHYLLOXERAS damaged pecans in Mississippi, Alabama, and Tennessee. (p. 431).

SOUTHERN PINE BEETLE outbreak expected to continue in South Carolina. (p. 432).

CEREAL LEAF BEETLE populations heaviest in Maryland since pest first found in State. Economic GRASSHOPPER populations developing on rangeland in Panhandle, northwest, west-central, and south-central areas of Oklahoma. (pp. 436, 437).

Detection

AN ASPEN CARPENTERWORM reported from North Dakota (p. 433) and a TABANID FLY from Virginia (p. 441) are new State records.

For new county and island records see pages 430, 441, and 442.

Special Reports

Distribution Records of Several Virginia Tabanids (Diptera: Tabanidae). (pp. 441-442).

1973 Report of Infestation of Oats by the Cereal Leaf Beetle. (pp. 443-447).

Reports in this issue are for week ending June 7 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JUNE 10

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

HIGHLIGHTS: A storm system from the upper Great Lakes southward into Texas triggered tornadoes, thunderstorms, high winds, and torrential rains across the southern Plains and lower Mississippi Valley, causing considerable damage and personal injury last week. As the storm slowly inched eastward, heavy rainfall sparked flash floods in Louisiana, Arkansas, Kansas, Oklahoma, Missouri, and Texas. Although eastern Colorado got 1 to 2 inches of much needed precipitation last week, most of the Southwest remained dry. Mild temperatures dominated the Nation, with averages as much as 8 degrees above normal in California's Imperial Valley and throughout the Southwest and 9 degrees above normal in the Great Lakes area.

PRECIPITATION: Widely scattered precipitation fell across the eastern two thirds of the Nation last week. Light precipitation dampened sections of Idaho, Montana, Washington, and Oregon. Some of the heaviest rainfall amounts occurred in the following cities: Fort Worth, Texas, 4.61 inches; Shreveport, Louisiana, 6.09 inches; Little Rock, Arkansas, 6.98 inches; Springfield, Missouri, 5.13 inches; Tulsa, Oklahoma, 7.75 inches. Early in the week, tornadoes and heavy rain spread across the Plains. Monday night, tornadoes were reported in north-central Texas and near Claremont, Minnesota; Fargo, North Dakota; Aberdeen, South Dakota; and Liberal, Kansas. Flooding occurred in the Texas southern plains as 2 to 3 inches of rain fell in a 2-hour period. There were isolated reports of 4 inches or more. Toward the weeks end, a cold front triggered strong thunderstorms from Minnesota to Kansas. Thursday night, storms produced severe weather and heavy rains in Kansas and Nebraska where Franklin was soaked with 2.50 inches of rain in 20 minutes. Weather of the week continued on page 448.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Euxoa auxiliaris*) - NEVADA - Damaged onions at Orovada, Humboldt County, by cutting off plants at ground level week ending May 31. (Stitt). UTAH - Moderate on lawn at Brigham, Box Elder County. (Knowlton).

ARMYWORM (*Pseudaletia unipuncta*) - NEW JERSEY - Ranged up to 12 per square foot in maturing barley in Allentown, Robbinsville, and Dutch Neck area of Monmouth and Mercer Counties. Cut grain abundant on ground in several barley and wheat fields; controls necessary and recommended. (Ins.-Dis. Newsltr.). MARYLAND - Outbreak continued in wheat, barley, and corn. Heaviest damage centered in Talbot, Caroline, Queen Annes, and Dorchester Counties. About 600 acres of barley completely lost, remaining acreage sprayed. Heaviest damage appears restricted to wheat and corn. Young and full-grown larvae in wheat. Larvae frequently left wheat and unsprayed barley and "marched" into corn. Population levels last 21 days heaviest within past 8 years. Heaviest counts ranged 7-20 per square foot. Population declines not expected before next week but most barley acreage protected or being harvested; however, wheat 2-3 weeks from harvest and yields expected to be reduced in barley and wheat. (U. Md., Ent. Dept.).

VIRGINIA - Damaging armyworm larval populations appeared in corn in Bland and Montgomery Counties; damage first noted June 2 in Bland County, with heavy damage in some fields. Many fields currently being sprayed had preplant insecticide application. Larvae averaged 50.7 and 27.8 per 25 row feet in two of more heavily infested cornfields in Montgomery County. About 15 other fields checked May 31; counts ranged from one to 3-5 larvae per row foot. (Allen et al.). KENTUCKY - Damaged no-till corn in central area. Most fields showed some damage. Heavy damage (50 percent of plants showing damage) noted at locations in Bourbon and Woodford Counties. Damage to regular tillage corn ranged 0-5 (average 2) percent. Infestations insignificant in 5 small grain fields examined per county in central area. (Barnett).

MISSOURI - Armyworm larvae heavy in no-till corn in northeast area. Damage severe enough to cause replanting of fields involved. (Meek). Very light in wheat and barley in central, northeast, and south-central areas; ranged 0-1 larva per square foot. (Brown). OKLAHOMA - Clipped heads of late maturing wheat and barley in northern Kay County. Some fields treated. Infestations ranged 6-12 per 50 sweeps but heavier in some fields. *Faronta diffusa* (wheat head armyworm) present in most fields. *P. unipuncta* ranged 0-9 per 50 sweeps in Grant and Garfield Counties; damage light. (Okla. Coop. Sur., May 31). KANSAS - Generally trace in wheat surveyed in parts of Butler, Sedgwick, and Harvey Counties. Highest count 2 per square foot in Harvey County. Larvae damaged bromegrass pastures in Atchison County. (Bell). MICHIGAN - Larvae found feeding on some grasses, including lawns, in Cass County June 3. Extent of problem not determined. Growers advised to check small grains, corn, and pastures. (Sackrider et al.).

ASTER LEAFHOPPER (Macrostoteles fascifrons) - WISCONSIN - Adults increased, due mostly to maturation of local populations. Counts heaviest, 72 per 100 sweeps, in Prairie du Chien area, Crawford County. Averaged 35 per 100 sweeps in Trempealeau County where local adults mixed with small migrating populations. (Wis. Ins. Sur.). MINNESOTA - No significant increase in spring migrants noted in southwest district. Many grain fields showed no evidence of pest. Heaviest count 80 per 100 sweeps; averaged 31 per 100 sweeps. (Minn. Pest Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Heavy in young sorghum field in Pittsburg County and moderate in Wagoner and McCurtain Counties week ending May 31. Current infestations generally moderate in young sorghum checked in Craig, Delaware, Nowata, and Rogers Counties. Ranged up to 300 per plant in 12-inch sorghum and up to 140 per plant in 6-inch sorghum. (Okla. Coop. Sur.). KANSAS - Generally light in whorls of corn and sorghum surveyed in southwest district. (Bell).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged up to 55 per 12-inch sorghum plant on occasional plant in Nowata County, up to 65 per plant on occasional plants in Rogers County. (Okla. Coop. Sur.). KANSAS - No reports of damaging infestations in sorghum. Heaviest infestations seen in Clay (50 per plant) and Riley (100 per plant) Counties; flight activity substantial in these counties. Greenbug flight activity increased in Ellis County May 27. Effects of recent beating rains helped keep counts light in most areas. (Bell). MISSOURI - Ranged 0-50 per 4 to 6-inch sorghum plant with 100 percent of larger plants infested in one Barton County field. (Keaster, Emerson). WISCONSIN - Averaged one per 200 sweeps of 6 to 8-inch oats in Trempealeau County. Pest not expected to be problem this season. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Adults well distributed over State; found as far north as Lincoln and Langlade Counties. Heaviest counts, 22 per 50 sweeps, found at Prairie du Chien, Crawford County. (Wis. Ins. Sur.). INDIANA - Adults ranged from zero to average of 7 per 10 sweeps in north-central and north-east district alfalfa. Alfalfa ready for harvest and alfalfa regrowth affected; heaviest single population on 3-inch regrowth. (Ballard). MICHIGAN - Adults collected in Shiawassee County alfalfa May 17, about 14 days earlier than normal. None found in same area May 20-27, but again collected May 31. (Montei, Ruppel). Adults light on sticky traps in peach orchards in Hartford area, Van Buren County, last week of May. (Taboada).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Ranged 4-30 per sweep in alfalfa seed fields at Dixie Valley, Pershing County. (Martinelli, Munk). UTAH - Light in Washington County alfalfa. (Huber).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - First adult of season in blacklight trap in Lenawee County June 1. (Cress, Newman). WISCONSIN - Moth catches in blacklight traps increased slightly but still at low levels. Warm weather last period favorable for development of pupae and corn. (Wis. Ins. Sur.). ILLINOIS - First egg hatch of season found in no-till corn in

St. Clair County. Development by county as follows: Massac, 100 percent emergence; Champaign, 36 percent emergence, 60 percent pupation; Ogle, zero emergence, 96 percent pupation. (Ill. Ins. Rpt.). MISSOURI - Egg masses moderate on corn in central and north-central areas; ranged 0-4 per 10 plants. Leaf feeding observed on 1-10 percent of plants. (Brown). KANSAS - No eggs found in several corn fields surveyed in Shawnee County. (Bell).

GEORGIA - European corn borer very heavy in field of tasselling corn in Mitchell County week ending May 31. (Lee, French). KENTUCKY - Egg hatch began about 14 days ago in western and southern areas and currently in central area. (Barnett). MARYLAND - Adult flight activity and egg mass and larval counts very light to date; less than one percent. (U. Md., Ent. Dept.). DELAWARE - Adults averaged 15 per night in blacklight trap in western Sussex County May 29 through June 4. (Burbutis). MAINE - No pupation observed. Infestations could be problem in some areas. (Gall).

BLACK CUTWORM (Agrotis ipsilon) - IOWA - Larvae damaged corn in Fremont, Pottawattamie, Story, and Wright Counties. Bait applied in 2 Story County fields apparently failed to give control. (Iowa Ins. Sur.). ILLINOIS - Continued problem in small field corn throughout State. Damage averaged 30, 5, and 4 percent in 3 St. Clair County fields. (Ill. Ins. Rpt.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpuncta howardi) - TENNESSEE - Severely damaged sweet corn in many small plantings in central area. (Gordon).

YELLOW SUGARCANE APHID (Sipha flava) - OKLAHOMA - Ranged 0-15 per plant in most fields of young sorghum checked in Craig, Delaware, Nowata, and Rogers Counties, but ranged up to 60 per plant in one 12-inch field in Nowata County. Light on home garden corn in Mayes County. (Okla. Coop. Sur.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Heavy, 1-2 per bud, on young corn and per tassel of older corn throughout 240 acres near Camp Holton, Houston County. (Roney).

SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - MONTANA - Bare ground apparent in several fields of winter wheat in Jefferson County. Wheat appeared in good condition in area 7 days ago but currently showed heavy losses. (Pratt).

WHEAT HEAD ARMYWORM (Faronta diffusa) - OKLAHOMA - Ranged 0-12 per 50 sweeps in wheat checked in Kay, Noble, Grant, and Garfield Counties. Larvae feeding on cheat and "sucker" heads of wheat in nearly mature fields. (Okla. Coop. Sur.).

WHEAT STEM MAGGOT (Meromyza americana) - IOWA - Cut 10 percent of heads in 40-acre Taylor County wheatfield. (Iowa Ins. Sur.). OKLAHOMA - Damage light in scattered wheatfields in Noble, Grant, and Garfield Counties, and adults swept from one Kay County field week ending May 31. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - WISCONSIN - Counts below normal in small grains over State; heaviest count averaged 8 per 100 sweeps. (Wis. Ins. Sur.).

A GIANT WATER BEETLE (*Hydrophilus triangularis*) - CALIFORNIA - Beetles laid egg masses in rice paddies past few weeks. This hydrophilid not primary pest of rice but predacious on tadpole shrimp. When persuing shrimp, which take refuge in rice roots, beetles dig out plants which float to surface and are lost. (Cal. Coop. Rpt.).

TURF, PASTURES, RANGELAND

A SOD WEBWORM (*Crambus* sp.) - SOUTH DAKOTA - Continued active on western area rangeland. Damage to native prairie estimated at 8,000-20,000 acres in Dewey, Carson, Ziebach, Stanley, and Haakon Counties. (Walgenbach et al.).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - MONTANA - Adults averaged 5 per sweep in Fallon County alfalfa. (Pratt). SOUTH DAKOTA - Larvae ranged 2-75 per 100 sweeps of alfalfa in Buffalo, Jerauld, Sanborn, Miner, Lake, Moody, Brookings, Aurora, Davidson, McCook, Minnehaha, Douglas, Hutchinson, Bon Homme, and Lincoln Counties. Count of 75 larvae per 100 sweeps found in Douglas County, indicates pest well established. These are new county records. (Walenbach et al.). MINNESOTA - Continued to spread; larvae ranged 5-20 per 100 sweeps of alfalfa in Jackson, Cottonwood, and Redwood Counties. These are new county records. Occasional fourth instar found, but most larvae second to third instars. Most alfalfa near first cutting; some growers cutting. Damage almost nil. (Minn. Pest Rpt.).

WISCONSIN - Alfalfa weevil larvae and damage to alfalfa more noticeable as most of first larvae near full grown. Populations relatively heavy in few fields. In exceptional field near Mazomanie in western Dane County, larvae ranged up to 41 per sweep over much of field, but pupation well underway and little additional damage likely. Larvae currently much heavier in most fields than for past weeks but still considered relatively light. Counts rarely exceed 2 per sweep except in sandy areas where up to 5 larvae per sweep typical. Up to 15 larvae per sweep found on sandy soil in La Crosse and Trempealeau Counties. Most larvae half to full grown with pupation underway in most fields, but second group of small larvae evident in most fields and adults increased. (Wis. Ins. Sur.). INDIANA - Third and fourth-instar larvae dominated in few remaining unharvested alfalfa fields in northern district. (Ballard).

IOWA - Alfalfa weevil larvae averaged 55 per sweep in Van Buren County alfalfa field, less than one per sweep in more northern Lucas County field. (Iowa Ins. Sur.). KANSAS - Larvae absent in alfalfa except for trace numbers of large larvae still found in some uncut fields. Most first-generation adults have left fields. Few found but only in uncut fields and fields with much regrowth. Alfalfa regrowth following first cutting good in cut fields over most of State. Poor regrowth reported in some drought-stressed fields in southwest district. (Bell). OKLAHOMA - Adults ranged up to 20 per 10 sweeps in Jackson County alfalfa week ending May 31.

Alfalfa weevil adults still common in many areas of State. (Okla. Coop. Sur.). NEW MEXICO - Counts of 50 adults and 350 larvae per 25 sweeps of alfalfa reported from Bernalillo County with up to 95 percent leaf damage in some fields. (N.M. Coop. Rpt.).

KENTUCKY - Alfalfa weevil eggs averaged 4.6, 4.0, 1.2, 1.6, 0.2, 4.0, 9.0, 6.8, 13.2, 5.2, and 3.2 per square foot at various locations in Fayette County. In 7 fields, no eggs found in sample units. (Barnett, Parr). VIRGINIA - No economic infestations reported this period as first cutting of alfalfa harvested in most cases. (Allen).

ALFALFA LOOPER (Autographa californica) - OREGON - Adult catches in pheromone traps in Linn County low compared with 1973. Only 2 moths taken in 3 traps during period May 31-June 6. (Crowell).

MEADOW SPITTLEBUG (Philaenus spumarius) - KENTUCKY - Averaged 200 per 100 sweeps in Bourbon County alfalfa field. (Barnett). MICHIGAN - Nymphs abundant in some alfalfa. Growers advised to check fields. (Kaiser, Parson).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Averaged 50 per sweep in Dixie Valley, Pershing County, alfalfa seed fields. (Martinelli, Munk). WISCONSIN - Populations static in alfalfa, probably due to parasitism. A. pisum averaged one per sweep in most alfalfa surveyed, less than 10 per sweep in heaviest infested fields. (Wis. Ins. Sur.).

PACIFIC SPIDER MITE (Tetranychus pacificus) - NEVADA - Heavy in 500 acres of alfalfa hay and seed at Jungo, Humboldt County; treatment required. Petrobia latens (brown wheat mite) also present. (Stitt).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - INDIANA - Adults ranged 1-3 per linear foot in 3 Clay County fields showing 1-3 trifoliolate leaves. One field with 25 percent loss of leaf surface. Ratio of Cerotoma trifurcata (bean leaf beetle) to E. varivestis was one to ten. E. varivestis adults averaged about one per yard in field of soybeans and caused 20 percent loss of leaf surface in field of snap beans in Scott County. (Edwards). DELAWARE - E. varivestis adults abundant and feeding on soybeans in Sussex County. (Burbutis).

PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Larvae killed peanut plants throughout farm planting of 100+ acres in Pike County. This is very early in season for much infestation on peanuts, but indicates potential damage that can occur before harvest throughout 200,000 acres grown in State. (Curtis, Bond).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Live weevil counts on 6 to 12-leaf cotton continued light in Covington and Monroe Counties, ranged zero to 22 per acre. Much heavier on early squaring cotton in Macon, Lee, and Elmore Counties, with early feeding and occasional egg-laying puncture on squares in older cotton. First field emergence of first-generation weevils will start in central area about June 20 and continue 10-18 days. (McQueen). MISSISSIPPI - Counts decreased in Leggett traps in Yalobusha County from previous periods. In about 100 traps, 15.5 weevils per trap taken in one nondiapause area compared to 8.8 per trap in one diapause area. (Collins).

ARKANSAS - Average number of boll weevils per pheromone trap by county: Clay 7.7, Craighead 6, Conway zero, Desha 2.9, Jefferson 1.7, Lafayette 14, Mississippi 1.8, Pulaski 3.1, and St. Francis 5.8. Average number per trap 4.8. This is about half of 8.4 average previous period. St. Francis County only location that showed significant increase over previous period. This due to additional traps operated in county. Effect of diapause control programs and character of adjacent hibernation quarters continued to appear; continued apparent in Lafayette County also. Nine traps operated in latter county; 6 traps caught no weevils, one caught 2 weevils, one caught 24, and one caught 100 weevils. (Boyer). OKLAHOMA - Counts totaled 164 weevils in 32 pheromone traps in Muskogee County. Catches also reported in Caddo and Beckham Counties. (Okla. Coop. Sur.). MISSOURI - Eighty-two weevils taken from 75 Leggett traps between Benton, Scott County, and Cardwell, Dunklin County. (Jones).

BOLLWORMS (Heliothis spp.) - ALABAMA - Much moth flight and egg laying observed in early square cotton in several fields in Lee, Macon, Elmore, and Covington Counties. (Pike et al.). ARKANSAS - Number of H. zea (bollworm) and H. virescens (tobacco budworm) moths taken in blacklight traps remained low at 2 locations but increased at one location. Only 2 H. zea moths taken in one trap at Kelso, while 28 H. zea and 2 H. virescens moths taken in one trap at Pickens, only about 13 airline miles distant in Desha County. Only 7 H. zea moths taken in 2 light traps at Coy, Lonoke County. (Boyer).

THRIPS (Frankliniella spp.) - NEW MEXICO - F. occidentalis (western flower thrips) ranged 1-200 per cotton plant in Eddy County. Some damage to first true leaves and some controls applied. Averaged one per plant in Chaves County, ranged 0-5 per plant in Dona Ana County. (N.M. Coop. Rpt.). ALABAMA - F. fusca (tobacco thrips) and other thrips very heavy on untreated cotton in Dallas, Macon, Lee, Elmore, and Morgan Counties. (Hines et al.).

TOBACCO

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - Spot checks in tobacco indicate continued damage in untreated fields, particularly in southern Coastal Plain. About 25 percent of plants observed in Harnett County area damaged; however, only 5 percent of plants with larvae. This indicates controls applied in most cases. (Scott, Hunt).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Damage apparent in most fields of tobacco. Average infestation showed 5-10 percent foliar destruction but up to 20-25 percent foliar loss observed in some fields in central area. (Barnett).

SUGAR BEETS

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 10 per 100 sugar beet plants at Willcox, Cochise County. (Ariz. Coop. Sur.).

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Adult emergence 10 percent in Cavalier area, Pembina County. North of Forest River, Walsh County, pupation 89 percent, adult emergence 28 percent. Very few beets have emerged in area. (Kaatz).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - SOUTH CAROLINA - Moderate on potatoes in Lancaster County; damage light. Collected June 3, 1974, by H.B. Jackson. This is a new county record. (Thomas, McCaskill).

BEANS AND PEAS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adult infestation level stable at 1-2 per foot of row in heaviest infested fields. Most fields showed injury, damage remains light, and snap and early lima beans growing out of earlier injury. (U. Md., Ent. Dept.). OHIO - Adults damaged beans at Pickaway County farm as follows (100 plants examined): Bunch beans, 90 percent of plants infested, 5-30 percent defoliation; half-runners, 100 percent of plants infested, 15-45 percent defoliation. (Fox).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - OHIO - First and second-instar larvae averaged 2.7 per potato plant in Erie County. Defoliation light to date. (Fox). In Wayne County where plant maturation slower than normal, adult feeding on small potato plants caused some serious damage. Controls warranted. (Sleesman).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults appeared in beans in all areas. Heavy adult feeding evident in about 600 acres of snap beans in Charles, Dorchester, and Wicomico Counties. (U. Md., Ent. Dept.). DELAWARE - Adults abundant and feeding on snap beans in Sussex County. (Burbutis).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Counts continued light in most peas surveyed. Heaviest counts 18 per 100 sweeps in Fond du Lac County. No drastic increase foreseen next 7-14 days unless marked change in weather affects parasites. (Wis. Ins. Sur.).

COLE CROPS

CABBAGE FLEA BEETLE (Phyllotreta cruciferae) - OREGON - Adults fed on newly emerged broccoli seedlings on 75 acres in western Washington County. Most damage light except in one 5-acre planting where feeding removed most cotyledon leaves. Controls applied to all infested acreage. (Collings).

VARIEGATED CUTWORM (Peridroma saucia) - MICHIGAN - Larvae caused much damage to field of cabbage in Monroe County. (Cress).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Adults caused heavy injury to unsprayed cucurbits on Eastern Shore; 2-3 adults per plant not uncommon. However, most growers on spray schedules in order to protect stands from bacterial wilt. (U. Md., Ent. Dept.).

GRANULATE CUTWORM (Feltia subterranea) - FLORIDA - This species, as rindworms, comprised 98 percent of larval population that developed very quickly to damaging levels on watermelons in 20-acre field just prior to harvest at Leesburg, Lake County, May 28. Based on 591 melons examined, larvae ranged 2-12 per melon. Heliothis virescens (tobacco budworm) and Trichoplusia ni (cabbage looper) each comprised one percent of population. (Fla. Coop. Sur.).

DETECTION

New State Record - AN ASPEN CARPENTERWORM (Acosus centerensis) - NORTH DAKOTA - Bottineau County. (p. 433).

New County and Island Records - ALFALFA WEEVIL (Hypera postica) SOUTH DAKOTA - Buffalo, Jerauld, Sanborn, Miner, Lake, Moody, Brookings, Aurora, Davidson, McCook, Minnehaha, Douglas, Hutchinson, Bon Homme, Lincoln. MINNESOTA - Jackson, Cottonwood, Redwood. (p. 426). CATTLE TAIL LOUSE (Haematopinus quadripertusus) ALABAMA - Mobile (p. 436). CITRUS SWALLOWTAIL (Papilio xuthus) HAWAII - Maui Island (p. 438). COLORADO POTATO BEETLE (Leptinotarsa decemlineata) SOUTH CAROLINA - Lancaster (p. 429). A GRASSHOPPER (Dendrotettix quercus) OKLAHOMA - Lincoln (p. 433).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - MICHIGAN - Adult flight underway; pheromone trap catches ranged up to 50 per trap. (Olsen). CALIFORNIA - Second-brood moths flying; some infestations in pear orchards reported. Second cover sprays being applied. (Cal. Coop. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CALIFORNIA - Second-brood moths laying eggs; young larvae present. This brood has been uneven and extended. Peach growers of early varieties will treat, depending on moth catches in traps. (Cal. Coop. Rpt.).

CHERRY FRUIT FLIES (Rhagoletis spp.) - MICHIGAN - Adult R. cingulata (cherry fruit fly) emergence in Berrien County cages: One May 28, one May 30, one June 3, two June 4, six June 5, and six June 6. In Van Buren County, 7 R. fausta (black cherry fruit fly) adults emerged June 3; in Ingham County, 3 adults recovered June 6 from florescent-yellow, sticky-can trap. (Hanna).

PLUM CURCULIO (Conotrachelus nenuphar) - MASSACHUSETTS - Adults active in deciduous fruit orchards in Hampshire and Hampden Counties. (Wilder).

PEAR PSYLLA (Pyslla pyricola) - UTAH - Heavy in unsprayed pear orchards in Provo area of Utah County. Control in commercial orchards generally satisfactory. (Davis, Barlow).

EUROPEAN RED MITE (Panonychus ulmi) - MAINE - Development on apples much slowed by cool weather. Appears no summer eggs will be laid until after petal fall. Overwintered populations appear heavier than in 1973. Early control recommended. (Gall).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - General buildup noted on pecan and persimmon trees in Semmes, Wilmer, Sarland, Satsuma, and Citronella areas of Mobile County. If first generation successful, heavy second generation expected later this season. (Lockhart, Howell).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Eggs present on 4 percent of nut clusters (33 percent of eggs pink) on pecans checked in the Ponca City area, Kay County, May 28. Averaged 10 percent (75 percent pink) in Rogers County May 29. Adults still active in Payne County May 29. Larval infestations averaged 20 percent on pecans in Jackson and Kiowa Counties. Infestations averaged 9 percent (78 percent of eggs red) on pecans checked in Rogers County June 1; averaged 36 percent (6 percent hatched and 17 percent pink) in Nowata County June 4. Adult counts declined in Payne County light trap, may have been due to several rainy nights. (Okla. Coop. Sur.).

PECAN PHYLLOXERA (Phylloxera devastatrix) - MISSISSIPPI - Damage continued moderate to heavy on pecans in Oktibbeha, Quitman, Hinds, Lincoln, Holmes, and Panola Counties. (Robinson). ALABAMA - Galls heavy and widespread throughout Dallas County. Pest has constantly moved to new pecan orchards in county each year. This is first year damage noted on more resistant Stewart variety. (Hines). TENNESSEE - This species and P. notabilis (pecan leaf phylloxera) heavy on pecans in middle and western areas. Damage very heavy. (Locke, Schmitt).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - SOUTH CAROLINA - Salvage of infested pines averaged about 9,000 cords per month for February through April. Commission of Forestry personnel continued to investigate insect spots and assist landowners with salvage or other control measures. Presuppression surveys made in areas where new activity suspected. Parts of Sumter, Lee, Charleston, Horry, Beaufort, Georgetown, and Jasper Counties surveyed during April. Surveys planned for several areas of Piedmont during June. Totals of 124,159 cords and 4,708,512 board feet salvaged during period July 1973 through April 1974. Ground observations of spots during April 1974 revealed varying brood conditions. Densities high in new spots in Georgetown and Lexington Counties and in some spots in Piedmont area. Predator and parasite populations high at some spots throughout State. D. frontalis outlook rather uncertain. At present, outbreak expected to continue during summer 1974, but hopefully at lesser extent than 1973. (Thomas, McCaskill).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Ranged moderate to heavy in young shortleaf pines checked in Delaware County. Full-grown, first-generation larvae common with some pupae and few newly emerged adults present. (Okla. Coop. Sur.).

KANSAS - Most first-generation larvae pupated in Riley County. Emergence expected to peak about June 20. (Bell).

SPRUCE BUDWORM (Choristoneura fumiferana) - MAINE - Development collections made June 3 showed increased number of larvae in third instar, some fourth instars noted. Most advanced areas are Washington County where 92 percent of larvae in third instar and 8 percent fourth instar. At Oxbow, Aroostook County, larvae 8 percent second and 92 percent third instars; at Cross Lake 81 percent of larvae second instar, 19 percent third instar. (Gall).

MICHIGAN - Larvae mined newly expanding buds of balsam fir in Marquette County. Damage not yet very evident. (Johnson).

SEQUOIA PITCH MOTH (Vespamima sequoiae) - OREGON - Still very heavy in ornamental pines planted at Fern Ridge Reservoir near Veneta, Lane County. Examination of older pitch nodules from which no adults had emerged indicated 20-25 percent of 1974 larvae have pupated. (Penrose).

CHERMIDS - NEW HAMPSHIRE - Adelges cooleyi (Cooley spruce gall aphid) stem mothers observed laying eggs on Douglas-fir May 28 in Belknap County. Pineus pinifoliae (pine leaf chermid) stem mothers observed moving from white pine to red and black spruce May 29 in Grafton County. (Hutchins).

ELM LEAF BEETLE (Pyrhalta luteola) - CALIFORNIA - Second and third-instar larvae ranged 15-32 per leaf on elms in Sacramento, Sacramento County. Some defoliation observed. Early adult treatments applied too soon. Re-treatment of street and park elms started. Problem not limited to Sacramento, but present over much of State. If treatment not made, many elms will be defoliated by mid-July. (Cal. Coop. Rpt.).

NEW MEXICO - Larvae heavy, damaged 95 percent of leaves on all elm trees in Kingston and Hillsboro areas of Sierra County. (N.M. Coop. Rpt.).

KANSAS - Pupation of first generation underway in Riley County. Damage

to Siberian elms generally light in Manhattan. (Bell). INDIANA - Oviposition very light to date in west-central and central districts. Trees normally severely damaged most years currently almost devoid of eggs. (Clark et al.). MICHIGAN - Elm leaf beetle adult activity heavy in residences and on elm trees in Lansing area. (Wallner). ALABAMA - First-generation larvae fed on elm trees in Morgan County. Larvae about full grown. (Garrett).

FALL CANKERWORM (Alsophila pometaria) - WEST VIRGINIA - Defoliation ranged 80-100 percent on 1,200 acres of hardwoods on Blue Ridge Mountain in Jefferson County. Pupation occurred May 20. Third-instar larvae found in Dolly Sods area, Grant County, June 5. Defoliation beginning. About 2,000 acres of defoliation expected in Dolly Sods and Stoney River Dam area. (Miller). PENNSYLVANIA - Larvae noted on oak, maple, and other trees in Hellman area of York County May 24. Defoliation ranged moderate to heavy on several hundred acres, mostly above 600 feet elevation. Calosoma frigidum and C. wilcoxi (carabid beetles) observed at midday at one location. Hister spp. (hister beetles) abundant in leaf litter. Two species of tachina flies and some sarcophagid flies active. (Simons).

TENT CATERPILLARS (Malacosoma spp.) - NEW MEXICO - Webbing observed throughout Lincoln National Forest in Lincoln, Otero, and Chaves Counties, and within Gila National Forest in Black Range of Grant and Sierra Counties. Several species identified from these areas in recent years. (N.M. Coop. Rpt.). MICHIGAN - M. americanum (eastern tent caterpillar) eggs hatched, larvae formed tents and defoliating apple trees in Marquette County. (Johnson).

AN ASPEN CARPENTERWORM (Acosus centerensis) - NORTH DAKOTA - Collected during period July 16-20, 1973, in pheromone traps in Bottineau County by A.D. Tagestad. Determined by R.W. Hodges. This is a new State record. (Stein, USFS).

FALL WEBWORM (Hyphantria cunea) - OREGON - First adult of season taken in light trap at Mt. Angel, Marion County, during period May 30-June 2. (Penrose).

REDBUD LEAFFOLDER (Fascista cercerisella) - OKLAHOMA - Full-grown, first-generation larvae noted on redbud in Mayes County. First report of season. (Okla. Coop. Sur.).

MOURNINGCLOAK BUTTERFLY (Nymphalis antiopa) - NEVADA - Larvae heavy, defoliated small elm trees at Sun Valley, Washoe County. (Arnett). Caused light, spotted damage to willow at Reno, Washoe County. (Adams).

BRONZE BIRCH BORER (Agrilus anxius) - NORTH DAKOTA - Adult emergence expected next 14 days. Tree mortality to cutleaf weeping birch heavy in Fargo area, Cass County. (McBride).

A GRASSHOPPER (Dendrotettix quercus) - OKLAHOMA - Heavy and damaged blackjack, post oak, and other oak species in scattered areas of Lincoln County. This is a new county record. Probably this species also reported on oaks in some areas of Cleveland and Creek Counties. (Okla. Coop. Sur.).

PERIODICAL CICADA (Magicicada septendecim) - PENNSYLVANIA - Adults of Brood XIV (17-year race) heavy on broadleaf trees in Blair and Center Counties May 30. (Mallis). Adults observed "singing" June 1; heavy on all grasses, pines, maples, oaks, and other trees. Emergence increased steadily since June 3. Empty nymphal cases heavy on houses, trees, and grasses. (Farrell). MARYLAND - "Singing" evident in Allegany, Washington, Montgomery, Frederick, and Prince Georges Counties. Populations isolated, appear very light (U. Md., Ent. Dept.). NORTH CAROLINA - Emergence continued in Asheville, Buncombe County. Oviposition damage very apparent on yard trees, particularly oaks in residential area. Specimens also collected from Edgemont, Avery County, and Collettsville, Caldwell County. (Hunt). TENNESSEE - Observed in Putnam, Sequatchie, Union, and Clairborne Counties. (Mullett, Gordon).

A LACE BUG (Corythucha juglandis) - NEW HAMPSHIRE - Adults ranged up to several hundred per leaflet on butternut and heartnut (Juglans spp.) in Strafford County area. (Miller et al.).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 191 cases reported from continental U.S. during period May 19-25 as follows: Texas 176, New Mexico 3, Arizona 12. Total of 192 cases confirmed from Mexico. Number of sterile flies released in U.S. this period totaled 135,817,800 as follows: Texas 117,061,800; New Mexico 540,000; Arizona 17,496,000; California 720,000. Total of 75,137,400 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Averaged 5 per face on livestock in Monroe and Chickasaw Counties. (Robinson). ALABAMA - Heavy on cattle throughout Colbert County, heavy in Lauderdale and Lawrence Counties; pinkeye becoming problem early. (Potter et al.). TENNESSEE - Counts per head on cattle by county: Hardeman and Madison negative; Giles 10-20, Cumberland 5-40, Blount 5-10, Warren 25-50. (Watson et al.). MISSOURI - Light on cattle in north-central, northeast, and central areas; ranged 0-10 per animal. (Brown). KENTUCKY - Average counts per animal by county: Woodford 13.6, Fayette 18.5, Clark 14.2, and Bourbon 15.6. (Barnett).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 4 per head on dairy cattle checked in Payne County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - ALABAMA - Counts heavy on cattle throughout Colbert County, heavy in Lauderdale and Lawrence Counties. Increased in Wilcox County. (Potter et al.). TENNESSEE - Counts per head of cattle by county: Hardeman 0-50, Madison 10-75, Giles 25-50, Cumberland 0-15, Blount 5-10, Warren 25-100. (Turpen et al.). OKLAHOMA - Averaged 700 per head on cows and 2,500 per head on bulls in Payne County week ending May 31. Averaged 300 per head in Kiowa County and 250 per head in Muskogee and McIntosh Counties. (Okla. Coop. Sur.). Currently ranged 150-300 per head on cattle checked in Noble County. Averaged 200 per head in Mayes and Muskogee Counties, 125 per head in McIntosh County, and 100 per head in McCurtain County. (Okla. Coop. Sur.). MISSOURI - Light to moderate on cattle in north-central, northeast, and central areas; ranged 0-80 per animal. (Brown).

IOWA - Horn fly ranged 0-200 (average 50) per head on pastured Story County cattle. (Iowa Ins. Sur.).

BLACK FLIES - NORTH DAKOTA - Heavy and annoying to man in Grafton, Walsh County. (Schulz). RHODE ISLAND - Simulium spp. adults reported biting in Washington County. (Field). MAINE - Prosimulium spp. adults at peak levels in central area. Simulium venustum adult emergence underway, will be nuisance next 7-14 days. (Gall).

MOSQUITOES - UTAH - Aedes vexans and A. increpitus very heavy due to overflow of Ogden and Weber Rivers. A. dorsalis moderate in irrigated pastures and lakefront areas of Weber County. A. nigromaculis infested 1,200 acres treated in May, currently light to moderate in Weber County. (Fronk). Mosquitoes very annoying in upper Skull Valley, Tooele County; Benson and Amalaga area of Cache County; and in Delta, Deseret, and Topaz areas of Millard County. Larvae very heavy in Rich County waters in Pickleville area. Adults light in Santa Clara and Bloomington area of Washington County and around Salt Lake City, Salt Lake County. (Knowlton et al.). IOWA - Mosquitoes annoying in Ames, Story County, and Ottumwa, Wapello County. (Iowa Ins. Sur.).

MINNESOTA - Mosquito light trap collections in Metropolitan Mosquito Control District light compared to one year ago; 124 adults taken in 16 traps during period May 26 to June 1 compared to 671 for same period in 1973. Of 192 adults taken in 30 day-time bite collections, 77 were Aedes stimulans, 61 A. abserratus, 34 A. cinereus, and 12 A. punctor. All of eight 15-minute evening bite collections negative. Culiseta morsitans predominant in larval collections; present in 43 percent of 143 samples. A. cinereus present in 31 percent of samples, A. vexans in 24 percent. Mosquito larvae increased substantially due to recent rains; 17 species taken. (Minn. Pest Rpt.). WISCONSIN - Biting adults increased. Reports indicate no widespread problems, although mosquitoes very numerous and annoying in localized areas. (Wis. Ins. Sur.).

OHIO - In Summit County, 6 miniature light traps collected 8,000 mosquito adults June 4-6 (12 trap nights). Aedes canadensis predominant. Dip collections in same area yielded 1,200 larvae, mostly A. canadensis with 50 A. triseriatus. (Ohio Dept. Health). KENTUCKY - Anopheles quadrimaculatus population increased slightly around lake areas in Marshall and Calloway Counties. (Barnett, Christopher). RHODE ISLAND - Aedes spp. reported in homes in Washington County. (Field). MAINE - Large numbers of woodland Aedes spp. emerged in central area. Some biting reported. (Gall).

A LOUSE FLY (Hippobosca longipennis) - CALIFORNIA - Examination of cheetahs at San Pasqual Wild Animal Park, San Diego County, revealed no flies since May 7, when overall, areawide aerial treatment made. Second followup treatment scheduled for June 11. Shipment of cheetahs of concern as no positive evidence of eradication demonstrated for other known infestations in country. No flies found since January at Winston, Douglas County, Oregon, when treatment made; 4 cheetahs shipped from this location to Sacramento zoo in February dusted at time of shipment. Current inspection at Sacramento negative. (Cal. Coop. Rpt.).

CATTLE TAIL LOUSE (Haematopinus quadripertusus) - ALABAMA - Infestation heavy in Mobile County dairy herd January 1974. Collected by M.C. Bassett. Determined by K.C. Emerson. This is a new county record. (McQueen).

AMERICAN DOG TICK (Dermacentor variabilis) - CALIFORNIA - Late, heavy populations present in foothills of Amador, El Dorado, and Placer Counties. Annoying dogs and man. Normal tick season in State is February through April, but ticks have been annoying in late May this season. (Cal. Coop. Rpt.). KENTUCKY - Ticks, mostly this species, increased in Breckinridge, Meade, and Hardin Counties. (Barnett, Sperka).

BENEFICIAL INSECTS

LADY BEETLES - MISSISSIPPI - Hippodamia convergens (convergent lady beetle) and Coleomegilla maculata predominant lady beetles in cotton in Noxubee County; however, counts averaged less than 2 per 100 row feet. (Robinson). OKLAHOMA - Lady beetles, mostly H. convergens, common in sorghum in Rogers, Delaware, Nowata, and Craig Counties; most in terminals feeding on Rhopalosiphum maidis (corn leaf aphid). Common in cotton in Grady County, heavy in alfalfa in Jackson County. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MARYLAND - Larvae heavily damaged oats in several areas of Allegany, Washington, and Carroll Counties. Current populations heaviest since pest first found in State. Several hundred acres showed yellowing due to larval feeding. (U. Md., Ent. Dept.). WEST VIRGINIA - Larvae averaged 12 and eggs 4 per square foot in oats, with 10 percent damage, in Wood County; 7 larvae and 2 eggs per square foot in 16-inch oats with less than 10 percent damage in Jackson County. (Hacker). Eggs averaged 2 per square foot and less than one larva per square yard in oats in Ohio County. (Tustin).

KENTUCKY - Cereal leaf beetle adults, eggs, and larvae found on small grains in north-central Mason County June 7. Adults averaged one per 100 sweeps on wheat in milky-ripe stage. Some late-instar larvae found on wheat. In adjacent oat fields, larvae averaged about 4 per square foot; all larval stages present. Adults averaged 2 per 100 sweeps. Some eggs noted. Damage minor. This infestation appeared localized, with little damage found in surrounding counties or surrounding areas within Mason County. (Barnett, Sperka). OHIO - Adults still active in wheat; population levels variable. Adults averaged 28 per 50 sweeps in field of 36-inch wheat in full head and turning yellow in Clinton County May 30. Larvae averaged 42 per square foot in 12-inch oats in 18-acre Ross County field May 28; damage estimated at 45 percent of field "frosted". Larvae ranged first to fourth instar. (Reckner). MICHIGAN - Eggs averaged 1.8 per stem in small field of oats near Laingsburg, Shiawassee County, June 3; larvae just appeared. (Webster).

GRASS BUGS - UTAH - Discolored 90 percent of surface of crested and intermediate wheatgrasses in McCormick and Holden area of Millard County; ranged 8-20 per bunch of grass. (Stephens). Labops hesperius damaged some crested wheatgrass in Ruby Inn and Blue Fly area of Garfield County. Some Irbisia spp. and other species present. Labops sp. and Irbisia sp. common on planted grasses where checked in Iron County. (Knowlton).

GRASSHOPPERS - OKLAHOMA - Nymphal surveys during May concentrated in rangeland areas where economic populations predicted. Results show economic populations developing in rangeland areas of Beaver, Texas, Cimarron, Ellis, Woodward, Beckham, Roger Mills, Carter, Jefferson, and Murray Counties. In Panhandle counties, nymphs ranged up to 25 per square yard on about 30,000 acres in Cimarron County, 15,000 acres in Texas County, and 40,000 acres in Beaver County; ranged first to fourth instar. Heavier than normal number of overwintering bandedwinged species present at most stops. Nymphs ranged 5-30 per square yard in northwest and west-central counties. Infestation spotty to date. Populations ranged up to 20 per square yard in south-central counties. Grasshoppers currently ranged up to 20 per square yard on rangeland in Beckham, Custer, Caddo, and Washita Counties. Also heavy in gardens in these counties. (Okla. Coop. Sur.).

NEW MEXICO - Grasshopper nymphs ranged 20-30 per square yard in alfalfa in northern Bernalillo County. (N.M. Coop. Rpt.). UTAH - Heavy in area northeast of McCormick, Millard County, (Stephens), and around Summit, Iron County, (Knowlton).

MORMON CRICKET (Anabrus simplex) - NEVADA - Ranged 8-10 per square yard on 300 acres of rangeland in Dry Creek and Pony Creek area, Eureka County. (Giles). Ranged 0-20 (averaged 2-3) per square yard on about 500 acres of rangeland in Summit Spring area, Washoe County. (Adams et al.).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Spray program completed May 17 in Bucks, Dauphin, and Lebanon Counties; May 21 in Montgomery, Lehigh, and Northampton Counties; May 27 in Schuylkill County; June 3 in Carbon County; June 5 in Luzern and Monroe Counties. Berks County deleted from program. Spraying to be completed in Wayne and Pike Counties next few days. Larvae mostly third instar in Schuylkill County. (Simons, Slippery). RHODE ISLAND - Larvae in second instar in Providence and Washington Counties. (Field, Relli).

JAPANESE BEETLE (Popillia japonica) - ALABAMA - Total of 106 adults trapped in 7 days in sex-lure traps in old infested area at Heflin, Cleburne County. (Barker et al.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - TENNESSEE - Caused severe damage to 20-acre field of 6-inch soybeans in Lake County. (Stafford).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae destroyed home strawberry planting in Chambers County. (Taylor). GEORGIA - Reduced stands of seedling cotton in Colquitt County week ending May 31. (Campbell, Womack).

HAWAII INSECT REPORT

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) light in small planting of eggplant at Pearl City, Oahu; less than 10 mites per square inch of leaf surface. Infestation heavy (30+ per square inch of leaf surface) several weeks ago; however, infestation controlled by timely application of acaricides.

SOUTHERN GREEN STINK BUG (Nezara viridula) adults light on small planting of mustard cabbage, eggplant, and daikon at Koko Head, Oahu. Of 21 adults collected, 11 parasitized by Trichopoda pilipes (a tachina fly). Variable damage by ONION THRIPS (Thrips tabaci) observed in total of about 2 acres of Manoa lettuce at Koko Head. Damage near nil in some plantings, near 40 percent in other plantings. No adults or nymphs found. BEE T ARMYWORM (Spodoptera exigua) light in small green onion planting at Koko Head; less than 10 percent of leaves damaged. Egg clusters observed on leaves throughout planting. Damage moderate (30 percent of leaves damaged) in isolated parts of planting. (Mau).

Man and Animals - About 25 workers of a VESPID WASP (Vespula vulgaris) observed at Olinda, Maui. Wasps attracted to goat meat and observed carrying away small pieces of the meat. Attempt to locate nest by following foraging workers unsuccessful. Single male collected by F.G. Howarth in January 1973 above Olinda (see CEIR 23(22):327). Ground nest discovered at Olinda in August 1973 by N. Miyahira (see CEIR 23(34):579). V. vulgaris thought to have been eradicated from area by removal of nest. (Miyahira). MOSQUITO collections from 70 light traps operated on Oahu during April totaled 264 females of Aedes vexans nocturnus and 1,446 females of Culex pipiens quinquefasciatus. Aedes catches averaged 3.8 females per trap and Culex catches averaged 20.7 females per trap. (Vector Control Br., State Dept. Health).

Fruits and Nuts - Adult of CITRUS SWALLOWTAIL (Papilio xuthus) collected at Wailuku, Maui, by high school student (no date given). First recovery of pest from Maui. Other sightings have been reported in Wailuku area. Until recovery of this specimen, P. xuthus known to be established only on Oahu and Kauai Islands. (Miyahira).

Beneficial Insects - Evaluation information indicates that an ENCYRTID WASP (Ooencyrtus erionotae), an egg parasite of Erionota thrax (banana skipper), is exerting strong influence on control of E. thrax in certain areas of Oahu. (Kumashiro et al.).

LIGHT TRAP COLLECTIONS

State	Locality	Date	Temp. (°C)	Humidity (%)	Time of day	Wind direction	Wind speed	Light	Trap type	Species	Number	Sex	Age	Color	Other
ARIZONA	Mesa	5/27-6/2							BL	576	93				
FLORIDA	Gainesville	5/31-6/6							BL						
ILLINOIS	(County)	Ogle	5/28-6/3						BL						
INDIANA	(Districts)	South West	5/24-30						BL	2					
		West Central	5/24-30						2BL	9					
KANSAS	Great Bend	5/29-6/4							BL	6	258	18			
	Manhattan	6/3							BL	2					
KENTUCKY	Lexington	6/3-7							BL	4					
MICHIGAN	(Counties)	Lenawee	5/28-6/3						BL	22					
		Oceana	5/29-6/4						BL	31					
MINNESOTA	Fergus Falls	5/21-6/5							BL						
	Worthington	5/21-6/4							BL						
MISSISSIPPI	Stoneville	5/31-6/6	62-88	4.63					2BL	25	4				
NEW MEXICO	Las Cruces	5/31-6/7							4BL						
OHIO	Wooster	6/1-6							BL	26					

Distribution Records of Several Virginia Tabanids
(Diptera: Tabanidae)

William A. Allen 1/

Eighteen species are listed of which one, Tabanus imitans imitans Walker, is new to Virginia. Seventeen new county records are also included. Male specimens of Hamatabanus carolinensis (Macquart), Hybomitra difficilis (Wiedemann), and Tabanus subsimilis subsimilis Bellardi are reported. Unless otherwise indicated, all specimens were collected by W.A. Allen and determined by L.L. Pechuman. All were adult specimens.

NEW STATE RECORD

Tabanus imitans imitans Walker. One adult was collected in Richmond County, June 9, 1973.

NEW COUNTY RECORDS

Chrysops beameri Brennan. A single adult was collected feeding on a dog July 30, 1973, in Montgomery County (Christiansburg). This is a questionable species identification because of the condition of the specimen (Pechuman - personal communication).

Chrysops macquarti Philip. Three adults were collected in Goochland County, July 16, 1973.

Chrysops vittatus vittatus Wiedemann. Adults were collected in Nansemond County, July 18, 1973, (eight specimens); in Goochland County, July 17, 1973, (one specimen); and in Hanover County, July 19, 1973, (one specimen). It has been recorded in Nansemond County, but Goochland and Hanover Counties are new county records.

Hybomitra difficilis (Wiedemann). One adult male collected in Carroll County on May 22, 1973. Males of this species are not often collected (Pechuman - personal communication).

Leucotabanus annulatus (Say). Specimens were collected in a black-light trap at Oceana (City of Virginia Beach) on the following dates: Seven July 19, 1973; two July 23, 1973; one July 26, 1973; three July 30, 1973; two August 2, 1973; one August 9, 1973; one August 13, 1973. Only 2 specimens had been seen previously in Virginia and it was suspected that they were largely nocturnal or crepuscular (Pechuman 1973).

Tabanus atratus atratus Fabricius. A single specimen was collected in Northumberland County September 5, 1973.

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Tabanus fulvulus Wiedemann. One specimen was collected in Nansemond County, July 18, 1973.

Tabanus lineola Fabricius. Specimens were taken from a blacklight trap at Oceana (City of Virginia Beach) June 25, 1973, (two specimens); June 28, 1973, (one specimen); and from a horse stable in Nansemond County (one specimen) July 18, 1973. The Nansemond County specimen is a new county record, but specimens have previously been taken from Virginia Beach.

Tabanus molestus mixis Philip. Adults were collected in a blacklight trap at Oceana (City of Virginia Beach) on the following dates: June 25, 1973; July 5, 1973; July 23, 1973; July 30, 1973; and August 13, 1973.

Tabanus mularis Stone. One adult was collected in Sussex County July 18, 1973.

Tabanus nigrescens Palisot de Beauvois. A single adult was collected at a horse stable in Albemarle County July 19, 1973.

Tabanus quinquevittatus Wiedemann. Two adults were collected at a stable in Nansemond County July 18, 1973, and four were collected at a stable in Albemarle County July 19, 1973.

Tabanus subsimilis subsimilis Bellardi. Males were collected in a light trap at Oceana (City of Virginia Beach) June 11, June 19, and June 25, 1973. Females were collected at a horse stable in Albemarle County July 19, 1973. Specimens have previously been taken from Virginia Beach, but Albemarle County is a new county record.

Tabanus sulcifrons Macquart. Five adults were collected at a horse stable in Albemarle County July 19, 1973. One adult was collected in Emporia (Greensville County) September 3, 1973, by K.J. Surles.

SEASONAL DISTRIBUTION RECORDS

Chrysops hinei Daecke. An adult was collected at Virginia Beach August 20, 1973. Previous records ranged between September 1-16.

Hamatabanus carolinensis (Macquart). Nine adults, including 6 males, were collected in a light trap at Oceana (City of Virginia Beach): Five June 4, 1973; two June 11, 1973; one June 7, 1973; and one June 28, 1973. Previously, a single male was taken at Virginia Beach June 6, 1972.

Tabanus americanus Forster. A single specimen collected at a horse stable in Nansemond County July 18, 1973.

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U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(24):441-442, 1974

1973 REPORT OF INFESTATION OF OATS BY THE CEREAL LEAF BEETLE 1/

M. Curtis Wilson 2/

The data reported for 1973 are the results from the seventh year of conducting a survey of cereal leaf beetle (*Oulema melanopus*) infestations and damage to the oats crop. Population levels of larvae surviving to pupation have been estimated by assessing leaf surface consumed. By assuming that an approximate 20 percent of the leaf surface on a stem is consumed by a larva in its developmental stages (Wilson et al., 1969), the population that caused that loss has been calculated. Results of previous surveys have been published (Wilson et al., 1968, 1969, 1970, 1972).

The recorded history of the cereal leaf beetle during the past 10 years in the United States shows that it not only spread rapidly eastward from Indiana and Michigan, but also built up large populations within a very few years. Wilson, Treece, and Shade (1969) reported that the cereal leaf beetle was building populations at a massive rate, 300 to 500 miles east of Lake Michigan. They predicted large outbreaks within 2 to 5 years which occurred in 1971. Since 1971, however, populations have declined.

Cereal leaf beetle infestation levels on oats are compared from six States from 1971 through 1973 in Table 1. From these data it can be seen that a dramatic decrease in cereal leaf beetle infestations in the Midwest in 1972 continued in 1973. Populations were so low in 1973 there was no significant economic loss from the insect. The 1972 data show that populations built up in only two areas, southeastern Indiana and southwestern Ohio. However, this one-year occurrence in this area was reversed in 1973 when a sizable decline occurred. The population decline in West Virginia has also been massive. Populations in Pennsylvania show an increase since 1971. However, since the survey was not made in 1972 there is no way of knowing whether a gradual increase has occurred here or if populations reached a peak in 1972 and then declined in 1973. Although the trend in Pennsylvania appears to be a rising one, infestations have not reached an economic level.

1/ The following agencies cooperated to complete this survey: USDA, APHIS Offices in Illinois, Indiana, Michigan, Ohio, and Pennsylvania; Indiana State Entomologist's Office; Purdue University, Ohio Department of Agriculture, and West Virginia Department of Agriculture.

2/ Purdue University, Department of Entomology, West Lafayette, Indiana 47907.

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For Table 1 see following pages.

Table 1

COMPARISON OF CEREAL LEAF BEETLE INFESTATIONS, 1971 - 1973

District	Percent Stems Infested			Larvae Per 100 Stems		
	1971	1972	1973	1971	1972	1973
ILLINOIS						
	3.9	0.8	1.7	1.3	0.1	0.1
INDIANA						
North West	13.1	8.9	15.6	1.7	1.3	2.1
North Central 1	86.3	35.1	29.9	35.2	14.4	2.3
North Central 2	54.8	18.8	15.1	9.6	5.5	1.0
North East	75.6	33.6	17.7	19.0	13.9	1.5
West Central	16.3	4.7	3.2	3.7	0.6	0.2
Central	52.6	40.9	29.3	9.1	13.6	7.2
East Central	70.2	69.7	28.4	14.0	22.4	4.7
South West	7.0	13.7	0	8.5	5.9	0
South Central	23.1	7.6	4.4	1.4	4.9	2.5
South East	72.5	96.4	18.7	18.5	65.3	10.2
State Average <u>3/</u>	47.2	32.9	16.2	12.1	14.8	3.2
MICHIGAN						
North West	61.0	36.6	17.5	52.6	14.4	2.1
North East	63.5	20.8	2.8	17.0	3.1	0.1

District	Percent Stems Infested			Larvae Per 100 Stems		
	1971	1972	1973	1971	1972	1973
MICHIGAN (Cont.)						
West Central	76.3	26.8	18.9	77.6	11.2	1.8
Central	71.9	18.9	10.6	25.2	2.8	0.7
East Central	78.9	16.3	9.8	27.1	2.0	0.5
South West	81.6	37.7	23.9	84.3	12.7	3.7
South Central	77.9	29.0	18.6	52.1	10.4	1.5
South East	65.4	32.9	20.1	31.2	13.1	1.9
State Average <u>3/</u>	72.0	27.4	15.3	45.9	8.7	1.5

OHIO						
North West	41.9	26.4	21.9	16.5	3.6	4.9
North Central	62.4	53.3	35.9	43.9	12.4	10.8
North East	51.6	34.6	69.7	28.0	9.2	19.8
West Central	58.0	25.5	18.7	22.8	3.4	5.4
Central	91.1	79.8	29.2	101.1	53.9	10.2
East Central	90.8	57.6	53.8	170.4	58.5	55.0
South West	84.7	82.9	39.0	29.1	47.1	5.7
South Central	81.5	85.0	26.3	33.1	35.0	4.3
South East	92.4	93.7	96.3	78.6	50.5	26.7
State Average <u>3/</u>	72.7	59.9	43.4	58.1	30.4	15.9

<u>District</u>	<u>Percent Stems Infested</u>			<u>Larvae Per 100 Stems</u>		
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
PENNSYLVANIA <u>4/</u>						
North West	20.9		36.3	2.8		10.2
West Central	29.7		39.0	16.2		16.1
South West	30.4		47.9	4.4		14.2
North Central	5.8		28.8	3.7		20.0
Central	12.9		34.6	1.8		13.7
South Central	0.9		20.8	0.1		2.7
State Average <u>3/</u>	15.4		34.5	4.7		12.8
WEST VIRGINIA						
North West 1A	68.1	21.5	26.9	45.1	8.3	5.1
North West 1B	44.5	19.0	8.0	15.8	6.3	0.4
South West 2A	49.5	12.3	4.0	34.9	4.3	0.3
South West 2B	17.0	8.6	2.0	7.6	1.2	0.05
State Average <u>3/</u>	44.8	15.4	10.2	25.9	5.0	0.2

3/ Based on total State sample.

4/ No survey was made in Pennsylvania in 1972.

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
24(24):443-447, 1974

Weather of the week continued from page 422.

Golfball-size hail and 50 m.p.h. winds struck near Ayr. Heavy hail also pelted Attica and Dodge City, Kansas. Thursday, turbulent weather swept through the southern Plains and Mississippi Valley. A tornado hit Forrest City, Arkansas, late Thursday causing 8 fatalities and 400 injuries. It cut a path 6 blocks wide through the city. Meanwhile, 2-inch rains were common in parts of Missouri, Kansas, Oklahoma, and Arkansas. Friday afternoon, heavy thunderstorms continued from north-central Texas into extreme western Tennessee. Over 5 inches of rain fell north of the Dallas-Fort Worth, Texas, area closing 9 major thoroughfares in Dallas. Saturday, more heavy rains, flooding, and tornadoes hit the Nations midsection. A tornado ripped through Drumright, Oklahoma, leaving at least 100 injured and 5 dead. Another tornado hit a shopping center at Emporia, Kansas, killing 5. Altogether Saturday, 35 twisters reported--15 in Oklahoma and 16 in Kansas. Another destructive storm hit Tulsa, Oklahoma, Saturday evening destroying scores of homes, leaving at least 3 persons dead, and hundreds injured. Sunday, more than 4 inches of rain drenched Tulsa, Oklahoma, within only 3 hours, leaving 3 dead as the result of widespread flooding in urban areas. Meanwhile, 2 and 3-inch rains were common in parts of Kansas, Iowa, Nebraska, and Missouri, overflowing rivers and closing roads. Northeastern Texas got 4-inch rains, sparking major flooding on the Sulphur River.

TEMPERATURE: Mild temperatures marked the Nations weather last week. In the western half of the Nation, temperatures averaged 1 to 6 degrees below normal from the Plains northwestward to the Washington coast. Sections of the Southeast, including South Carolina, North Carolina, Virginia, and Georgia, reported temperatures slightly below normal. In contrast, temperatures averaged 2 to 5 degrees above normal throughout central Texas during the week. Early in the week, a strong onshore flow of moist, maritime air brought cloudy and cool weather to the Pacific coast. Elsewhere on Monday, the thermometer in the desert Southwest topped the 100-degree mark. The hottest spot was Buckeye, Arizona, with 103 degrees. Meanwhile, fair weather prevailed in the Southwest and most of the Atlantic Coast States as well as the lower Great Lakes region and Ohio Valley. Wednesday morning, low temperatures ranged from the 40's in portions of the Northwest to the 70's along the gulf coast and portions of interior southern California. From Texas westward, fair skies continued over much of the Southwest, with some low cloudiness along the southern California coast. Elsewhere fair skies dominated the Northeast while considerable cloudiness blanketed the rest of the Nation. Afternoon temperatures around the Nation ranged from 46 degrees at Laramie, Wyoming, to 103 degrees at Big Spring, Texas. A High pressure area centered off Cape Cod brought sunny skies and mild temperatures to New England Friday. Warm, clear air covered most of the Pacific coast with the exception of low clouds in southern California and along the Washington coast. Elsewhere, temperatures were mild, but Del Rio, Texas, topped the Nation with 108 degrees. Saturday, fair weather prevailed west of the Continental Divide. Minimum morning temperatures ranged from 23 degrees at Ely, Nevada, to 82 degrees at Corpus Christi, Texas. Colutta, Texas, reported the Nations hottest reading with 107 degrees.

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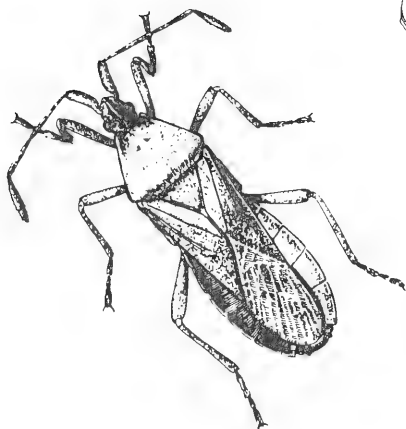
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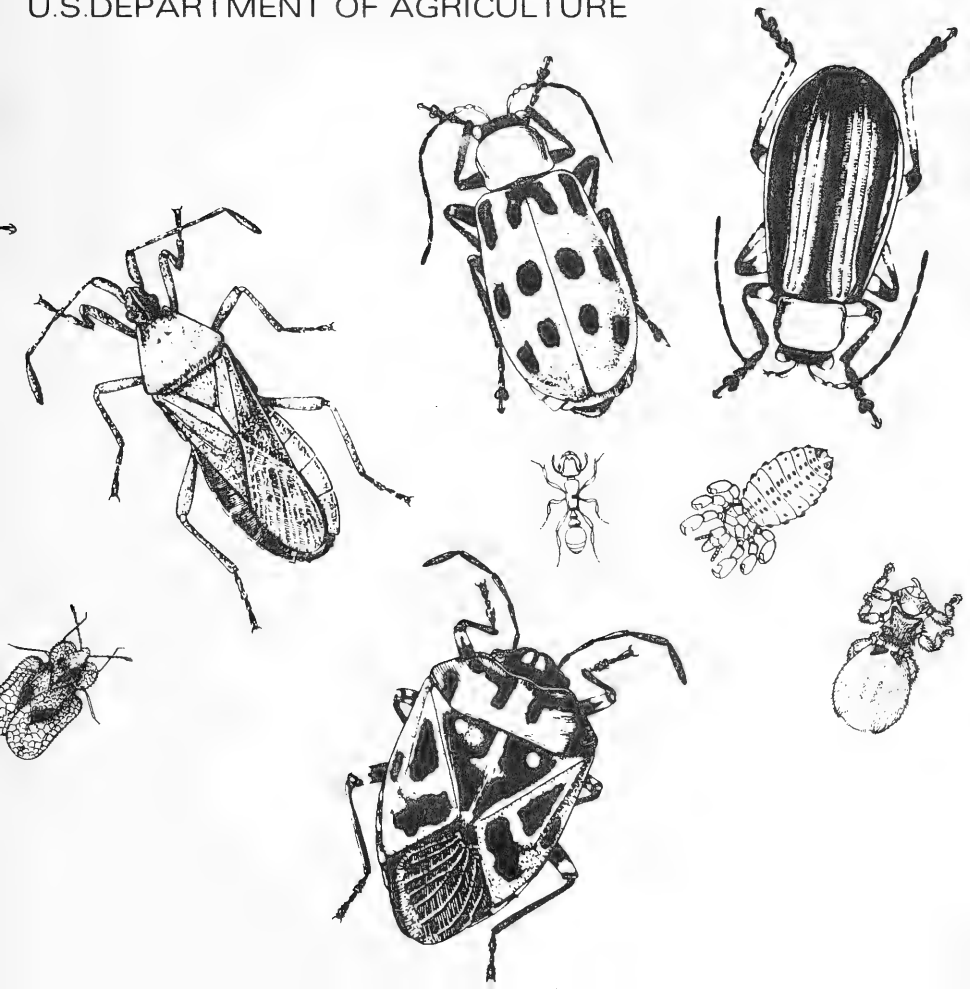
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Cooperative Economic Insect Report

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

EUROPEAN CORN BORER eggs hatched in Nebraska and New Jersey; small larvae in corn in Illinois and Indiana; first moths emerged in southern Minnesota; blacklight trap moth catches light in Wisconsin; flight activity increased in Michigan. BANKS GRASS MITE potentially a problem on corn and sorghum in Texas High Plains. (pp. 453-455).

ALFALFA WEEVIL larvae heavy and widespread on alfalfa in central Oregon; adults damaged second-growth alfalfa in Nebraska. (pp. 456-457).

BOLL WEEVIL primary insect problem on cotton throughout south-central, central, and north-central Texas, activity increased in Rolling Plains. Some square damage reported in some Southern States. BOLLWORMS heavy on cotton throughout central South Carolina, egg laying heavy in southern Georgia. (pp. 458-460).

PEA WEEVIL adults heavy on peas in central Willamette Valley of Oregon, required controls in northern Idaho. (p. 461).

Main GRASSHOPPER hatch underway in southeast North Dakota; nymphs heavy on range, pastures, and alfalfa in some other Western States. JAPANESE BEETLE adults heaviest ever observed in northeast Georgia. (pp. 466, 467).

Detection

New State records include CEREAL LEAF BEETLE in Massachusetts (p. 465), a BAMBOO APHID in Arizona (p. 462), and a SOFT SCALE in Alabama (p. 462).

For new county records see page 467.

Special Reports

Pink Bollworm Quarantines. Map. Centerfold.

Reports in this issue are for week ending June 14 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1974

The National Weather Service's 30 day outlook for mid-June to mid-July is for temperatures to average above seasonal normals over the western half of the Nation except for near to below normal along the Pacific coast. Below normal averages are indicated east of the Mississippi River except for near normal along the gulf and middle Atlantic coasts. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed the median value in portions of the Pacific Northwest, the Great Basin, and over the eastern half of the Nation except for the west gulf coast region. Elsewhere less than the median amount is indicated.

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

For Weather of the Week see pages 471-472.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - TENNESSEE - Adults increased in light traps in Weakley and Henry Counties. Larvae should appear in 14-21 days. Growers advised to check fields for damage. (Patrick). VIRGINIA - Outbreak in corn noted June 5 in Floyd County. Chemical treatments applied. (Chatin, Allen). KENTUCKY - Moderately damaged central area corn. Damage noted in most fields. Heavy damage (50 percent of plants) found in isolated areas. (Barnett, Gregory). OHIO - Moth flights of this species and cutworms inhibited in Wayne County area during period June 11-13 by cold weather. Should extend oviposition over longer period than normal. (Rings).

WISCONSIN - Armyworm moth catches relatively heavy in some blacklight traps on warmer nights. At Arlington, Columbia County, counts of 183 and 242 moths taken on warm nights of May 28 and June 8, respectively. At De Forest, Dane County, catches of 30-40 per night made this period. Moth flight heavy in southern Dane County June 12. These catches indicate adults currently heavy and likely to be much heavier on warm nights. Larvae relatively light in crops. Most larvae found in grassy alfalfa. Counts typically less than 2 per 50 sweeps. (Wis. Ins. Sur.).

ASTER LEAFHOPPER (Macrostoteles fascifrons) - WISCONSIN - Counts light in spring grain, averaged less than 10 adults per 100 sweeps throughout State due to presence of other food crops. Ranged up to 10 per 50 sweeps of potatoes in Portage County. (Wis. Ins. Sur.). MINNESOTA - Ranged 10-340 (average 140) per 100 sweeps in northern counties of central district. Populations may be heavier than collections indicate as most grain still short and strong winds made collecting difficult. Averaged 230 per 100 sweeps in Stearns, Todd, Kandiyohi, and Morrison Counties. (Minn. Pest Rpt.). NORTH DAKOTA - Ranged up to 80 (average 20) per 100 sweeps of wheat in Richland, Sargent, and Dickey Counties. Flax field in Richland County had 30 per 100 sweeps. (Kaatz).

BET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - About 2,900 acres of tomatoes checked in Imperial County; no curly top found. Sugar beet harvesting continued, should end by early August. Averaged 4 per 10 sweeps on roadside weed hosts. In Tulare County, pole tomato survey in eastern area showed curly top less than one percent in all fields checked. Up to 10 percent damage noted in one field southeast of Strathmore, but curly top only 0.75 of one percent of total wilt and disease found in field. General survey of Russian thistle in Poso Creek, Famosa, and Oildale areas of Kern County showed only small spots present. Plants very small and hidden by dried annuals so acreage may increase as plants grow. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - SOUTH CAROLINA - Larvae damaged commercial tomatoes in southern part of State. (Thomas). UTAH - Moth taken in blacklight trap of Salt Lake, Salt Lake County. (Stephens). ALABAMA - This species and undetermined armyworms damaged several fields of corn in Mobile and Geneva Counties. Half-grown and larger larvae fed as budworms in whorls of corn throughout 64-acre field in Geneva County. (Reynolds et al.). GEORGIA - Very light in peanuts in Tift and Terrell Counties. (French). NEW JERSEY - Moths sporadic in blacklight traps from New Egypt southward. (Ins.-Dis. Newsltr.). TENNESSEE - Light in all cornfields checked in central area. (Gordon).

CORN LEAF APHID (Rhopalosiphum maidis) - ILLINOIS - Small colonies found in Pike County; averaged 2 colonies per 10 corn plants. (Ill. Ins. Rpt.). OKLAHOMA - Moderate on young sorghum in Wagoner, Muskogee, McCurtain, and Tillman Counties. (Okla. Coop. Sur.). TEXAS - Moderate to heavy in whorls of older grain sorghum in Jones and Knox Counties of Rolling Plains. Also reported heavy in other Rolling Plains counties and in San Angelo area. Large numbers of beneficial species also present. (Boring, McWhorter).

GREENBUG (Schizaphis graminum) - WISCONSIN - Few found in small grains throughout State. (Wis. Ins. Sur.). NEW MEXICO - Heavy on Johnson grass, controls applied to sorghum in Dona Ana County. (N.M. Coop. Rpt.). KANSAS - Infestations significant in sorghum in north-central district. Usually none but sometimes trace infestations noted in fields surveyed in northwest and west-central districts. Only trace infestations reported in south-central district. Ranged 0-3 per plant (mostly in whorls) in Riley County where infestations ranged up to 100 per plant. General heavy rains June 9 and 10 should significantly reduce infestations over most of State. (Bell).

NEBRASKA - Heavy rains in southeast and south-central areas reduced numbers on seedling sorghum. In Clay County, 208 fields sampled, averaged 0.34 (range 0-30) per plant, with about 12 percent of plants infested, (Gary, Keith). In Gage, Johnson, Lancaster, and Pawnee Counties, 2 fields sampled per county, no greenbugs detected on seedling sorghum, (Koinzan). In Lincoln County, average of 50 percent of sorghum plants infested with average of 8 per plant. (Campbell). TEXAS - Increased on grain sorghum in Hill County. Damage in San Angelo area about non-existent. (Hoelscher, McWhorter). ARIZONA - Averaged 3.5 milo plant at Bowie, Cochise County. (Ariz. Coop. Sur.). NEVADA - Collected from wheat at Lovelock, Pershing County, June 11, 1974, by J.R. Adams and P.C. Martinelli. Determined by R.C. Bechtel. This is a new county record. (Adams, Martinelli).

POTATO LEAFHOPPER (Empoasca fabae) - INDIANA - Adults less than 10 per 50 sweeps in northwest and north-central district regrowth alfalfa, except for single field in Kosciusko County, where 72 per 50 sweeps found. In northeast district, ranged 0-25 per 50 sweeps; all fields examined in Noble County had at least 6 per 50 sweeps, ranged up to 25 per 50 sweeps. (Ballard).

WISCONSIN - Continued light in alfalfa and clover, rarely exceeded 3 per 10 sweeps. Appeared on potatoes that have been up for several weeks in sandy areas of Portage County; averaged 8 per 50 sweeps. Counts lighter, 2 per 50 sweeps, on snap beans in Waushara County. (Wis. Ins. Sur.). OHIO - Adults ranged 1-3 per row foot of green beans in Crawford and Wyandot Counties. No immatures seen, no economic damage yet occurred. (Fox).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NORTH DAKOTA - Averaged 12 per 100 sweeps in alfalfa in Sargent County, 20 per 100 sweeps in Ransom County. (Brandvik, Kaatz).

TOBACCO BUDWORMS (*Heliothis* spp.) - TENNESSEE - First through third-instar larvae light on tobacco in Franklin, Lincoln, Sumner, Montgomery, Macon, and Jackson Counties. (Cagle et al.). GEORGIA - Ranged light to moderate across tobacco belt; mainly feeding on buttons and blooms. (French, June 7).

HORNWORMS (*Manduca* spp.) - GEORGIA - *M. sexta* (tobacco hornworm) infestations observed on tobacco week ending June 7, heaviest in 10 years. *Manduca* spp. ranged light to heavy on tobacco across tobacco belt week ending June 14. (French). ALABAMA - *M. quinquemaculata* (tomato hornworm) larvae fed on tomato plants in field in Schillingers Road area of Mobile County. (Lockhart).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEBRASKA - Egg laying and hatch observed on corn week ending June 7. Average of 0.2 percent of plants infested in 165 fields surveyed in Clay County. (Gary). Adults currently numerous in cornfield margins and borders, ranged 1-2 per square yard in Cedar, Dixon, and Pierce Counties. (Keith). KANSAS - Light larval infestations (1-20 percent) found in older corn in Shawnee, Douglas, and Jefferson Counties; none found in Leavenworth County. Larvae ranged from first to third instar with seconds predominating. Trace numbers of eggs found only in Leavenworth County. (Bell). MISSOURI - Egg masses light to moderate on corn in east-central, northeast, and eastern areas. Ranged 1-25 masses per 100 plants in northeast and east-central areas; leaf feeding 12-16 percent in east-central, 25 percent in northeast, and 30 percent in southwest. Larvae per plant ranged 1-14 in northeast area, 1-2 in southwest area. (Munson).

ILLINOIS - Whorl feeding by European corn borer larvae averaged 50 percent on 50 to 60-inch corn in Madison and St. Clair Counties. Egg masses averaged 21 per 100 plants. Whorl feeding in Pike County averaged 50 percent on 40 to 60-inch corn. Egg counts averaged 44 per 100 plants. All corn surveyed was tallest in area. Moth activity very obvious in roadside weeds and in fields. Moth emergence complete in southern area, averaged 50+ percent in east district. Emergence in Ogle County averaged 8 percent, pupation 80 percent. (Ill. Ins. Rpt.). INDIANA - Oviposition observed on 7 to 8-inch corn (extended leaf height) in Kosciusko County June 11. (Anderson). First and second-instar larvae ranged 2-3 per stalk in untreated corn 36 inches extended leaf height in Harrison County. (Busching).

MINNESOTA - First European corn borer moth emergence reported in southeast and south-central districts; 3 moths taken in Lambertson light trap this period. (Minn. Pest Rpt.). WISCONSIN - Moth catches in blacklight traps continued light as of June 13. Most in pupal stage, with very few larvae or empty pupal cases at most sites. Dissections of cornstalks showed following results: Pupation 86 percent, emergence 14 percent at Elkhorn; pupation 85 percent, emergence 15 percent at Portage. (Wis. Ins. Sur.). MICHIGAN - Adult activity on schedule compared to previous years. Flight activity increased and growers of early sweet corn, snap beans, and potatoes should inspect fields and treat if necessary. (Sauer).

NEW YORK - European corn borer moth flights very heavy in Geneva area of Ontario County nights of June 4, 5, and 8; probably indicates peak first-generation activity. (Davis). NEW JERSEY - Egg hatch began in Burlington County. Egg masses present in sweet corn on 36 of 100 plants near Jamestown. (Ins.-Dis. Newsltr.). DELAWARE - European corn borer moths in blacklight trap in western Sussex County averaged 7 per night during period June 5-12 and 4 per night in northern New Castle County during same period. (Burbutis). KENTUCKY - Egg hatch about complete in central and northern areas. Infestations seem lighter this season. (Barnett, Gregory). SOUTH CAROLINA - Scattered damage to corn reported from coastal areas to upper Piedmont. (Thomas). ALABAMA - O. nubilalis, Diatraea grandiosella (southwestern corn borer), and Heliothis zea (corn earworm) second through fourth-instar larvae fed in whorls of 15 percent of pretassel corn in 5-acre Limestone County field. First report of season for O. nubilalis and D. grandiosella. (McQueen).

STALK BORER (Papaipema nebris) - KENTUCKY - Most infestations light. Caused little damage to corn in central area. Infestations noted in only few scattered fields. (Barnett). NEBRASKA - Second to third-instar larvae moved into corn from brome and ragweed on field borders in scattered fields in Cedar, Dixon, and Pierce Counties. (Keith). IOWA - Larvae of this pest and Pseudaletia unipuncta (armyworm) caused 75 percent reduction in 35 acres of reduced tillage corn in Marshall County. P. nebris larvae reduced plant population to about 12,000 per acre in two Woodbury County cornfields. (Iowa Ins. Sur.).

SOD WEBWORMS (Crambus spp.) - NEBRASKA - Damaged first-year corn planted on sod ground in Antelope and Lincoln Counties by June 3. In two Antelope County fields sampled, 40-50 percent of plants showed damage. Both fields treated. (Koinzan, Oseto). Damage ranged up to 75-80 percent in spots in one cornfield sampled June 5 in Lincoln County; damage about 10 percent in other areas of field. Currently damaged first-year corn in Lincoln County. Infested fields had 10-60 percent of plants damaged; about 600 acres replanted. (Campbell).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - NEBRASKA - Eggs hatched, larvae active on corn in field laboratory near Mead, Saunders County, June 4. (Mayo). In 227 Clay County cornfields surveyed, larvae averaged 0.65 per plant. In 13 fields, infestations averaged 5+ larvae per plant. In 76 fields, no larvae found. (Gary, Keith).

SOUTHERN GREEN STINK BUG (Nezara viridula) - MISSISSIPPI - Adults caused moderate to heavy damage to corn in George, Perry, Wayne, and Covington Counties. In Perry County, 12-acre field destroyed by farmer due to severe damage. In other fields, counts ranged 5-20 per plant. Many farmers unable to obtain insecticide for control. (Robinson).

MEADOW SPITTLEBUG (Philaenus spumarius) - TENNESSEE - Observed on Johnson grass in cornfields in Macon and Jackson Counties. These are new county records. (Gordon).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Midges numerous in untreated grain sorghum in Uvalde County area. Ranged 10-40 per head in late-blooming grain sorghum in Hays County. In south-central area, infestations decreased significantly. Midges averaged one per 4-5 heads in fields checked in Bell, Falls, McLennan, and Ellis Counties in central and north-central areas. These counts light and many fields past damage stage. Producers with late-planted grain sorghum in these areas should check fields carefully next 10 days for buildups. Second-generation midges present in these areas. Due to windy conditions, fields should be checked during early morning hours. (Stewart et al.).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Early season activity moderate to severe on early corn and grain sorghum in Panhandle area; caused concern to growers in High Plains. Heaviest in Baylor, Lamb, Parmer, Castro, and Deaf Smith Counties week ending June 7. Drought, mild dry winter, and overlap of small grains with adjoining corn and grain sorghum major contributing factors to severe problems. Control results variable. Currently decreased on corn and grain sorghum in some areas of High Plains. Plants appear to be growing well and increased leaf surface faster than number of mite colonies increased, even in areas where no rain occurred. Early season infestations spread over much wider area of High Plains than ever before noted for this time of year. Potential for problems exists as corn begins to tassel and sorghum reaches boot stage. (McIntyre, Clymer).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - NORTH DAKOTA - Ranged up to 24 (average 8) per 100 sweeps in wheat in Richland, Sargent, and Dickey Counties. (Kaatz). WISCONSIN - Counts seldom exceeded 10 per 100 sweeps in southern district small grains. (Wis. Ins. Sur.).

SAY STINK BUG (Chlorochroa sayi) - UTAH - Serious in many Millard and Juab County wheat and barley fields (Davis); some damage noted in Washington County (Huber).

A SCUTELLERID BUG (Eurygaster mindoka) - CALIFORNIA - Heavily infested 50-acre wheatfield in Redding area of Shasta County. This pest destroyed 50+ percent of wheat grains in field. Infestation of commercial crop and extensive damage unusual. Wheat will mature soon but harvest of grain will be light. (Cal. Coop. Rpt.).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Adults emerged in Emmons County. Spring wheat in tillering stage. (Brandvik).

TURF, PASTURES, RANGELAND

SOUTHERN MASKED CHAFER (Cyclocephla immaculata) - ILLINOIS - Damaged golf course in west district. Pupation about 25 percent June 6. (Ill. Ins. Rpt.).

WHITE GRUBS (Phyllophaga spp.) - OHIO - Maximum adult emergence occurred week ending May 24 in Wayne County, now declining. Black-light trap catches indicated peak populations in Wooster area were 5+ times heavier than in 1973. As these pests have 3-year life cycle, larvae and damage to sod and some vegetables may be more prevalent in this area in 1975 and 1976. (Fox).

TWOLINED SPITTLEBUG (*Prosapia bicincta*) - MISSISSIPPI - Adults and nymphs averaged 1 per 5 square feet sampled in Monroe and Oktibbeha County pastures. (Robinson).

GRASSHOPPERS - KENTUCKY - Averages per 100 sweeps in turf, pastures, and rangeland by county as follows (mostly nymphs of various species): Carlisle 40, Marshall 50, Hardin 150, and Madison 25. (Barnett).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - OREGON - Larvae heavy and widespread in central alfalfa-growing areas including Deschutes, Crook, and Jefferson Counties. In more heavily infested plantings, counts ranged 100-250 per sweep. (Robinson). IDAHO - Remained light in alfalfa in Canyon, Owyhee, Payette, and Washington Counties week ending June 7. Counts below normal except in few isolated fields. (Edmiston, Homan). NEVADA - Larvae ranged 5-10 per sweep on alfalfa in Kings River Valley, Humboldt County, and up to 40 per sweep in Hualapai Valley, Washoe County. (Martinelli et al.). UTAH - Much control obtained by cutting alfalfa in northern and central areas before larval damage became conspicuous. Damage more severe in some southern counties. (Knowlton). NEW MEXICO - Five larvae and two adults recovered from alfalfa at Las Nutrias, Socorro County. This is a new county record. Ranged up to 25 larvae and 10 adults per 25 sweeps in Bernalillo and Valencia Counties; 115-160 larvae plus 5-6 adults per 25 sweeps near Espanola, Rio Arriba County. (N.M. Coop. Rpt.).

KANSAS - Alfalfa weevil larvae ranged 60-142 per 10 sweeps in uncut alfalfa (probably untreated) in Sherman County; defoliation 2-20 percent. First-generation adults ranged 60-287 per 10 sweeps in same fields. Residual larvae averaged about 3 per 10 sweeps, adults ranged 2-40 per 10 sweeps in 6 to 10-inch alfalfa in Riley County. (Bell). NEBRASKA - Adults ranged 5-6 per square foot in untreated Clay County stubble alfalfa field June 5. Many dead forms present, including larvae and pupae, presumed killed by hot winds and sun. (Peters). Adults continued to damage second-growth alfalfa week ending June 14. In 20 Otoe County fields surveyed, larvae ranged 2-810 (average 75) per 100 sweeps; adults ranged 0-1,970 (average 464.9) per 100 sweeps. (Stevens). In 20 Dawson County fields surveyed, larvae ranged 0-79 (average 14.2) per 100 sweeps; adults ranged 0-1,395 (average 77.3) per 100 sweeps. (Manglitz). In Lincoln County and surrounding areas, fields required treatment after first cutting. (Campbell). In Johnson and Pawnee Counties, 4 fields surveyed, tip feeding ranged 20-100 percent. (Koinzan). In Saline County, adults ranged 1-23 (average 8.8) per 10 sweeps; larvae ranged 3-22 (average 12) per 10 sweeps. (Roselle).

NORTH DAKOTA - One alfalfa weevil adult collected per 300 sweeps of alfalfa in late-bud stage in Barnes County. This is a new county record and about 150 miles east of nearest known infestation in Burleigh County. Surveys in Richland, Ransom, and Sargent Counties negative. (Brandvik). MINNESOTA - Second-instar larvae averaged 2 per 100 sweeps of alfalfa in Stearns County. This is a new county record. Larval counts increased in isolated areas where pest previously recorded: High count of 180 per 100 sweeps found in Houston County field; averaged 85 per 100 sweeps in 3 Sibley

County fields. Found no population approaching economic level of 15-20 per sweep. (Minn. Pest Rpt.). WISCONSIN - Alfalfa weevil counts decreased greatly due to pupation of larvae from over-wintered eggs. Heaviest count 3 larvae per sweep in western Dane County where up to 41 per sweep collected in alfalfa previous period. Larvae heavy on farm in northwest Brown County, grower plans to harvest alfalfa rather than treat. Heavy infestation reported in one Kewaunee County field. Most larvae now in alfalfa from spring laid eggs; growers should harvest alfalfa before these larvae become fully developed. Heaviest populations have been found on sandy soil. (Wis. Ins. Sur.).

IOWA - Alfalfa weevil larvae of mixed sizes averaged one per 2 sweeps in 6 to 8-inch, second-growth alfalfa in Lee County. Adults preventing regrowth in several Fremont County alfalfa fields. Treatments required. (Iowa Ins. Sur.). NEW YORK - Based on twenty-four 0.25-square foot samples, eggs averaged 25 (range 1-60) per 0.25 square foot in 23-inch prebud alfalfa field of 5 acres in Cayuga County May 31. (Cooley). Larvae averaged 100 per 10 sweeps of 24-inch prebloom alfalfa in 20-acre field near Hopewell Junction, Dutchess County, June 2. (Porter).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Adults averaged 4 per square foot in alfalfa stubble in Cheyenne County. (Bell).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - TENNESSEE - Damaged clover on same farm in Montgomery County reported in May. Field of clover reported earlier plowed under and planted to corn. Adults and immatures found in second field and at control levels. (Gordon).

A WEEVIL (Pantomorus pallidus) - NEW MEXICO - Ranged 25-40 per 25 sweeps in alfalfa near Belen, Valencia County. Moderate damage to trifoliolate leaves observed. This weevil appears to have become a serious alfalfa pest in central area. (N.M. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Averaged 300 per 100 sweeps of alfalfa at San Simon, Cochise County. (Ariz. Coop. Sur.) NEW MEXICO - Remained light in alfalfa. Counts per 25 sweeps ranged 50-75 in Chaves County, 100-300 in Bernalillo and Valencia Counties. (N.M. Coop. Rpt.). NORTH DAKOTA - Weather favorable for species but infestations variable with 20-1,000 per 100 sweeps present in first-cutting alfalfa. Averaged 250 per 100 sweeps in Cass, Ransom, Barnes, La Moure, Richland, Sargent, and Dickey Counties. First cutting underway. (Brandvik, Kaatz). WISCONSIN - Continued light in alfalfa and clover; averaged less than one per sweep in southern counties north to Langlade and Lincoln Counties. Parasitism heavy in central and northern counties. In Langlade County, parasitism about 100 percent; reproduction of A. pisum nymphs apparently ceased. (Wis. Ins. Sur.).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Sex pheromone trap catches for week ending June 10 in Whatcom and Skagit Counties totaled 1,445 moths in 12 traps; 995 taken in one trap. Total much below that on same date in 1973. (Eide, Byrn).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Averaged 25 per 100 sweeps of alfalfa at San Simon, Cochise County. (Ariz. Coop. Sur.). FLORIDA - Adults infested third crop of 10-inch tall alfalfa at Gainesville, Alachua County; 60 taken in 100 sweeps. (Fla. Coop. Sur.).

GRASSHOPPERS - MINNESOTA - First hatch of season observed in several counties. Melanoplus bivittatus first-instar nymphs trace in Wilkin County, second instars trace in Kandiyohi County. None found in Red River Valley; due to flooding of roadside ditches in area, emergence may be substantially reduced. (Minn. Pest Rpt.). MISSOURI - M. femurrubrum nymphs averaged 3 per sweep in 4 to 6-inch stubble alfalfa in southwest area. (Munson).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Infestations increased in alfalfa, mines just appeared in most areas. (Nielsen, MacCollom, June 10).

SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - TENNESSEE - Very light in soybeans in Franklin County. Currently not at control levels, but should increase. (Cagle, Jacobs). NORTH CAROLINA - Adults of this species along with adults and larvae of Epilachna varivestis (Mexican bean beetle) continued to damage young soybeans in fields scattered across Coastal Plain. Three of 10 soybean fields (2 to 4-leaf stage) observed in Edgecombe, Martin, Washington, and Hyde Counties received 15-20 percent leaf loss. (Hunt).

MEXICAN BEAN BEETLE (Epilachna varivestis) - INDIANA - Adults ranged 2-3 per linear foot of soybeans with 3 trifoliolate leaves in two Spencer County fields. (Edwards). SOUTH CAROLINA - Caused scattered damage to soybeans throughout State. (Thomas).

CLOVER ROOT CURCULIO (Sitona hispidula) - INDIANA - Adults ranged 8-10 per plant in soybean field which was in clover in 1973 in Spencer County. (Edwards).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - MISSISSIPPI - Adults averaged 3 per 25 sweeps in 12-inch soybeans in Noxubee and Lowndes Counties. No damage seen. (Robinson).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Continued to cause concern in south-central area week ending June 7; large numbers of overwintered weevils found in young cotton, egg laying noted in older cotton. Pheromone trap catches indicated continued emergence of overwintered weevils in central area; 62 in single trap in Chilton area of Falls County, catches light in Bell and Coryell Counties. Weevils heavy in pheromone traps in Baylor, Knox, Wilbarger, and Fisher Counties in Rolling Plains; 163 and 78 in 2 Knox County traps, respectively; 119 in single Wilbarger County trap. Overwintered weevils heavy in Ellis, Kaufman, and Delta Counties of north-central area. Continued primary insect problem on cotton throughout south-central, central, and north-central areas week ending June 14. "Hot spots" appeared in some south-central area fields; spot treatments recommended in these areas. Weevils economic in only few areas of south-central area.

Punctured-square counts light in Hill County in central area, but 30 percent punctured squares noted in some fields near Temple, Bell County. Ranged 0-4 percent in Coryell, Falls, McLennan, and Bell Counties. Weevils beginning to move into fields in north-central area. Activity increased in Rolling Plains; Leggett trap counts increased in Baylor, Knox, Wilbarger, Kent, and Fisher Counties. Counts heaviest in Knox and Wilbarger Counties, ranged 78-348 per trap. Overwintered weevils observed in older fields in Wilbarger and Knox Counties. (Cole et al.).

OKLAHOMA - Boll weevil adult emergence continued heavy in Webbers Falls area, Muskogee County; 504 weevils taken in 32 traps. (Okla. Coop. Sur.). MISSOURI - Eighteen weevils taken from 75 Leggett traps between Benton and Cardwell. (Jones).

ARKANSAS - Boll weevils taken in pheromone traps totaled 478 in 167 traps; average 2.9 per trap compared to 4.8 previous period. Number of counties reporting increased to 15 this period. Weevil counts continued to vary greatly as result of diapause control programs and in relation to type of hibernation quarters. Only one weevil taken in 10 traps in Conway County past 28 days. County has history of heavy weevil populations and moderate numbers have been taken in traps in past years. Overwintered weevils apparently heavy in some areas of Lee County. First report of season from Lee County included 93 weevils in one set of 5 traps and 21 weevils in second set of 5 traps. Weevil counts continued heavy at 5 locations in Clay County. This reflects situation that existed for many consecutive years; winter not cold enough to cause drastic reduction in overwintering weevils in extreme northeast area. Situation in Lafayette County continued to show wide variation. Area has history of heavy populations. Traps set up in 9 areas of county; no weevils taken at 6 locations, while moderate to heavy numbers taken at 3 locations. These differences result of diapause control and differences in hibernation quarters. (Boyer).

MISSISSIPPI - Leggett trap catches in Yalobusha County indicate 4.2 boll weevils per trap in diapause area and 9.5 per trap in nondiapause area. (Collins). In Noxubee County, few feeding punctures found in 20 acres of early planted cotton. (Robinson). ALABAMA - Increased in traps and fields in northern area. However, counts light and about same as 1973. No egg laying yet occurred. (McQueen et al.). GEORGIA - Puncture counts increased as cotton began fruiting in southern area. Up to 30 percent punctured squares in one Colquitt County field week ending June 7. (Womack). Current average adult counts per trap by county: Burk 25.1, Dooley 0.8, Crisp 2, Worth 18. Record number of 172 taken in one Burk County trap. (Boone). TENNESSEE - Fed in terminals of cotton in Franklin and Lincoln Counties. (Cagle, Jacobs). Number of weevils taken in grandlure traps to date indicates much heavier populations this season than in 1973. (Pendergrass). SOUTH CAROLINA - Up to 12 percent square damage reported in some fields across central area. (Thomas).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Eggs and larvae of H. zea (bollworm) and H. virescens (tobacco budworm) ranged heavy to very heavy on cotton throughout central area. Up to 40 eggs per 100 terminals and 25 larvae per 100 squares in some fields. Counts at these levels usually do not occur for another 30 days. (Thomas). GEORGIA - Egg laying by Heliothis spp. moths very heavy in southern area, up to 300 eggs per terminal. Growers advised to delay treatments until fruiting begins. (Womack, June 7). ALABAMA - Occasional Heliothis spp. egg and larva noted in 15 fields scouted in Limestone County. (McQueen et al.). MISSISSIPPI - Few Heliothis spp. eggs found on Noxubee County cotton with 7-8 nodes per plant. These plants beginning to square. Eggs ranged 0-8 per 100 terminals. (Robinson). TEXAS - Heliothis spp. found throughout central area week ending June 7; larvae light, some damage found (noneconomic) where treatments made for other cotton pests. No controls for Heliothis spp. reported. Larvae light in central area fields, caused no economic damage. During week ending June 14, damage by H. zea reported in fields sprayed 14 days ago in south-central area, but not significant in most localities. Activity increased but still light throughout central area. No controls yet applied. (Cole, Hoelscher).

ARKANSAS - H. zea and H. virescens moths in blacklight traps continued to vary in different areas. In Desha County, 23 H. zea moths taken at Pickens, only 4 taken at Kelso a short distance away. Single H. zea moth taken at Dell, Mississippi County, May 27 to June 8; infestations usually light in area. At Coy, Lonoke County, 47 H. zea moths taken. No H. virescens moths taken at any of these locations this period. First blacklight trap report of season from Newport, Jackson County, showed 4 H. zea and one H. virescens moths taken during period June 1-7. (Boyer).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - Increased throughout south-central area, but no economic damage reported. Counts per 100 sweeps ranged 0-20 in Hill County, 0-15 in Bell County. Light in Ellis, Collin, Hunt, and Fannin Counties in north-central area. Square set adequate in all fields checked in area. P. seriatus very light in fields where squaring begun in Pecos County. (Cole et al.). OKLAHOMA - Averaged about 1 per 50 plants in young cotton in Tillman County. (Okla. Coop. Sur.).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This species and other thrips damaged several hundred acres in Morgan, Lauderdale, and Lawrence Counties. (Rutledge et al.).

STRAWBERRY SPIDER MITE (Tetranychus turkestani) - NEW MEXICO - Continued to cause severe damage in Dona Ana County. One field currently retreated has not grown out of 4-leaf stage in three weeks. (N.M. Coop. Rpt.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW JERSEY - First-generation adults laid eggs on tomatoes in central counties June 13. Populations very heavy on young transplants in Essex County. (Ins.-Dis. Newsltr.). UTAH - Adults moderate in Weber County potato and tomato fields. (Rogers).

Samples of cotton linters of the usual trade size are

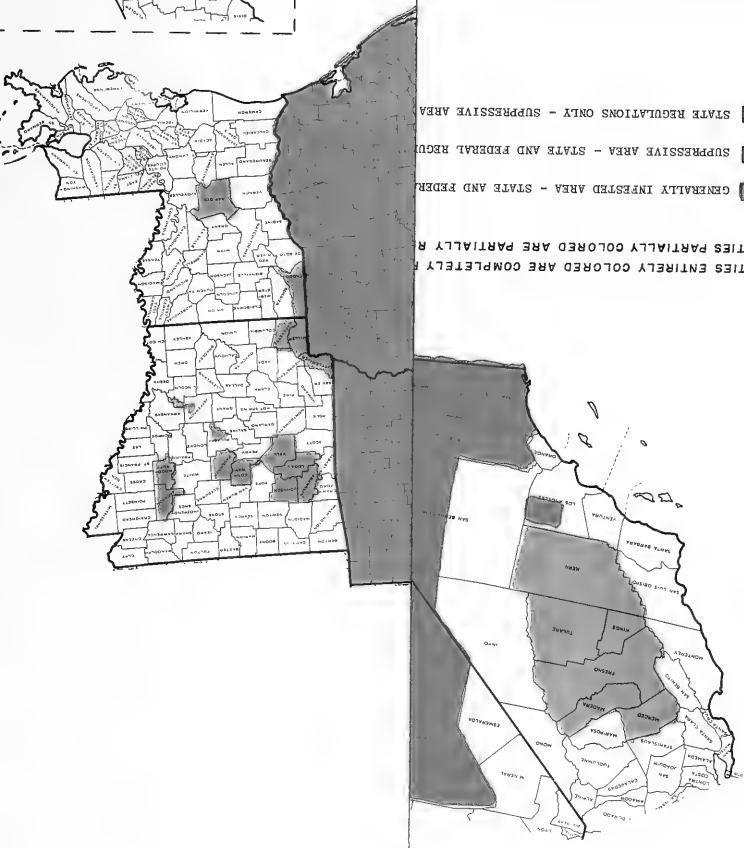
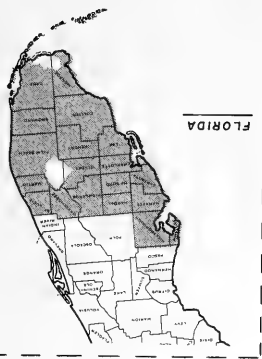
RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULA
 FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE
2. GREEN INTO OR THROUGH BLUE OR
3. GREEN INTO GREEN.
4. WITHIN GREEN.
5. BLUE INTO ANY OTHER AREA.

" IF IT IS DETERMINED BY THE INSPECTOR THAT A HA
 IF REQUIRED BY STATE REGULATIONS OR BY AN AU

COUNTIES ENTIRELY COLORED ARE COMPLETELY R
 COUNTIES PARTIALLY COLORED ARE PARTIALLY R

GENERALLY INFESTED AREA - STATE AND FEDER
 SUPPRESSIVE AREA - STATE AND FEDERAL REGUL
 STATE REGULATIONS ONLY - SUPPRESSIVE AREA



PINK BOLLWORM QUARANTINES

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED,
COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED.

-  GERMANY INFESTED AREA - STATE AND FEDERAL REGULATIONS.
-  SUPPLEMENTAL AREA - STATE AND FEDERAL REGULATIONS.
-  STATE REGULATION ONLY - SUPPLEMENTAL AREA.

RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED ARTICLES
FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN
4. WITHIN GREEN*
5. BLUE INTO ANY OTHER AREA.**

* IF IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS

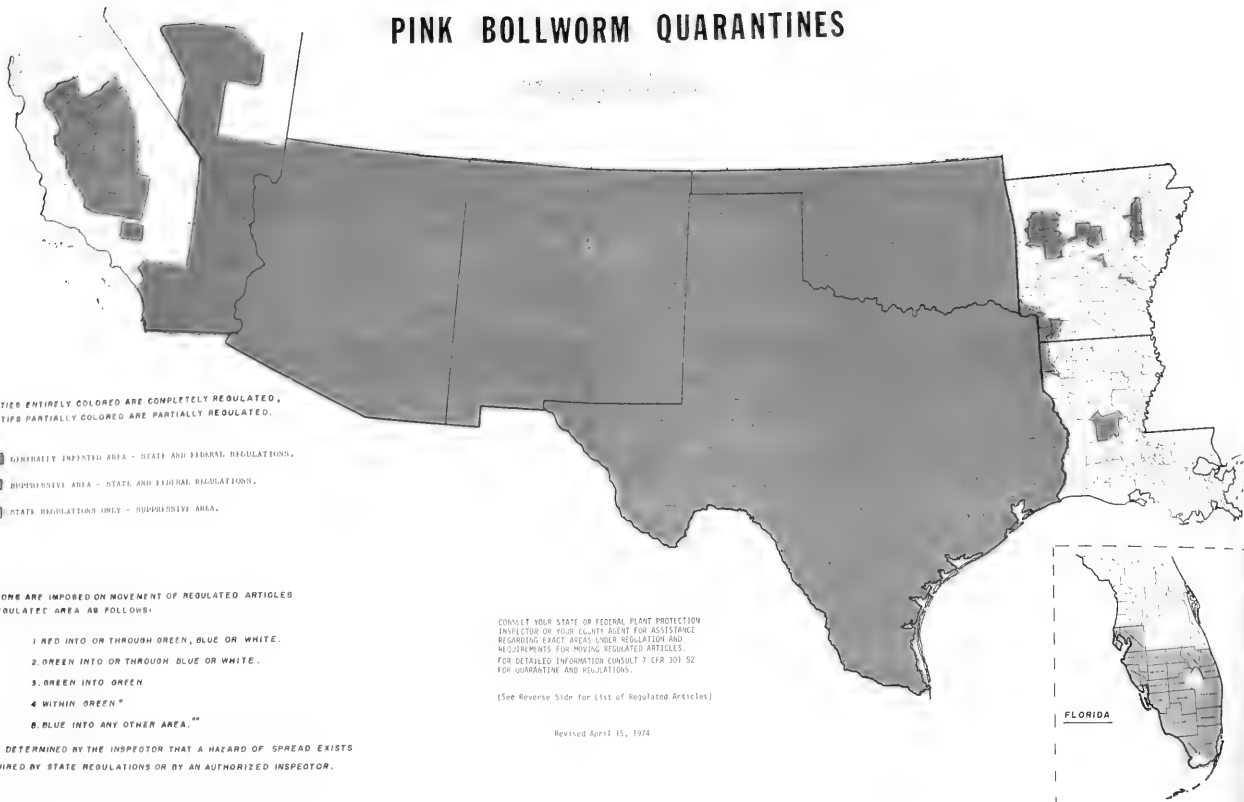
** IF REQUIRED BY STATE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION
INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE
REGARDING EXACT AREAS UNDER REGULATION AND
MOVEMENTS FOR MOVING REGULATED ARTICLES.
FOR DETAILED INFORMATION CONSULT 7 CFR 301.52
FOR QUARANTINE AND REGULATIONS.

(See Reverse Side for List of Regulated Articles)

Revised April 15, 1954

FLORIDA



1. Cotton and wild cotton, including all parts of such plants.
2. Seed cotton.
3. Cottonseed.
4. Cottonseed hulls.
5. Cotton lint.

Baled cotton lint is exempt if compressed to a minimum of 22 pounds per cubic foot.

Baled cotton lint moving from the generally infested area into the suppressive area is exempt if the lint is from seed cotton produced in the suppressive area and moved to the generally infested area for ginning, provided the identity of the baled cotton lint is maintained.

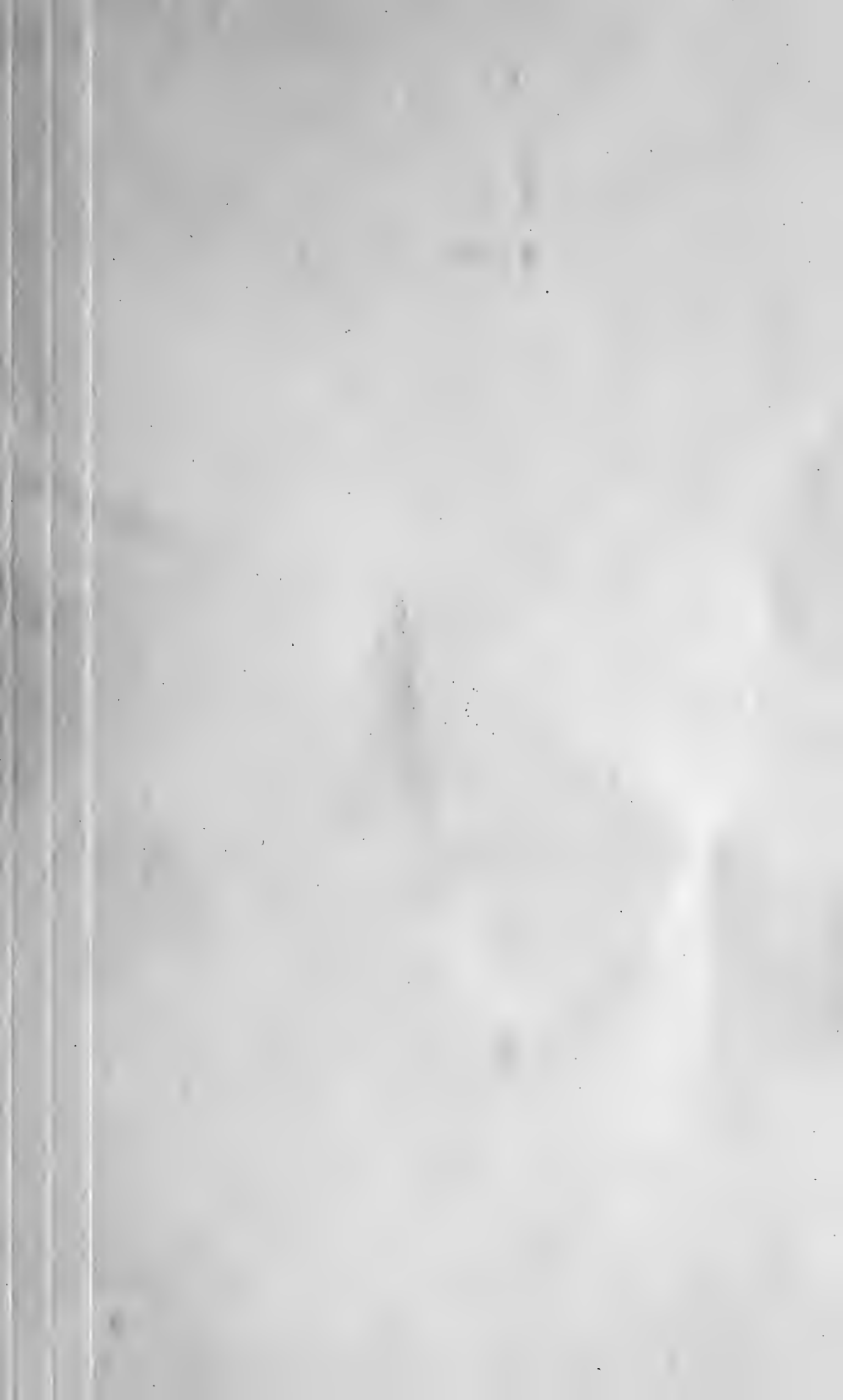
Samples of cotton lint of the usual trade size are exempt. The samples may be assembled in a single package for shipment.
6. Cotton linters.

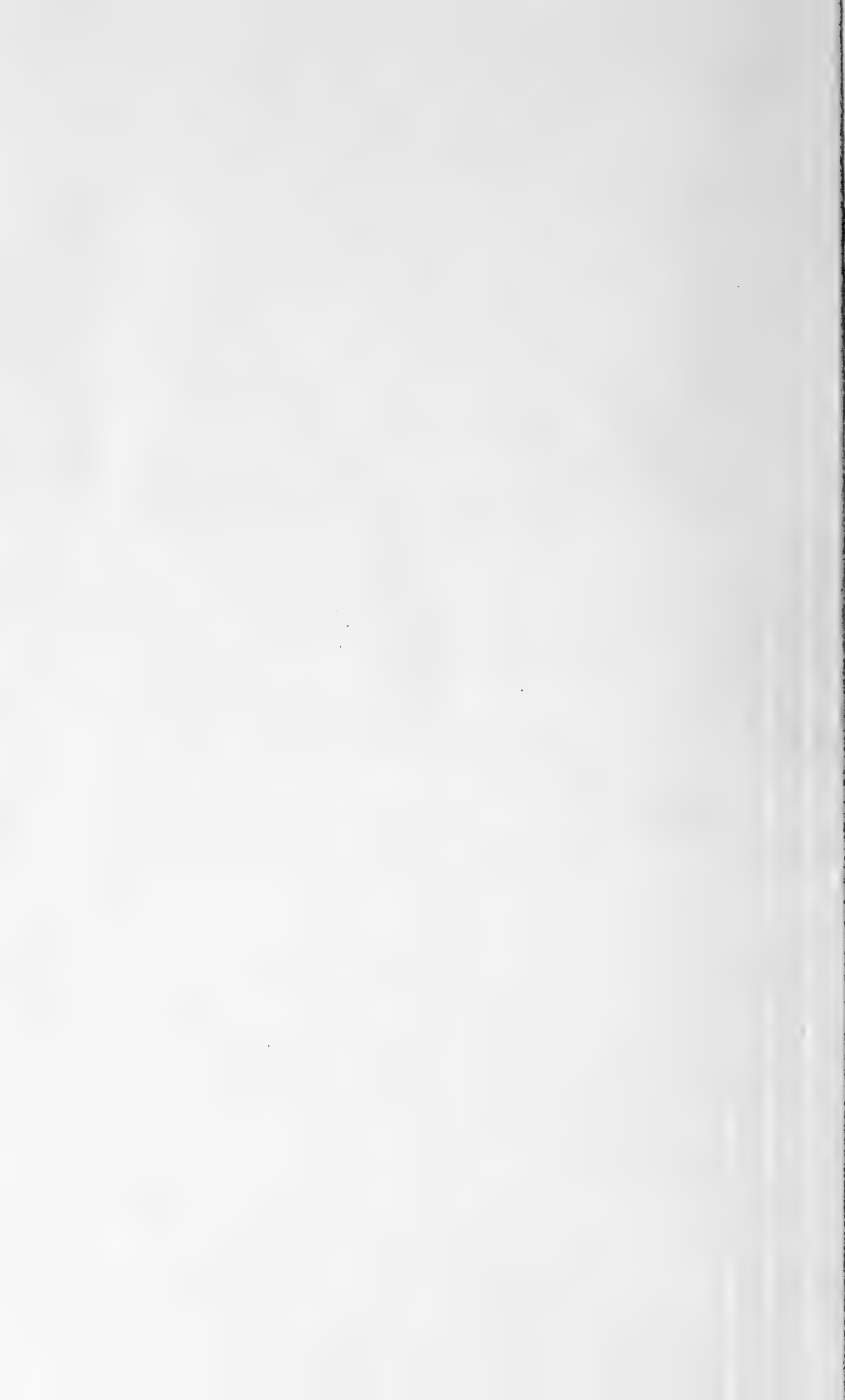
Linters are exempt if compressed to a minimum of 22 pounds per cubic foot.

Samples of cotton linters of the usual trade size are exempt. Samples may be assembled in a single package for shipment.
7. Cotton waste produced at cotton gins, cottonseed oil mills, and cotton textile mills.

Lint cleaner waste is exempt if compressed to a minimum of 22 pounds per cubic foot.
8. Cotton gin trash.
9. Used bagging and other used wrappers for cotton.
10. Used cotton harvesting equipment and used cotton ginning and cotton oil mill equipment.
11. Okra and kenaf, including all parts of such plants except canned or frozen okra.

Edible okra is exempt if produced during the period December 1 to May 15 inclusive, except that okra consigned to California is exempt only if produced during the period of January 1 to March 15 inclusive.
12. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the pink bollworm and the person in possession thereof has been so notified.





POTATO FLEA BEETLE (Epitrix cucumeris) - MICHIGAN - Active on potatoes. Treatments should be applied. (Cress).

STALK BORER (Papaipema nebris) - OHIO - Larvae caused moderate damage to commercial tomato planting in Miami County and potato plants in Clinton County. (Fox).

BEANS AND PEAS

PEA WEEVIL (Bruchus pisorum) - OREGON - Adults heavy in central Willamette Valley pea fields; growers and fieldmen reported difficulty in obtaining control. Complaints indicated registered insecticides not effective, but apparently pesticides providing good control for weevils present in fields at time of application but not for migrating adults which entered plantings 3-4 days after. Treatments made to garden peas in Salem, Marion County, provided control for 4-day period. Late treatment of this planting resulted in severe damage with 40-50 percent of developing pods infested. (Penrose). IDAHO - Required controls on early season green peas at lower elevations in northern area by June 7. (O'Keeffe).

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Adult movement from perennial legumes to spring seeded peas about complete June 7. Egg laying and larvae observed in spring and winter peas. Adults more localized and lighter than in 1973. An estimated 30,000 acres of peas treated in northern part of State and adjoining eastern area of Washington. (O'Keeffe).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Counts remain very light in peas; heaviest counts 6 per 50 sweeps, average about 3 per 50 sweeps. (Wis. Ins. Sur.).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - NEW MEXICO - Larvae emerged from pears in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.). UTAH - Moths averaged 11.5 per trap night of June 11 at North Logan, Cache County. Heaviest flight of season. (Davis). IDAHO - Catches in pheromone trap at backyard location at Moscow, Latah County, as follows: Two May 31, two June 8, 22 June 12, 8 June 13. (Portman). WASHINGTON - Adult catches in pheromone traps as follows: Generally light in Royal Slope area week ending June 1, but ranged 11-103 in some traps; heaviest catch in Quincy and George area and in western Grant County, 17 in one trap; light at Ephrata and northward. Catches light, not more than 5 per trap in Chelan and Douglas Counties week ending June 8 except for 15 in one trap. (Hunter, Rushmore).

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) - OREGON - Adult emergence began in Willamette Valley. First fly observed June 7 in baited emergence cage near Albany, Linn County. Adults also trapped in area. Flies also taken in baited sticky carton traps in Marion County. (Alinazee, Larson).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Counts ranged 4-5 broods per pecan tree at nursery in Mobile County. (Goff). MISSISSIPPI - Webs appeared in pecan trees in Harrison County. (Fleming). TEXAS - Activity increased on nut trees in Llano and

Tom Green Counties, increased in several south-central area counties week ending June 7. Larvae heavy in Brazos and Burleson Counties, activity moderate on dooryard trees in Dallas and Tarrant Counties. Current infestations of fall webworm increased on pecans in most of south-central area. Damage reported in several counties in San Angelo and central areas. (Cole et al.).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Damaged pecans in several parts of south-central area. Growers urged to watch for second generation. Damage moderate to heavy on untreated pecans in Cottle, Knox, Hardeman, and Wilbarger Counties in Rolling Plains. Satisfactory applications and control reported in San Angelo area counties. (Boring et al.).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Infested pecans in most south-central area counties from Milam County to Victoria County. Counts currently light. (Cole).

PECAN LEAF PHYLLOXERA (Phylloxera notabilis) - TENNESSEE - This species and P. devastatrix (pecan phylloxera) very heavy on pecan in western area and hickory in central area. (Locke, Gordon).

ORNAMENTALS

A BAMBOO APHID (Takecallis arundinariae) - ARIZONA - Adults collected from leaves of bamboo in nursery at Phoenix, Maricopa County, by D. Carver February 6, 1974. Determined by L.M. Russell. This is a new State record. (May).

A SOFT SCALE (Pulvinaria citricola) - ALABAMA - Collected from althea shrub in Lee County April 23, 1974, by Nancy Allen. This is a new State record. Collected from pyracantha in Franklin County May 23, 1974, by H.A. Ponder. This is a new county record. Determinations by M.L. Williams. This soft scale previously known only from California, Maryland, and Virginia. (McQueen).

STRIPED MEALYBUG (Ferrisia virgata) - ALABAMA - Collected from magnolia in Tuscaloosa County May 9, 1974, by T.I. Pigot. Determined by M.L. Williams. This is a new county record. (McQueen).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - PENNSYLVANIA - Larvae observed on hemlock trees in Clearfield County June 10. Defoliation evident in many areas of county. (Simons, Richards).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Second-generation larvae moderate on young shortleaf pines checked in McCurtain County. (Okla. Coop. Sur.).

BALSAM TWIG APHID (Mindarus abietinus) - NEW HAMPSHIRE - Winged forms present on spruce and fir in Merrimack County area June 11. (Miller, Hutchins).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Larvae defoliated American elm trees along Sheyenne River in Cass County. Some trees will be completely defoliated. (Brandvik).

COTTONWOOD LEAF BEETLE (Chrysomela scripta) - MISSISSIPPI - Second-generation larvae averaged 11.5 and adults 15.7 per tree on 2-year-old cottonwoods in Washington County. (Miller). TENNESSEE - Defoliated cottonwood and willow trees in isolated parts of central area. (Gordon).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Caused much foliar damage to Siberian elms in Sedgwick County. (Bell).

PERIODICAL CICADA (Magicicada septendecim) - PENNSYLVANIA - Nymphs noted on fir, spruce, and pine trees at North Coventry Township, Chester County, May 30. Emergence heavy in 15-acre Christmas tree plantation. (Simmons, Lancaster). Heavy adult infestation reported for weeks of June 3 and 10 at Honey Creek, Mifflin County. Adults ranged 5-100+ in all trees, shrubs, and grasses checked. No damage noted. (Farrell). TENNESSEE - Peak emergence occurred in Shelby, Fayette, Hardeman, Hardin, and McNairy Counties. (Locke). Observed in Macon and Jackson Counties. (Jacobs).

GOLDEN OAK SCALE (Asterolecanium variolosum) - MICHIGAN - Infestations heavy on white oak in Saginaw County. This insect, in conjunction with anthracnose, caused some tree mortality, especially on dryer sites. Crawler stage can be controlled during late June or early July with chemicals. (Mosher).

A PHYLLOXERA (Phylloxera caryaeglobuli) - NEW HAMPSHIRE - Galls common on hickory foliage in Rockingham and Strafford Counties. Winged forms present in galls June 12. (Mason).

AN ASH PLANT BUG (Tropidosteptes pacificus) - CALIFORNIA - Caused severe damage and defoliation of ash trees along streets, in parks, and golf courses at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

MOUNTAIN ASH SAWFLY (Pristiphora geniculata) - MICHIGAN - Caused severe defoliation to American ash in Lake County. Most larvae in fourth and fifth instars and should complete development within 7-10 days. (Wallner).

A GRASSHOPPER (Dendrotettix quercus) - OKLAHOMA - Noted on oaks in Stillwater area, Payne County. (Okla. Coop. Sur.).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - ALABAMA - Increased on cattle in Wilcox and other counties. Pinkeye developed in cattle in Wilcox and Talladega Counties. (Farquhar, Bass). TENNESSEE - Counts per head on cattle by county: Knox 0-50, Washington 0-40. (Snodgrass, Walker). INDIANA - Ranged 20-25 per black cow on farm in Grant County. (Dobson). WISCONSIN - Annoyance to dairy heifers continued light in Waushara County. Annoyance light on most farms although moderate in Polk County. (Wis. Ins. Sur.). IOWA - Ranged 0-100 (average 19) per head on Story County cattle. (Iowa Ins. Sur.). MISSOURI - Ranged 30-200 per head on untreated animals, 1-30 on treated cattle. (Munson). NORTH DAKOTA - Ranged 50-500 (average 300) per animal on single herd of beef cows on range in Richland County. (Brandvik). NEBRASKA - Averaged 300 per head on untreated cattle in Arthur, Keith, Lincoln, and McPherson

Counties. (Campbell). OKLAHOMA - Horn fly averaged 500 per head on cows and 3,000 per head on bulls checked in Payne County. Averaged 150 per head in Muskogee and McIntosh Counties and 100 per head in McCurtain County. (Okla. Coop. Sur.). TEXAS - Still heavy on livestock in San Angelo area. Also heavy in Childress, Knox, and Wilbarger Counties. (Green).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Annoyance to dairy cattle light in all areas except Crawford County where moderate annoyance reported. Ranged 1-4 per animal in Waushara County. (Wis. Ins. Sur.). OKLAHOMA - Averaged 5 per head on dairy cattle checked in Payne County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Averaged 8 per face on 25 head of Angus cattle in Monroe County. (Robinson). TENNESSEE - Counts per head on cattle by county: Knox 0-7, Washington 0-6. (Snodgrass, Walker). INDIANA - Averaged 5 per face on black cows on farm in Grant County. (Dobson). WISCONSIN - Moderately annoyed cattle in Polk County; light elsewhere. Averaged 2 per face in Waushara County. (Wis. Ins. Sur.). NORTH DAKOTA - Averaged 2 per face on beef calves in single herd in Richland County. (Brandvik). NEBRASKA - Averaged 10 per face on cattle in Arthur, Lincoln, Keith, and McPherson Counties. (Campbell).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Reported heavy on cattle in Sequoyah County. T. lineola (striped horse fly) averaged 2 per head in Payne County. (Okla. Coop. Sur.). NEW MEXICO - T. subsimilis active on horses in Las Cruces, Dona Ana County; 2-3 taken at Blacklight in same area. Collected from man in Socorro County. (N.M. Coop. Rpt.).

MOSQUITOES - KENTUCKY - Various species lighter than usual in Hickman and Carlisle Counties. Anopheles quadrimaculatus continued to increase in Kentucky Lake region of Trigg County. (Barnett). INDIANA - Mosquito bites or probes averaged 6 (ranged 0-20) per 5 minutes at 17 selected sites June 3-5 in central district. Aedes trivittatus comprised 60 percent of catch, A. vexans 21 percent. A. triseriatus, A. stimulans, A. sticticus, and A. canadensis canadensis also collected. Few Psorophora ferox and P. confinnis adults collected in Vigo County June 3. Single specimen of P. cyanescens collected in Tippecanoe County June 3 by D.P. Sanders. Cool temperatures may have inhibited activity. (Meyer).

WISCONSIN - Mosquito populations heavier in wooded northern counties than in southern counties. Biting most noticeable in Vilas County June 8 when temperatures high, but annoyance decreased due to cooler weather. Annoyance to man and livestock moderate in most counties. Counts heavy in Rusk and Bayfield Counties. Day-time bite collections in southern Oneida County indicate Aedes cinereus main biter. Recent very heavy rains will result in suitable breeding pools for next 14-21 days. Problems should continue and probably increase next 30 days, particularly if weather warms. (Wis. Ins. Sur.). MINNESOTA - Light trap counts June 1-7 totaled 467 females, 56 percent were Aedes vexans; 16 species taken. A. stimulans most numerous in daytime 5-minute bite counts. (Minn. Pest Rpt.).

ARKANSAS - Mosquitoes, primarily Psorophora confinnis, annoyed livestock and man in most of eastern area. Continued rains resulted in moderately heavy counts regardless of rice production. More mosquitoes seen outside rice fields than when working in rice fields. (Boyer). KANSAS - Mosquitoes very annoying in McPherson, McPherson County. (Bell). UTAH - Troublesome at Logan, Benson, and Amalaga in Cache County and in Santa Clara and Bloomington areas of Washington County. (Parish et al.).

LONE STAR TICK (Amblyomma americanum) - MISSISSIPPI - Averaged 15 per animal on 600 beef cattle in Carroll County. (Hulett).

OKLAHOMA - Reported very heavy on cattle in Sallisaw area, Sequoyah County. (Okla. Coop. Sur.). TEXAS - Increased on cattle and sheep in many San Angelo area counties. (McWhorter).

BENEFICIAL INSECTS

LADY BEETLES - MISSISSIPPI - Coleomegilla maculata adults and larvae averaged 4.1 per tree in 2-year-old cottonwoods infested with Chrysomela scripta (cottonwood leaf beetle) in Washington County. (Miller). ARIZONA - Hippodamia convergens (convergent lady beetle) averaged 95 per 100 sweeps of alfalfa at San Simon, Cochise County. (Ariz. Coop. Sur.).

ICHNEUMON WASPS - OHIO - Lemophagus curtus, a larval parasitoid of Oulema melanopus (cereal leaf beetle), recovered for first time in State at field insectary in Coshocton County May 30, 1974. WEST VIRGINIA - L. curtus recovered for first time in State at general release site in Pleasants County. Diaparsis sp. recovered at Mason County field insectary. (Burger).

A MYMARID WASP (Anaphes flavipes) - This egg parasitoid of O. melanopus recovered for first time in following counties: WEST VIRGINIA - Berkeley June 12, Grant June 12, Hardy June 12, Pendleton June 13. VIRGINIA - Rockingham June 13. MARYLAND - Baltimore June 15, Carroll June 5, Montgomery June 14. PENNSYLVANIA - Adams June 5, Cumberland June 5, Dauphin June 5. All collections made by R. Bingham and R. Dysart. Determined by R. Dysart. (Dysart). Recovered in Perry, Huntingdon, Bedford, Westmoreland, Erie, and Somerset Counties. Previously released in Erie and Westmoreland Counties. Perry, Huntingdon, Bedford, and Somerset are new county records. (Burger).

A EULOPHID WASP (Tetrastichus julis) - OHIO - This larval parasitoid of O. melanopus recovered for first times at insectary sites in Guernsey and Preble Counties. (Burger).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MASSACHUSETTS - Adult collected in center of oatfield near Hatfield, Hampshire County, May 31, 1974, by D.H. Simser. This is a new State record. Three adults collected in center of field of oats and barley near Dalton, Berkshire County, June 6, 1974, by D.H. Simer and E.D. Tierney. This is a new county record. Determinations by R.E. White. (Rose). NEW JERSEY - Immatures light in oatfield and headland near Morristown, Burlington County. Collected June 8, 1974, by J.L. Andrews and B.C. Emens. Determined by R.E. White. This is a new county record. (McNally). WEST VIRGINIA - Larvae averaged 9 per

square foot of oats in Jackson County. Larvae averaged 5 per square foot in late oats in Pleasants County and 7 per square foot in Mason County oats. (Hacker). OHIO - First through fourth-instar larvae averaged 32 per square foot in 8-acre Ross County planting of 28-inch tall oats. Damage evident. Larvae light in timothy hay at same location. (Reckner).

GRASS BUGS (*Irbisia* spp.) - UTAH - Moderate on range grasses in Logan Canyon, Cache County; damaging east of Levan, Juab County, and in Iron County areas. (Esplin et al.).

GRASSHOPPERS - NORTH DAKOTA - Main hatch started for most species in Richland, Ransom, and Sargent Counties. Rangeland infestations ranged up to 10 (average 5) per square yard in Hankinson block of Sheyenne National Grasslands. Nymphs averaged 1.2 per square yard in field margins. First-instar nymphs of *Melanopus sanguinipes* and *M. bivittatus* dominant. (Rogosheske). COLORADO - Unspecified species ranged up to 15 per square yard and damaged dryland alfalfa in Yuma County. (Hogan, June 7). NEW MEXICO - Nymphs, mostly *Aulocara elliotti* and *Psoloessa delicatula*, ranged 8-16 per square yard on 15,000 acres of range in Cimarron Canyon, Union County. Nymphs, mostly *Schistocerca shoshone* and *Phlibostroma quadrimaculatum*, ranged 8-14 per square yard on about 20,000 acres of shinnery oak east of Boaz, Chaves County. Nymphs of unspecified species ranged 30-70 per 25 sweeps of alfalfa throughout Valencia, Bernalillo, and into southern Rio Arriba Counties. This area is along Rio Grande in central area. (N.M. Coop. Rpt.).

ARIZONA - Several species of grasshoppers heavy and fed on golf course turf at Rio Rico, Santa Cruz County, treatments necessary. (Ariz. Coop. Sur.). UTAH - Nymphs heavy in pasture and range areas near Park Valley, northwest of Snowville, and at Riverside, Box Elder County; in Scipio area of Millard County; in Flat Canyon and Fayette areas of Sanpete County. (Stephens, Knowlton). NEVADA - *Oedaleonotus enigma*, third-instar nymphs to adults, ranged 10-12 per square yard on 800 acres of wheat in Kings River Valley and 15-20 per square yard on 480 acres of wheat in Pumpernickel Valley, Humboldt County. First to third-instar nymphs of *Melanoplus sanguinipes* (75 percent) and third-instars nymphs to adults of *O. enigma* (25 percent) ranged 6-10 per square yard on 200 acres of rangeland in Kings River Valley. *O. enigma* (90 percent) and *M. sanguinipes* (10 percent) ranged 6-10 per square yard on 40 acres of alfalfa in Kings River Valley. (Martinelli, Rowe). *M. sanguinipes*, third-instar nymphs to adults, ranged 4-20 per square yard on 120 acres of alfalfa in Hualapai Valley, Washoe County. *M. sanguinipes* (10 percent) and *O. enigma* (90 percent) ranged 2-40 per square yard on 60 acres of alfalfa at Clear Creek. (Barclay, Bechtel). WASHINGTON - Nymphal surveys in parts of Asotin, Benton, Garfield, Grant, Klickitat, and Whitman Counties showed no economic counts. Counts ranged 4-5 per square yard on rangeland east of Ellensburg. (Jackson).

MORMON CRICKET (*Anabrus simplex*) - NEVADA - Treatment of about 29,500 acres of rangeland in Seven Troughs Range, Pershing County, completed with excellent results. Additional surveys in Dry Creek and Pony Creek area, Eureka County, indicate about 1,300 acres infested with one per square yard generally to pockets of 5 per square yard. (Kail). Ranged 8-10 per square yard on unspecified acreage in Spaulding Canyon and Yellowstone Canyon areas of East Range, Pershing County. (Rowe).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Adults noted throughout Piedmont and Coastal Plain. Emergence in mountains expected within 14 days or less depending on altitude. First collection of season made June 9. Roses, grapes, azaleas, and many fruit trees readily attacked. (Hunt). GEORGIA - Adults heaviest ever observed in Richmond County, swarming around population check trap. Heavy in Fulton County. (Fortson, Parkinson, June 7). ALABAMA - Adults continued to be collected at Heflin, Cleburne County, in old infested area. Up to 138 collected in single trap. (Baricar et al.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Scattered hatch reported from local areas of Colfax County; none reported from Union County. (N.M. Coop. Rpt.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ALABAMA - Heavy in soybeans near Goodway, Monroe County. New property found infested 4 miles southeast of 1972 infestation in Monroe County. (Lemons).

WHITEFRINGED BEETLES (Graphognathus spp.) - GEORGIA - Large number of live adults clinging to grain passed through cleaning operations making cleaning difficult on first processing, with subsequent delay, in flour grinding in Bibb County. Damaged gardens in Peach County, necessitated replanting. (Elder, June 7). During week ending June 14, larvae damaged 5-10 percent of soybean plants in 2 Grady County fields. Larvae damaged 10-25 percent of okra plants in 5 fields totaling 25 acres in same county. (Galbreath). ALABAMA - Larvae burrowed into and ruined sale value of potatoes at Brundidge, Pike County. First adults of season fed on strawberry plants at Huntsville, Madison County. (Wilson, Stisher).

DETECTION

New State Records - CEREAL LEAF BEETLE (Oulema melanopus) - MASSACHUSETTS - Hampshire County. (p. 465). A BAMBOO APHID (Takecallis arundinariae) - ARIZONA - Maricopa County. (p. 462). A SOFT SCALE (Pulvinaria citricola) - ALABAMA - Lee County. (p. 462).

New County Records - ALFALFA WEEVIL (Hypera postica) MINNESOTA - Stearns. NEW MEXICO - Socorro. NORTH DAKOTA - Barnes. (p. 456). CEREAL LEAF BEETLE (Oulema melanopus) MASSACHUSETTS - Berkshire. NEW JERSEY - Burlington. (p. 465). GREENBUG (Schizaphis graminum) NEVADA - Pershing (p. 452). A MYMARID WASP (Anaphes flavipes) PENNSYLVANIA - Perry, Huntingdon, Bedford, Somerset (p. 465). MEADOW SPITTLEBUG (Philaenus spumarius) TENNESSEE - Macon, Jackson (p. 454). A SOFT SCALE (Pulvinaria citricola) ALABAMA - Franklin (p. 462). STRIPED MEALYBUG (Ferrisia virgata) ALABAMA - Tuscaloosa (p. 462).

CORRECTIONS

CEIR 24(23):410 - VEGETABLE WEEVIL (Listroderes costirotris obliquus) should read (Listroderes costirotris obliquus).

CEIR 24(23):413 - MOSQUITOES - Line 3: A. canadensis candensis should read A. canadensis canadensis.

CEIR 24(24):421 - Number 23 should read Number 24.

HAWAII INSECT REPORT

General Vegetables - POTATO TUBERWORM (Phthorimaea operculella) larvae light in 200+ square yards of eggplant at Ewa, Oahu. Less than 10 percent of leaves damaged. Most infested leaves had only one larva. TOBACCO FLEA BEETLE (Epitrix hirtipennis) damage light in several backyard plantings of eggplant at Ewa; estimated 10-20 percent of leaves damaged. Less than 10 beetles observed on each plant. SOUTHERN GREEN STINK BUG (Nezara viridula) moderate in backyard planting of long beans at Ewa. Only few nymphs observed in beans; 90 percent (49) of adults (54) parasitized by Trichopoda pilipes (a tachina fly). (Ito, Mau). Nymphs and adults of a SOLANACEOUS TREEHOPPER (Antianthe expansa) heavy in a backyard planting of eggplant at Ka'u, Hawaii Island. None found on tomatoes in same garden. (Tsuda).

Fruits and Nuts - REDBANDED THRIPS (Selenothrips rubrocinctus) light on about two acres of macadamia at Pahala, Hawaii. Damage to nut husks light. (Tsuda). BROAD MITE (Polyphagotarsonemus latus) light in 200+ acres of passion fruit at Kahului, Maui. Damage moderate, about 30 percent of terminal shoots with damaged leaves. Only 10 percent of damaged leaves infested, with 2-4 mites on each infested leaf. (Miyahira). LEAFMINER FLIES (Liriomyza spp.) light in passion fruit planting. About 10 percent of leaves infested, with 1-5 mines on each infested leaf. Light infestation observed in 3 acres of watermelon at Kahuku, Oahu. Less than 10 percent of leaf area of infested leaves damaged by mining. Damage by BANANA SKIPPER (Erionota thrax) variable in many backyard plantings of banana at Hauula, Laie, and at Kahuku, Oahu. Damage ranged from light (10 percent of leaves damaged) to heavy (90 percent of leaves damaged). Heavy damage also observed in 5+ acres of banana at Kahuku; 45-60 percent of leaves damaged by larval feeding. Egg and larval parasites of E. thrax previously released in these areas. Although too soon to evaluate effectiveness in control of E. thrax, samples of 11 egg masses (89 eggs) from Hauula and 20 egg masses (174 eggs) from Kahuku showed parasitism due to Ooencyrtus erionotae (an encyrtid wasp) less than 2 percent at both areas. (Ito, Mau).

Ornamentals - SOUTHERN GREEN STINK BUG (Nezara viridula) caused moderate to heavy bud drop (50-75 percent) from 200+ vanda orchid plants at Wailuku, Maui. Feeding suspected to have caused bud drop. Only light populations of N. viridula noted on various backyard plants at Kahului and Wailuku. (Miyahira).

Beneficial Insects - An ENCYRTID WASP (Ooencyrtus erionotae), an egg parasite, and a BRACONID WASP (Apanteles erionotae), a larval parasite, of Erionota thrax (banana skipper) have been successful in controlling E. thrax at Honouliuli, Oahu. Surveys conducted in 0.25-acre banana planting from April through June showed new damage by E. thrax to be light. Severe damage observed during November and December 1973 before parasite releases made. (Kumashiro et al.).

WEATHER OF THE WEEK ENDING JUNE 10

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

HIGHLIGHTS: Rain dampened eastern two thirds of the Nation last week with amounts over 2 inches reported along the Mississippi River Valley. Southern Florida was deluged with nearly 5 inches of rain during the week. West of Rocky Mountains, the Nation remained exceptionally hot and dry. A record-breaking heat wave sent temperatures soaring 10 to 15 degrees above normal across the western plateau region.

PRECIPITATION: Locally heavy rains fell across much of the Eastern U.S. last week. Isolated storms dumped nearly 2 inches of rain in the Midwest, Mid-Atlantic, and Gulf Coast States. Early in the week, thundershowers spread across the gulf coast region stretching into the southern Appalachians. Rainfall totals included Beeville, Texas, 3 inches; Alice, Texas, 2 inches; and Pensacola, Florida, 1.25 inches. Wednesday, a stationery front triggered thundershowers in the Gulf States and southwestern Plains along with two tornadoes in extreme western Texas. Hail fell in Beaumont and Houston, Texas, and 68 m.p.h. winds were reported at Selma, Alabama. New Orleans measured 1.30 inches of rain in less than 6 hours. Thundershowers drifted across the Gulf States, western Plains, middle Mississippi Valley, and from the eastern Great Lakes region to Vermont on Thursday. Along with the storm, tornadoes swept through Cochran, Georgia; Corpus Christi and Adrian, Texas; and Brownsville, Texas, was soaked with more than 2.50 inches of rain in only six hours. Wind gusts hit 70 m.p.h. at Scottsbluff, Nebraska, and 65 m.p.h. at Denver, Colorado. Friday, hot muggy air spawned late afternoon thunderstorms in the Plains and Mississippi Valley. Damaging winds and hail struck St. Louis, Missouri, and twisters swept through Abbington and Boden, Illinois. Locally heavy rains accompanied the storm, dumping 2.21 inches at Newark, Illinois, in only 45 minutes. Saturday, strong thunderstorms developed across northern Arkansas kicking up 70 m.p.h. winds at Fort Smith and golf-ball size hail north of Jonesboro. During the night, severe thunderstorms developed in the southern Plains and lower Mississippi Valley. Sunday, a slow-moving cold front brought rain into the Northeast and Mid-Atlantic Coast States. Newark, New Jersey, Rome, New York, and Cape Hatteras, North Carolina, got over 1 inch of rain in only six hours. During the weekend over 3.11 inches of rain fell along the Upper Michigan Peninsula.

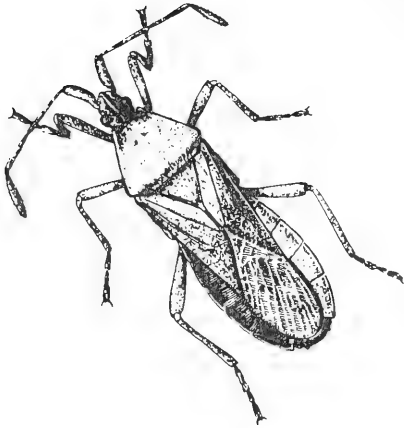
TEMPERATURE: Warm temperatures spread across the Nation's western third last week as a heat wave pushed temperatures 3 to 15 degrees above normal. Weekly temperatures averaged as much as 14 degrees above normal in Boise, Idaho; 15 degrees at Lewiston, Montana; and 12 degrees at Salt Lake City, Utah. East of the Rockies, temperatures averaged as much as 8 degrees below normal. Early in the week, the mercury topped the 100-degree mark in the desert Southwest. Two of the Nation's hot spots were Palm Springs, California, 107 degrees, and Phoenix, Arizona, 106 degrees. Gila Bend, Arizona, reported the Nation's highest reading Monday with a sizzling 111 degrees. Tuesday, sunshine failed to warm the northern Plains and upper Great Lakes out of the 50's and 60's.

High clouds spread over most of the Pacific Northwest but inland temperatures still reached the 80's and 90's. Meanwhile, sunny skies prevailed over most of the area from the Plateau into the western Plains. A large High pressure area brought clear skies and record cold temperatures to the central U.S. on Wednesday. Eppley Field at Omaha, Nebraska, broke the standing 100-year record for this date with a 42-degree reading. St. Joseph, Missouri, fell to a record low of 48 degrees, and temperatures in the 40's and 50's were common in much of the upper Plains, Mississippi Valley, and Great Lakes. Temperatures continued quite warm in the Western U.S. again, with readings in the 90's recorded as far north as Washington, Oregon, and Idaho. Toward weeks end, extremely hot weather broiled the Plateau region as record high temperatures for the date were set at Phoenix, Arizona, 115 degrees; Las Vegas, Nevada, 111 degrees; Boise, Idaho, 105 degrees. The Nation's hottest spot was in Willow Beach, Arizona, with a blistering 118 degrees. Sunday, fair and hot weather spread across the Plateau region. Temperatures in the Plains ranged from the 50's in the Dakotas to the 90's in Texas. Throughout the Rockies and Gulf States, temperatures climbed into the 80's and 90's.

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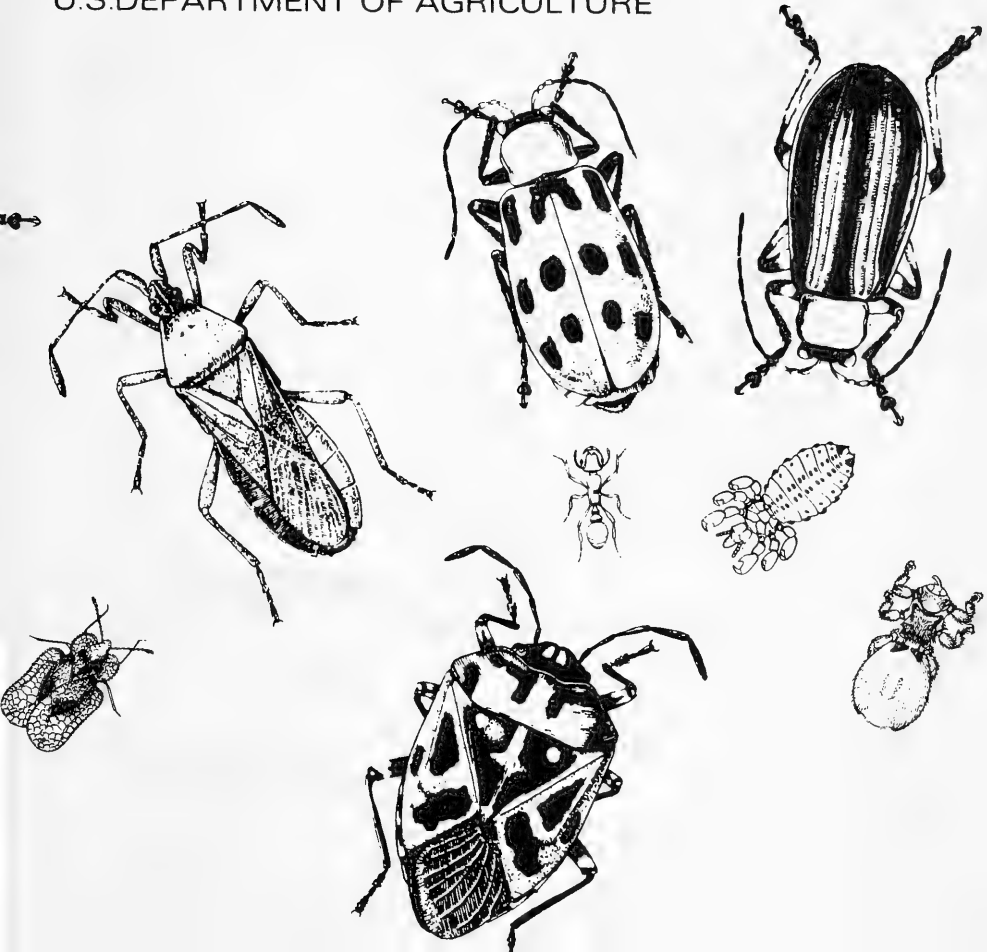
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Cooperative Economic Insect Report

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PLANT PROTECTION AND QUARANTINE PROGRAMS
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U.S. DEPARTMENT OF AGRICULTURE



**ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT 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 clearinghouse and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

ARMYWORM decreased rapidly on Maryland Eastern Shore, moth flights peaked. Moth flight heavy in Delaware. First CORN EARWORM moths of season in Delaware and Illinois, first larvae reported in corn in Oklahoma. First GREENBUG infestations of season in southwest Minnesota grain fields, established infestations in South Dakota sorghum could build up next 10 days. POTATO LEAFHOPPER near economic level in Ohio second-cutting alfalfa. (pp. 475-477).

EUROPEAN CORN BORER larval feeding in corn reported in Missouri, Illinois, and Indiana, egg masses found on corn in Iowa. CORN ROOTWORM larvae in corn in Kansas, Missouri, and Indiana. YELLOW SUGARCANE APHID heavy on sugarcane in Florida. SORGHUM MIDGE economic in some grain sorghum in Texas, heavy in early sorghum in Oklahoma. (pp. 477-478).

SOD WEBWORM damage to rangeland by next generation expected to be serious in northwest South Dakota if natural mortality not heavy. (p. 479).

BOLL WEEVIL heavy in cotton in some areas of Texas, some damage reported in other cotton-growing States. (p. 482).

SPRUCE BUDWORM caused heavy defoliation of hemlock in central Pennsylvania. (p. 486).

HORN FLY increased on livestock in several areas of Texas. (p. 487).

GRASSHOPPERS economic or serious in some areas of Idaho; heavy in some crops in Nevada and on grassland on Navajo Indian Reservation in Arizona; damaged some crops in Oklahoma. MORMON CRICKET economic on rangeland in areas of Idaho. (pp. 489-490).

Detection

New State records include CROSS-STRIPPED CABBAGEWORM in Delaware (p. 484), a PLANT BUG in Pennsylvania is also a new Eastern U.S. record (p. 486), and 2 CHALCID WASPS and a PTEROMALID WASP in North Dakota (p. 488).

For new county and island records see page 491.

Special Reports

Witchweed Quarantines. Map Centerfold.

Reports in this issue are for week ending June 21 unless otherwise indicated.

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For Weather of the Week see page 495.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - PENNSYLVANIA - Larvae infested 15 percent of corn plants in fields checked in Centre County June 12. About 50 percent of larvae with eggs of parasitic Diptera on bodies. (Gesell). **MARYLAND** - Damage and populations decreased rapidly week ending June 14; moth flights peaked in Dorchester, Wicomico, Caroline, and Talbot Counties week ending June 14. Larvae moderate to heavy in about 300 acres of Talbot County wheat. No additional treatments to small grains expected this season on Eastern Shore. Several hundred acres of no-till corn infested in Howard, Carroll, and Baltimore Counties; only 400 acres needed treatment in central area. Second-generation larvae not expected to cause significant damage in corn within next 14 days. Adults currently heavy in blacklight traps on lower Eastern Shore. Flights indicative of unusually heavy infestations in small grains and corn during May and early June. (U. Md., Ent. Dept.). **DELAWARE** - Adults very abundant in blacklight trap collections in several areas of Sussex County. (Burbutis). **KENTUCKY** - Damage to corn minor in various parts of State. Plants 20-25 percent damaged at one Lincoln County location. (Barnett).

ASTER LEAFHOPPER (*Macrosteles fascifrons*) - MINNESOTA - Populations leveled off considerably from those of past weeks. Heavier counts still found in central district, ranged up to 150-200 per 100 sweeps in few fields. Decreased to low levels in all other districts, ranged trace to 10 per 100 sweeps. All districts also show only trace numbers of nymphs. (Minn. Pest Rpt.). **WISCONSIN** - Counts increased in spring grains, ranged 20-30 per 100 sweeps, but generally less than 5 per 50 sweeps in potatoes. As winter grains mostly headed out, even in north-central area, leafhoppers moving to other crops. In southernmost counties, early spring grain beginning to head and leafhoppers moving to other food sources including vegetables. If appreciable increase of adults noted in significant crop, controls advised. (Wis. Ins. Sur.). **MICHIGAN** - Very common on celery in Muskegon, Ottawa, and Kent Counties. More migrating populations expected with recent storm fronts. (Vanklambenberg, Cress).

BEEF LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Sugar beets inspected between Bakersfield and McFarland (between Highways 99 and 65) in Kern County, averaged 3 leafhoppers per 100 sweeps and infection rate of 0.5-1 percent. One field near intersection of Highways 99 and 65 averaged 14 leafhoppers per 100 sweeps and 9 percent curly-top infection. Weed hosts checked near Ming Lake, east of Bakersfield, averaged 3 leafhoppers per 100 sweeps. In Fresno County, tomatoes examined west of Mendota showed little or no curly top; heaviest infection one percent. Curly-top infection in sugar beets in same region ranged zero to 1.5 percent. Leafhopper counts on beets and weed hosts not made due to high winds. In Merced County, 3 fields of transplant tomatoes in Le Grand and Planada area showed noticeable damage. However, damage cannot be confirmed as curly top by visual inspection and specimens not yet determined. (Cal. Coop. Rpt.). **COLORADO** - *C. tenellus* averaged one per 2 square feet in Mesa County sugar beets in 6 to 10-leaf stage. (Bulla).

CORN EARWORM (Heliothis zea) - DELAWARE - First adults taken June 7 in blacklight trap in Sussex County; averaged 2 per night. (Burbutis). ILLINOIS - Moths first taken June 12 in blacklight trap in Champaign County; 40 taken each night June 19 and 20. (Ill. Ins. Rpt.). MISSOURI - First larvae of season observed on corn in central and northern areas. (Munson). OKLAHOMA - Averaged one larva per ear in corn checked in Greer County. Damaged gardens in west-central counties. (Okla. Coop. Sur.). UTAH - Moderately heavy in early corn in Dixie area of Washington County. (Huber).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Light to moderate in whorls of grain sorghum in fields throughout Rolling Plains. Light infestations also reported from Lubbock area and from counties in northern Panhandle. (Boring et al.). KANSAS - Generally light in whorls of sorghum in Osage, Riley, Marshall, Cloud, Mitchell, Jewell, and Republic Counties and in all southwest district counties. (Bell).

GREENBUG (Schizaphis graminum) - MINNESOTA - First infestation of season found in southwest district. Only winged forms found in grain fields, but counts light, averaged 20 per 100 sweeps. This area has not received heavy rains as some other areas, and continued cool weather could cause substantial increase. Farmers growing sorghum in west and southwest areas should check for pest on newly emerged sorghum. (Minn. Pest Rpt.). SOUTH DAKOTA - Surveys revealed colonies established on young sorghum seedlings in Lyman, Tripp, Charles Mix, and Davidson Counties. Many winged forms blowing in and established colonies found on up to 50 percent of plants in all fields examined. At least one-third of plants infested in all fields. Plants just breaking ground in number of fields and cannot tolerate many colonies. Absence of predators and parasites indicates S. graminum colonies could increase and build up rapidly next 10 days. S. graminum also found in some small grains in Lyman County. (Walgenbach et al.).

KANSAS - Except for some early planted fields in northwest district, no damaging S. graminum infestations reported in sorghum. Average counts per plant ranged as follows in counties or districts indicated: Osage 0-4; Riley 2; Cloud 4; Mitchell zero; Jewell 0-10; Republic 5; Marshall trace; Butler zero to trace; southwest district, zero to trace. (Bell). OKLAHOMA - S. graminum light on sorghum in Texas and Grady Counties. (Okla. Coop. Sur.). TEXAS - Populations still heavy in some grain sorghum in Hill County. Populations very light in other parts of central area. Some greenbugs observed in Tarrant County but not causing economic damage. Light infestations also reported from Knox County. Infestations very light and scattered in Panhandle counties. (Buxkemper et al.). ARIZONA - S. graminum and Rhopalosiphum maidis (corn leaf aphid) averaged 20 per plant in 200 acres of milo at Bowie, Cochise County. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - NEW YORK - First of season found June 20 on snap beans near Sodus Center, Wayne County. (Muka). MARYLAND - First adults of season taken from alfalfa near Crownsville, Anne Arundel County, June 19. Also reported on beans and potatoes on lower Eastern Shore. (U. Md., Ent. Dept.). OHIO - Approached economic threshold of one per sweep in second-cutting alfalfa. In 3 established Medina County seedings, counts per 50 sweeps averaged 25, 34, and 8 respectively; alfalfa 7, 7, and 6

inches tall, respectively, in these fields. In 4 new seedings in same county, counts averaged 47, 38, about one, and 24 per 50 sweeps, respectively; alfalfa 9, 8, 7, and 4 inches tall in these fields. (Thoburn). Average counts per 50 sweeps in other counties: Pickaway 14, Columbiana 25, Jefferson 10. Increased in soybeans as crop matured. Ranged 0-6 per row foot in southern area. Populations heaviest in soybeans adjacent to uncut alfalfa in Clinton, Miami, and Greene Counties. Infestations were especially heavy in Clinton County in 1973. Susceptible varieties should be checked frequently next 28 days. (Fox).

MICHIGAN - Potato leafhopper noted on Van Buren County potatoes. Fields easily damaged in this early stage of rapid growth. Check and treat if necessary. (Sauer). WISCONSIN - Counts light in all beans and potatoes checked in central district. (Wis. Ins. Sur.). MINNESOTA - Heaviest counts found in central district. One Sherburne County alfalfa field averaged 300 per 100 sweeps. Average for this district 105 per 100 sweeps. Averages for other districts ranged 10-40 per 100 sweeps. Early first cutting will prevent most injury on standing alfalfa, but second crop may be more affected. (Minn. Pest Rpt.).

TOBACCO BUDWORM (*Heliothis virescens*) - MARYLAND - First infestations of season noted on more advanced tobacco in St. Marys County. (U. Md., Ent. Dept.). VIRGINIA - Larvae light to medium in Pittsylvania County tobacco June 17. Infestation ranged 6-26 percent in several widely separated, early planted fields checked. Larvae mostly early instars. (Dominick, Allen).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - KANSAS - Corn surveyed in Nemaha County 3-6 percent infested with second instars predominating. Corn in Coffey and Osage Counties showed 0-52 percent infestations with third instars predominating. No larvae found in 36-inch corn in Republic County. Blacklight trap catches indicated moth flights rapidly decreased in Brown and Republic Counties; flights stopped in Riley and Shawnee Counties. (Bell). MISSOURI - Counts in 2 fields in central area showed 48-56 percent of corn plants with leaf feeding injury. Counts ranged 1-1.5 second and third-instar larvae per infested plant. (Thomas). Counts in northwest area showed 0-48 percent of plants with leaf feeding injury. (Munson). IOWA - Egg masses detected on 12 percent of corn in Lee County. Gravid females present in central area. Peak oviposition expected by June 25. Much corn likely too small for larval survival. (DeWitt).

WISCONSIN - *O. nubilalis* adult emergence should peak June 22-23 if warm weather continues. Emergence about 50 percent in several cornfields checked. No eggs or larval feeding noted in advanced corn, but egg laying should begin June 22-28. (Wis. Ins. Sur.). ILLINOIS - Whorl feeding ranged light to moderate in early planted corn in west-southwest and east-southeast districts; averaged up to 70 percent in occasional fields. Egg masses averaged less than 8 per 20 plants in all fields where found, but 14 per 100 plants in one Shelby County field. Eighty-five percent of all egg masses found were hatched. Severe wind and thunderstorms thought to be responsible for heavy moth mortality resulting in very little fresh egg laying. Moth emergence of overwintering borers reached 75 percent in Champaign County, and 20 percent in Ogle County. Percent

whorl feeding by county: Fayette 23, Jersey 31, Madison 47, Montgomery 2, Pike 44, Coles 2, Douglas zero, and Shelby 21. (Ill. Ins. Rpt.).

INDIANA - Shot-hole injury by Ostrinia nubilalis larvae noted in about 45 percent of susceptible corn in south-central and south-west districts. Infested plants generally had few larvae, 1-2 first through third instar per infested plant. Shot-holes noted in about 25 percent of southeast district plants, first-instar larvae generally present. First and second instars also present in central district corn. Adults still present in roadsides and sometimes in fields. (Matthew, Meyer). TENNESSEE - Immatures present in whorls in some cornfields in central area. (Pless).

MARYLAND - O. nubilalis moths laid eggs on corn in central areas. Whorl infestations in more advanced field corn on Eastern Shore ranged 11-21 percent. (U. Md., Ent. Dept.). DELAWARE - Adults in blacklight trap in western Sussex County averaged 2 per night during period June 13-19. (Burbutis). NEW YORK - Two egg masses found June 14 in cornfield near Albany airport, Albany County. (Huth). MAINE - Moths in flight in southern area. Should appear in central area in about 10 days. (Gall).

STALK BORER (Papaipema nebris) - MARYLAND - Young larvae active in corn in Baltimore, Carroll, and Howard Counties week ending June 14. About 600 acres 10-30 percent infested. (U. Md., Ent. Dept.). KENTUCKY - Appears more of problem in corn than in 1973. Several locations reported damage. One Pulaski County location noted with 10 percent of plants infested. (Barnett).

CORN ROOTWORMS (Diabrotica spp.) - KANSAS - Larvae ranged 0.5-2 per plant on 33 to 60-inch corn in Coffey County. (Bell). MISSOURI - Hatch observed throughout central and northern areas. Larval populations light and widely scattered in corn. (Munson). INDIANA - Second-instar larvae of D. virgifera (western corn rootworm) taken June 17 in Porter County indicating first hatch in corn about June 10. (Turpin).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Adults ranged 2-3 per stalk in most corn in extreme western Mobile County. This is heaviest population ever observed in area on corn. (Howell, Lockhart). MISSISSIPPI - Adults still on corn in most southern fields, infestations ranged light to moderate. (Robinson).

YELLOW SUGARCANE APHID (Sipha flava) - FLORIDA - All stages heavy on 700-800 acres of sugarcane in Belle Glade area, Palm Beach County. Population still increasing; predator populations light. Normally, S. flava population has already peaked and is on down-grade. (Fla. Coop. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Economically damaging populations noted in several fields of late blooming grain sorghum in Hill and Ellis Counties. Developing larvae observed in moderate numbers in Coryell, Navarro, and Falls Counties in late grain sorghum. Populations continued to decline in south-central area. Growers cautioned to observe late-blooming grain sorghum for damaging populations. (Cole, Hoelscher).

OKLAHOMA - Heavy in early sorghum in bloom in McCurtain County. Controls planned. (Okla. Coop. Sur.).

BANKS GRASS MITE (Oligonychus pratensis) - TEXAS - Populations on grain sorghum and corn in High Plains decreased due to widespread rains and cooler temperatures. Activity in northern Panhandle area indicates populations beginning to build up in light numbers. Mites still reported in fields where infestations encountered earlier in year in counties near Lubbock. (Clymer, McIntyre). OKLAHOMA - Only light infestations found on corn and sorghum checked in Texas County. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

SOD WEBWORMS (Crambus spp.) - SOUTH DAKOTA - Observations of severe, localized infestations on rangeland past several weeks in northwest area indicated damage occurred in 1973 as well as spring 1974. Recent larval damage preventing spring growth of several range grass species. Overwintered larvae began pupating first week of June. Few moths observed. Blacklight traps placed in several northwestern counties week ending June 14 to determine peak moth activity. Moths expected to be active next 21 days, ovipositing in better pasture areas surrounding previously damaged fields. Larvae of next generation will be feeding within 14-21 days. Unless natural mortality heavy, serious damage is expected during July. Problem will be monitored and control evaluations continued on this "second" generation. Damage to native rangeland observed in Meade County week ending June 21. Ranges between Union Center and Plainview damaged. Adult activity will increase next 7 days. Best criterion for potential damage by next larval generation is presence of moths in green ranges. (Walgenbach et al.).

CRINKLED FLANNEL MOTH (Megalopyge crispata) - OKLAHOMA - Adult emergence occurred on rangeland in Ellis County, larvae expected on shinnery oak soon. (Okla. Coop. Sur.).

TWOLINED SPITTLEBUG (Prosapia bicincta) - ALABAMA - Localized adult infestation heavy in centipede grass lawns in Cottage Hill residential area of Mobile County. (Lockhart, Howell).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - COLORADO - Larvae ranged 10-40 per sweep on first-crop alfalfa in Mesa, Delta, and Montrose Counties. (Bulla). OKLAHOMA - Light numbers of larvae still present in alfalfa in Beckham County; averaged 11 per 10 sweeps. (Okla. Coop. Sur.). KANSAS - Average adult counts per 10 sweeps by county: Saline 4, Harvey 1, Cowley 2, Montgomery 4, Allen 1, Douglas 1, Coffey 2, Doniphan 1, Riley 2.5, and Gray 3. Trace numbers of larvae (up to 4 per 10 sweeps in Riley County) present in some fields except in southern counties. (Bell). SOUTH DAKOTA - Populations variable in Lawrence County week ending June 14. Larvae, mainly second and third instars, ranged up to 1,680 per 100 net sweeps. (Walstrom). Found in alfalfa in Beadle, Kingsbury, Campbell, and Hughes Counties for new county records week ending June 21. All counties south of U.S. Highway 14 found infested. (Walgenbach et al.).

NORTH DAKOTA - Alfalfa weevil decreased greatly from 1973. Larvae currently ranged 100-500 (average 325) per 100 sweeps in irrigated and dryland alfalfa in Williams and McKenzie Counties. Tip damage light with up to 80 (average 41) larvae per 100 sweeps in same counties. In 1973, larvae averaged 3,350 per 100 sweeps in these areas, tip damage averaged 64 percent. Alfalfa currently in late bud to early bloom stage and first cutting underway. Detection surveys in Burke and Renville Counties negative. (Brandvik). MINNESOTA - Trace numbers of larvae found in Lyon, Pipestone, Yellow Medicine, and Lincoln Counties. These are new county records. Most alfalfa has been cut for first time in southern districts. (Minn. Pest Rpt.).

IOWA - Alfalfa weevil larvae prevented regrowth of second cutting of 15 acres of alfalfa in Mills County. (DeWitt). WISCONSIN - Harvest slowly achieving cultural control in first-growth alfalfa. Larvae currently ranged up to 6 per sweep in some Dane, Manitowoc, and southern Kewaunee County fields. Larvae averaged 5 per 10 sweeps in advanced second-growth alfalfa in Waushara County. Larvae have not been problem in second-growth alfalfa in past, but should be watched due to unusual weather this season. (Wis. Ins. Sur.).

NEW YORK - In sample units of one square foot taken in several one-acre alfalfa fields in Tompkins County, alfalfa weevil counts ranged as follows by location: Hanshaw Road - 0-7 (average 3) pupae in 28-inch bud alfalfa June 13; 0-2 (average less than one) pupae in 2-inch stubble June 14; 0-8 (average one) pupae in 2-inch stubble June 18; 0-7 (average less than one) pupae in 30-inch bud alfalfa June 18. Game Farm Road - 0-11 (average 2) pupae in 28-inch bud alfalfa June 13; 0-4 (average 1) pupae in 2-inch stubble June 14; 0-5 (average less than one) larvae in 2-inch stubble June 17; 2-11 (average 6) pupae in 2-inch stubble June 18. (Cooley). Averaged 19 (range 0-62) larvae and one (range 0-2) adult per 40 sweeps in 5 acres of quarter bloom Saranac alfalfa on Cream of the Valley Road near Gouverneur, St. Lawrence County, June 13. (Berndt). Larvae averaged 40 per 50 sweeps of 30 percent bloom Saranac alfalfa June 12 in 20-acre field on Jackson Road near East Fishkill, Dutchess County. (Porter).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - KENTUCKY - Adults averaged 10 per 100 sweeps in Wayne County clover. (Barnett).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Moths averaged 46 per trap per night week ending June 7 in pheromone traps at Walla Walla, Walla Walla County. This about half of catch per trap during same period in 1973. (Halfhill).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Counts in alfalfa rarely exceeded 2 per sweep. Parasitism common, but seldom exceeded 20 percent. (Wis. Ins. Sur.). KENTUCKY - Averaged 100 per 100 sweeps in alfalfa at one Pulaski County location. (Barnett).

MEADOW SPITTLEBUG (Philaenus spumarius) - MINNESOTA - Very heavy populations, often approaching economic level of one per plant, found in central district. Red clover fields appeared harest hit and in many cases weeds in these fields most attractive to this pest. Many white cockle and catchfly stems with up to 4-5 spittle

masses. Most meadow spittlebug nymphs approaching last instar but virtually all fields ready for cutting, which will end problem. (Minn. Pest Rpt.).

THREECORNERED ALFALFA HOPPER (*Spissistilus festinus*) - NEW MEXICO - Populations in forage legumes increased to 80-100 per 25 sweeps in Dona Ana County. Some girdling observed. Ranged 60-80 per 25 sweeps in Bernalillo and Valencia Counties. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - OKLAHOMA - Heavy in uncut alfalfa in Beckham, Custer, Caddo, and Washita Counties. Averaged 20 per sweep in Muskogee County, ranged 6-10 per sweep in McCurtain County. (Okla. Coop. Sur.).

ALFALFA LEAF BLOTCH-MINER (*Agromyza frontella*) - PENNSYLVANIA - Larvae and pupae found on alfalfa at State College, Centre County, June 12. One mine per 10 stems reported, damage less than one percent. This is a new county record. (Myers).

SOYBEANS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Adults, eggs, and occasional first-instar larvae present in most early planted soybean fields in Charles, Anne Arundel, Talbot, Caroline, Dorchester, and Wicomico Counties; about 600 acres treated week ending June 14. Several thousand acres received systemic insecticide treatments at planting time. Controls effective but not expected to last entire season. Heaviest adult populations ranged 1-5 per 3 row feet in Wicomico County. Adults continued to lay eggs in Wicomico and Somerset Counties week ending June 21. Larvae appeared on soybeans in southern areas. (U. Md., Ent. Dept.). VIRGINIA - Adults ranged 1-2 per row foot in Caroline County. Collected by R.G. Eager. (Roberts). SOUTH CAROLINA - Populations on soybeans remained unchanged or decreased slightly over State. (Thomas).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MISSISSIPPI - Adults averaged 2 per 25 sweeps in 6 to 10-inch soybeans in Lowndes, Noxubee, and Oktibbeha Counties. (Robinson).

THREECORNERED ALFALFA HOPPER (*Spissistilus festinus*) - OKLAHOMA - Averaged 1 per 3 feet of row in young soybeans checked in McCurtain County. (Okla. Coop. Sur.).

SEEDCORN MAGGOT (*Hylemya platura*) - IOWA - Larvae reduced stand of soybeans in 3 Fayette County fields. One 60-acre field (reduced tillage) replanted due to 50-75 percent stand reduction. (DeWitt).

PEANUTS

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - TEXAS - Heavy on early planted peanuts in Comanche County. Producers in McLennan and Hill Counties urged to check for developing infestations. (Curtis). ALABAMA - Larvae one-half to three-fourths grown ranged 1-2 per 8-10 row feet in one 100-acre field at Newton, Dale County. Counts lighter in adjoining 100-acre field. Occasional adults and full-grown larvae observed. This infestation heavy for June and with favorable weather, larvae expected to be serious in late July and August in southeast area on

peanuts, peas, beans, and grass hay crops. (Hubbard et al.).
FLORIDA - Lesser cornstalk borer damaged 10 percent of peanuts in 50-acre field in Levy County. (Fla. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Collections of overwintering weevils in Leggett sex-lure traps decreased after record collections to date. Average collections in Halifax, Northampton, and Edgecombe Counties 4-6 times heavier than 1973. Catches in Scotland County area about 1.5 times those of 1973. Spot treatments for feeding on terminals and small squares applied in Scotland Neck area of Halifax County. (Hunt). SOUTH CAROLINA - Emergence still light in most counties. Indicates possible good late season control in 1973, especially in view of mild weather past winter. (Thomas).

ALABAMA - Overwintered boll weevils continued to emerge from hibernation statewide. Square infestations in south and central areas in fully fruiting cotton ranged 8-26 percent, mostly 15-25 percent. First weevil "hatch-out" just beginning in Lee and Lowndes Counties and in few older fields. Major "hatch-out" of first-generation expected in older south and central area fields June 28 to July 4. Weevils still light in northern area except in heavier wooded areas where sex-lure traps show heavier numbers. (Smith et al.). MISSISSIPPI - Punctured squares ranged up to 60 percent in most fields with squares large enough to puncture in Chickasaw, Calhoun, and Webster Counties. (Townsend). In some older fields in Noxubee County, punctured squares from overwintered weevils mostly averaged 10 percent, with "hot" spots up to 40 percent. Some fields running 30,000-40,000 squares per acre. (Robinson).

TEXAS - Boll weevil increased in most south-central cotton fields. Heavy infestations noted in parts of Hill, Navarro, and McLennan Counties. Very few adults noted but numerous larvae found developing in squares on ground. Overwintered weevils observed ovipositing in Tarrant County cotton. Large numbers of weevils still captured in Wilbarger County traps but decreased in Baylor County. Populations of overwintering weevils observed in older cotton in some fields in Fisher, Jones, Knox, and Wilbarger Counties. Feeding punctures observed on cotton trap plantings in eastern Glasscock County. Punctured square counts ranged 1-2 percent. (Cole et al.). OKLAHOMA - Adults taken in pheromone traps by county as follows: Jackson, 39 in 32 traps; Muskogee 486 in 32 traps. Light on cotton in Muskogee and Tillman Counties. (Okla. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - NEW MEXICO - Increased collections of H. zea (bollworm) from light traps indicate oviposition likely at this time. Young cotton should be watched. (N.M. Coop. Rpt.). TEXAS - Light numbers of large H. zea larvae reported from south-central area fields. Some recently treated fields in these counties received heavy damage. Damage evident in some fields treated late for overwintering Anthonomus grandis (boll weevil) or early infestations of fleahoppers in central area. These infestations caused light damage, but cotton fruiting adequately at present time. Light numbers of H. zea eggs observed in north-central area. Beneficial insects increased significantly in most

areas where H. zea active. Big-eyed bugs, spiders, and lady beetles numerous in most fields. (Cole, Hoelscher, Turney). OKLAHOMA - H. zea averaged about 10 percent on cotton checked in Grady County. (Okla. Coop. Sur.). MISSISSIPPI - In Coahoma and Quitman Counties, Heliothis spp. eggs found in 1.2 percent of plants checked and larvae averaged 1.2 percent in terminals. (Oakman). In Noxubee County, eggs averaged 4 percent and larvae one percent in older cotton. Eggs ranged 8-10 percent in older cotton in Tallahatchie County. (Townsend). SOUTH CAROLINA - Populations of H. zea and H. virescens (tobacco budworm) still heavy from U.S. Highway 1 southward. Up to 20 percent square damage by H. zea reported in some fields. (Thomas).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - Populations continued to increase throughout most cotton-growing areas of State. Increased populations reported throughout south-central area; cotton fruiting very rapidly and no economic damage observed. Populations continued to increase in most central area fields. Infestations of 80-100 per 100 terminals noted in Hill County. Infestations noneconomic and no treatments recommended; however, treatments suggested in several other fields with heavy counts in same county. Light populations detected in north-central area. Infestations in Knox and Fisher Counties of Rolling Plains ranged 10-25 per 100 terminals. Very light in Glasscock, Pecos, and Reeves Counties. (Cole et al.). OKLAHOMA - Averaged one per 100 plants checked in McCurtain and Muskogee Counties. Ranged up to 30 per 100 plants in Beckham, Caddo, Custer, and Washita Counties; 7-29 per 100 plants in Kiowa, Harmon, Tillman, Greer, and Jackson Counties. (Okla. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Adults and nymphs still heavy in most weeds and legumes in border roads of all cotton fields. Surveys in northern area showed 1-8 per 100 feet in most heavily infested fields. Needs for treatment in fields seem unimportant although scattered controls applied in central and northern areas. (Smith et al.). MISSISSIPPI - Adults averaged 2.8 per 100 cotton plants in Coahoma and Quitman Counties. (Oakman).

MISCELLANEOUS FIELD CROPS

SUNFLOWER BEETLE (Zygogramma exclamationis) - MINNESOTA - Heavy on seedling sunflowers in Crookston area of Red River Valley. Infestations in few scattered fields exceed 50 percent level. (Minn. Pest Rpt.). NORTH DAKOTA - Up to 30 eggs per plant on 4 to 5-leaf stage sunflowers in Grand Forks County. (Kaatz). Adults damaged seedling sunflowers in Cass County. Up to 12 dead beetles per square yard in one treated field. (Rogosheske).

VARIEGATED CUTWORM (Peridroma saucia) - OREGON - Adults increased in blacklight traps due to warmer weather. Counts generally lower than in 1973 but reaching levels which could result in economic loss, particularly in southern Willamette Valley. Should increase continue, problems could be anticipated throughout valley. (Penrose).

GLASSY CUTWORM (Crymodes devastator) - OREGON - First adults of season taken in blacklight trap at Keizer, Marion County, June 13-16. (Penrose).

POTATOES, TOMATOES, PEPPERS

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Larvae found in potato stems in southern area. Ranged 20-25 percent of plants infested at one location. (Ill. Ins. Rpt.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - KENTUCKY - Active on potatoes in central area gardens and commercial plantings. (Barnett).

BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Populations well above those on soybeans week ending June 14. Damage in 800 acres of snap beans near Salisbury, Wicomico County, needed controls by week ending June 21. Damage noneconomic to date in other areas. Large scale releases of Pediobius foveolatus (a eulophid wasp), a larval parasite of E. varivestis, made throughout southern and Eastern Shore areas. Some third and fourth-instar E. varivestis larvae found in earliest planted fields but most in first instar or egg stages. Peak first-generation egg hatch expected in lima and snap beans week ending June 21. (U. Md., Ent. Dept.). KENTUCKY - Infested beans and peas in gardens in central and southern areas. (Barnett). COLORADO - Adults appeared on beans in Larimer County. (Jenkins).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - MARYLAND - First larvae of season appeared on cabbage in Wicomico County. Adults in black-light traps on lower Eastern Shore. (U. Md., Ent. Dept.).

CROSS-STRIPED CABBAGEWORM (Evergestis rimosalis) - DELAWARE - Larvae damaged cabbage in one area of Kent County. Collected and determined June 18, 1974, by D.F. Bray at Frederick. This is a new State record. (Burbutis).

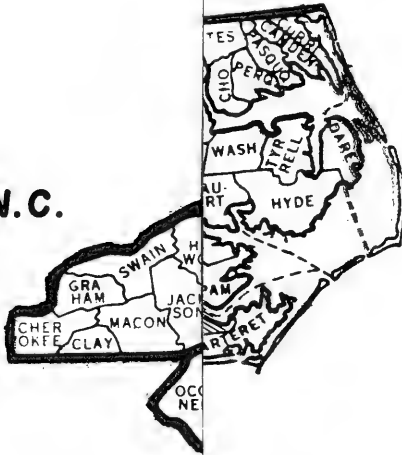
CABBAGE APHID (Brevicoryne brassicae) - NEW YORK - Numerous large colonies found on transplant cabbage near Alton, Wayne County, June 20. First of season. (Muka).

CUCURBITS

SQUASH VINE BORER (Melittia cucurbitae) - ALABAMA - All older and late-planted squash in 3 home gardens in Lee County 90-100 percent infested. Most vines dying. Second generation now developing. Reports from all central and southern areas indicate extremely heavy and unusually early and damaging populations. (Smith et al.). SOUTH CAROLINA - Adults collected from squash in Greenville County June 13, 1974, by C.K. Palmer. Determined by C.A. Thomas. This is a new county record. (Thomas).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Adults, 1-2 per plant, common on untreated cucurbits on Eastern Shore week ending June 14. Most commercial fields treated twice to prevent injury and bacterial wilt. (U. Md., Ent. Dept.).

N.C.



...ED ARE COMPLETELY REGULATED; COUNTIES
PARTIALLY REGULATED.

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAM
COOPERATING WITH AFFECTED STATES

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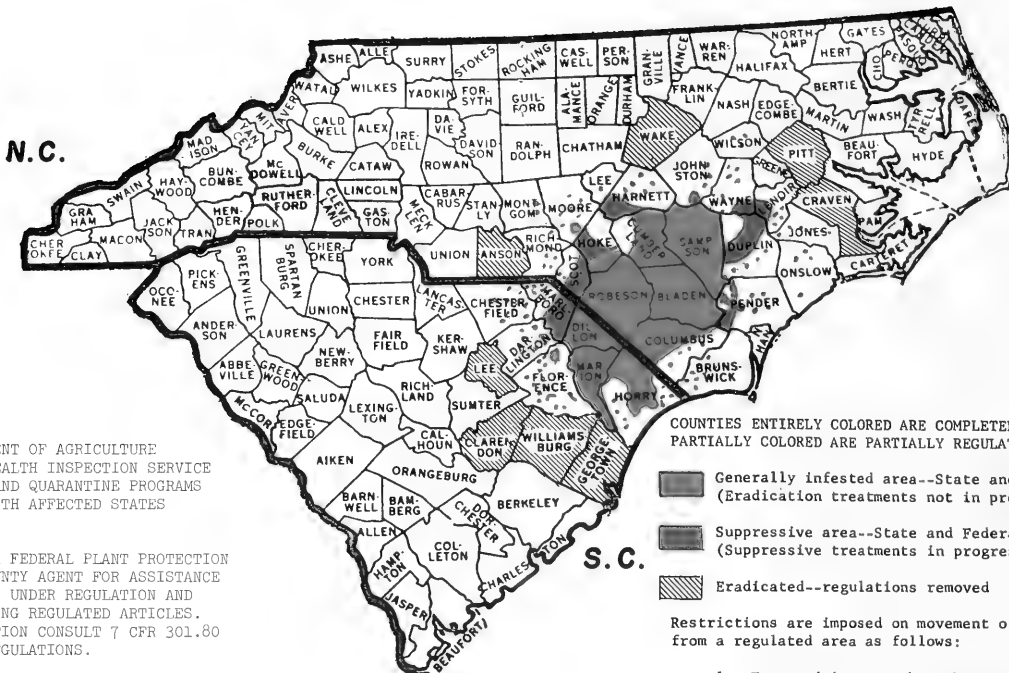
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...an authorized inspector.

CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION
INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE
REGARDING EXACT AREAS UNDER REGULATION AND
REQUIREMENTS FOR MOVING REGULATED ARTICLES.
FOR DETAILED INFORMATION CONSULT 7 CFR 301.10
FOR QUARANTINE AND REGULATIONS.

REVISED MARCH 22, 1974

SEE REVERSE

WITCHWEED QUARANTINES



COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED; COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED.

- Generally infested area--State and Federal regulations (Eradication treatments not in progress or planned)
- Suppressive area--State and Federal regulations (Suppressive treatments in progress or planned)
- Eradicated--regulations removed

Restrictions are imposed on movement of regulated articles from a regulated area as follows:

1. From red into or through green or white.
 2. From green into or through white.
 3. Green into green.
 4. Within green.*
- *If required by an authorized inspector.

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
COOPERATING WITH AFFECTED STATES

CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES. FOR DETAILED INFORMATION CONSULT 7 CFR 301.80 FOR QUARANTINE AND REGULATIONS.

REVISED MARCH 22, 1974

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things; sand; and gravel.
Soil samples shipped to approved laboratories do not require attachment of certificate or permit.*
2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants.
6. Root crops, except those from which all soil has been removed.
Root crops, such as turnips, carrots, and sweetpotatoes, are exempt if moving to a designated processing plant.*
7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.
Small grains and soybeans.
Small grains are exempt** if harvested in bulk or into new or treated containers, and if the grains and containers for the grains have not come in contact with the soil, or if they have been cleaned at a designated facility.*
Soybeans, other than for seed purposes, are exempt** if harvested in bulk or into new or treated containers, and if the beans and containers for the beans did not come in contact with the soil, and if such beans are moving forthwith to a designated oil mill or facility* for crushing or cleaning; or if they are free of any stems or soybean hulls.
9. Hay, straw, fodder, and plant litter of any kind.
10. Seed cotton and gin trash.
Seed cotton is exempt if moving to a designated gin.*
11. Stumpwood.
12. Long, green cucumbers, cantaloups, peppers, squash, tomatoes, and watermelons, except those from which all soil has been removed.
13. Pickling cucumbers, string beans, and field peas.
Pickling cucumbers, string beans, and field peas are exempt** if washed free of soil with running water.
14. Cabbage, except firm heads with loose outer leaves removed.
15. Leaf tobacco, except flue-cured leaf tobacco.
16. Ear corn, except shucked ear corn.
Unshucked ear corn is exempt** if harvested without coming in contact with the soil.
17. Used crates, boxes, burlap bags, cotton picking sacks, and other used farm products containers.
18. Used farm tools.
Used farm tools are exempt** if cleaned free of soil.
19. Used mechanized cultivating equipment and used harvesting equipment.
Used mechanized cultivating equipment is exempt** if cleaned and repainted.
20. Used mechanized soil-moving equipment.
Used mechanized soil-moving equipment is exempt** if cleaned and repainted.
21. Any other products, articles, or means of conveyance, of any character whatsoever, not covered by the above when it is determined by an inspector that they present a hazard of spread of witchweed and the person in possession thereof has been so notified.

*Information as to designated laboratories, facilities, bins, oil mills, and processing plants may be obtained from an inspector.

**Exempt if not exposed to infestation after cleaning or other prescribed handling.



DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - Eggs laid May 20 in lower and upper Yakima Valley hatched June 4. New entries into fruit observed June 7 at Yakima, Benton County, in lower Yakima Valley. (Eves). IDAHO - Catches in pheromone trap at backyard location at Moscow, Latah County, as follows: Nine June 14; 5 June 15, 8 June 16, 4 June 17, 11 June 18, 4 June 19, and one June 20. (Portman).

EUROPEAN RED MITE (Panonychus ulmi) - MAINE - Summer eggs hatched on apples. Control easier for rest of season if treated before future generations develop. (Gall).

PEARLEAF BLISTER MITE (Phytoptus pyri) - WASHINGTON - Damaged Bartlett pears found June 6 at Clarkston, Asotin County. Found infesting backyard Bartlett pear trees June 12 at Colville, Stevens County. Nymphs appeared in pear orchards in lower Yakima Valley. Cool weather reduced use of controls at Yakima, Benton County. (Retan et al.).

PEAR RUST MITE (Epitimerus pyri) - WASHINGTON - Increased in many Yakima Valley pear orchards in Benton County. (Eves).

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Moderate to heavy infestations appeared on pecan trees in several areas of Payne County. Webs about 6 inches in diameter. (Okla. Coop. Sur.). MISSISSIPPI - In Harrison County, most of first generation complete on pecan and persimmon. (Snowden). Occasional web seen on pecans in Oktibbeha, Clay, Lowndes, and Noxubee Counties. (Robinson).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Pupae of first generation found in nut orchards throughout south-central area. Damage still noted on pecan trees in Knox, Young, and Wilbarger Counties. Older larvae in orchards about full grown and will pupate soon. Very light feeding observed in Ward and Ector Counties with 1-3 percent of small nutlet clusters showing signs of feeding damage. Some damage also reported from counties in San Angelo area. (Cole et al.). OKLAHOMA - Larval infestations averaged 30 percent of nut clusters in Greer County, ranged 30-40 percent in Payne County; moderate to heavy in Washita County. (Okla. Coop. Sur.).

WALNUT CATERPILLAR (Datana integerrima) - MISSISSIPPI - First-generation larvae light on Harrison County pecans. (Snowden).

BROWN MITE (Bryobia rubrioculus) - CALIFORNIA - Infested almond trees in Bakersfield, Kern County. Where earlier treatment not applied, damage now evident. (Cal. Coop. Rpt.).

SMALL FRUITS

GRAPE CURCULIO (Craponius inaequalis) - OKLAHOMA - Larvae of this species and an unidentified caterpillar damaged 100 percent of fruit on small grape planting checked in Locust Grove area, Mayes County. Curculio adults also present. (Okla. Coop. Sur.).

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - In Franklin County, adults caused much damage to strawberries and other plants. (Jensen).

GRAPEVINE APHID (Aphis illinoisensis) - OKLAHOMA - Moderate (up to 250 per terminal) on grapes checked at one location in Mayes County. (Okla. Coop. Sur.).

ORNAMENTALS

AZALEA LACE BUG (Stephanitis pyrioides) - SOUTH CAROLINA - Heavy on pyracantha and azalea in Lee County. Collected and determined June 17 by D.K. Pollet. This is a new county record. (McCaskill).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - PENNSYLVANIA - Larvae and pupae observed on hemlock in Clearfield County along U.S. Interstate Highway 80 midway between State Highways 35 and 970, and between State Highway 970 and Susquehanna River June 12. Defoliation heavy for several miles along Interstate 80; pupation underway June 12. Adult emergence began in laboratory June 17. Larvae and pupae noted on hemlock in Black Moshannon State Park, Centre County, June 12; defoliation light along Black Moshannon Creek below dam. Larvae and pupae observed on Tsuga canadensis (eastern hemlock), 4 miles northeast of Bigler, Clearfield County, June 18. About 15-20 percent late-instar larvae or prepupae, 80-85 percent pupae. (Simons, Cameron).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - SOUTH CAROLINA - Larvae infested loblolly pines in Florence County. Collected June 19, 1974, and determined by D.K. Pollet. This is a new county record. (McCaskill).

A PLANT BUG (Tropidosteptes pacificus (Van Duzee)) - PENNSYLVANIA - Late-instar nymphs and adults found discoloring foliage of green ash in nursery at Fairview, Erie County, June 5-6, 1974. These collections confirmed establishment of T. pacificus in State. Single specimen taken in same nursery June 25, 1973, by F. Negley and H. Wolff. Determined by T.J. Henry. This is a new eastern United States record. (Henry, Wheeler). T. pacificus was originally described from Oregon. (PPQ).

FALL CANKERWORM (Alsophila pomataria) - WEST VIRGINIA - Larvae caused complete defoliation on about 2,000 acres of oaks and maples in Dolly Sods area north to Mt. Storm, Grant County, by June 18. (Miller). RHODE ISLAND - About as heavy on maples and oaks June 7-13 in residential areas of Kent County as in 1973. (Relli).

FALL WEBWORM (Hyphantria cunea) - MARYLAND - First webs of season noted June 19 on roadside trees near Landsdowne, Baltimore County. (U. Md., Ent. Dept.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - SOUTH CAROLINA - Extensive infestation found on Middleton Place Gardens in Charleston and Dorchester Counties. Defoliated sweetgum, blackgum, and tupelo throughout 6,500-acre plantation. Fed to lesser extent on some red oaks. Most damaged trees refoliated, no mortality expected this year. Garden area of plantation not affected. Suppressive measures may be necessary in 1975 to protect forest and garden resources if infestation continues. (Remion).

MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - Adults running beef cattle in Stark, Williams, and Mountrail Counties. (Brandvik).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Adults ranged 3-4 per face on beef and dairy cattle in Noxubee County. Some individual cows noted with up to 12 per face. This is a new county record. In Lowndes County, ranged 2-3 per face on beef cattle. This pest has established itself in these counties as shown by developing larvae in manure. (Robinson). TENNESSEE - Counts per head as follows by county: Warren 12-25, Madison zero, Cannon 5, and Trousdale 6-10. (Cole et al.). KENTUCKY - Adults averaged 10 per animal in Mercer County, 6 per animal in Pulaski County, and 4 per animal in Wayne County. (Barnett). INDIANA - Adults ranged 2-3 per face on black cows at university farm in Grant County. (Dobson). MISSOURI - Ranged 0-24 (average 8) per head in northwest area. Heavier counts observed in west-central area, ranged up to 55 per head. (Brown). WISCONSIN - Counts increased and annoyance to cattle moderate in Polk County. (Wis. Ins. Sur.). UTAH - Annoyed horses in Ogden area of Weber County. (Knowlton).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Adults averaged 500+ on dairy beef breeds in Oktibbeha, Clay, Lowndes, and Noxubee Counties. (Robinson). KENTUCKY - Adults ranged 0-5 per animal in Wayne County. (Barnett). INDIANA - Adults ranged 5-10 per black cow on university farm in Grant County. (Dobson). IOWA - Adults ranged 10-120 (averaged 40) per head on Story County cattle. (DeWitt). NORTH DAKOTA - Ranged 100-1,000 (average 340) per animal on beef herd on range in McKenzie County. (Brandvik). OKLAHOMA - Averaged 300 per head on cattle checked in Payne County. Ranged 100-150 per head in McCurtain County, 50-100 per head in Ellis County. (Okla. Coop. Sur.).

TEXAS - Increasing infestations of horn fly reported from several areas of State. Counties in central area and in San Angelo area reported moderate numbers. Heavy infestations reported on cattle in Archer, Baylor, Cottle, Knox, and Throckmorton Counties, while light to moderate numbers reported on cattle in Reagan, Brewster, and Jeff Davis Counties. Light on Glasscock County cattle. Light on sheep and goats in Glasscock, Brewster, and Jeff Davis Counties. (Hoelscher et al.). NEW MEXICO - Averaged 200 per head on young bulls at Ancho, Lincoln County. This is 25-percent increase over week ending June 14. (N.M. Coop. Rpt.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Numbers declined to one per head on dairy cattle in Payne County. (Okla. Coop. Sur.). WISCONSIN - Activity caused moderate annoyance to dairy cattle in Rusk County. (Wis. Ins. Sur.).

MOSQUITOES - MASSACHUSETTS - In Hampshire County, Aedes vexans and A. canadensis biting. Coquilleltida perturbans taken in light trap. (Branch, Drozdewski). TENNESSEE - Mosquitoes very heavy in Knoxville area of Knox County. (Mullett). OHIO - Sixty adults of 9 species taken in 20 miniature light traps operated nights of June 12 and 13 in Gambier area of Knox County. (Ohio Dept. Health). WISCONSIN - Biting annoyed cattle at some locations. Unfavorable weather kept problems minimal, but annoyance severe in Calumet and portions of Marinette Counties. Warm weather expected to increase biting. (Wis. Ins. Sur.). MINNESOTA - Trap collections by Metropolitan Mosquito Control Districts for week of June 8-14 totalled 693 female mosquitoes compared to 467 previous week; 421 taken in single trap in south Hastings, of which 406 were Aedes vexans. In 24 daytime bite collections, 177 specimens taken. Of these, 95 were female A. stimulans, 28 A. cinereus, and 22 A. abserratus. These species accounted for 82 percent of total collections. Rains June 6 inundated thousands of A. vexans breeding sites. Adult emergence underway, increased annoyance expected in some areas next 7 days. (Minn. Pest Rpt.).

BENEFICIAL INSECTS

CHALCID WASPS (Trigonura spp.) - NORTH DAKOTA - T. tarsata collected from Ulmus americana (American elm) in McHenry County February 20, 1972, by A.D. Tagestad. Determined by B.D. Burks. This is a new State record. (Stein). Recorded hosts include Pissodes strobi (white pine weevil), Magdalis armicollis (red elm bark weevil), and M. barbata (black elm bark weevil). T. tarsata has been recorded from New Hampshire, Vermont, Massachusetts, New York, Pennsylvania, Ohio, West Virginia, Virginia, and North Carolina; also known to occur in New Brunswick, Ontario, and Quebec, Canada. (PPQ).

Trigonura ulmi collected from U. americana near Westhope, Bottineau County, North Dakota, June 6, 1968. This is a new State record. Collected from U. americana in Richland County August 28, 1969. This is a new county record. Both collections by M.E. McNight. Determinations by B.D. Burks. (Stein). Recorded hosts include Magdalis armicollis, Scolytus quadrispinosus (hickory bark beetle), and Scolytus sp. T. ulmi has been recorded in New York, New Jersey, Pennsylvania, North Carolina, Illinois, and Iowa; also known to occur in Quebec and Ontario, Canada. (PPQ).

A PTEROMALID WASP (Habrocytus piercei) - NORTH DAKOTA - Collected from Betula papyrifera (paper birch) in Dunn County June 14, 1972, by A.D. Tagestad and M.E. McNight. Determined by B.D. Burks. This is a new State record. (Stein). Recorded hosts include several weevils - Acanthoscelides bisignatus, A. compressicornis, Anthonomus grandis (boll weevil), A. nebulosus, Tachypterellus consors cerasi, and T. quadrigibbus (apple curculio), and Coleophora malivorella (pistol casebearer). H. piercei has been recorded from New York, Connecticut, West Virginia, Louisiana, and Colorado. (PPQ).

A MYMARID WASP (Anaphes flavipes) - PENNSYLVANIA - This egg parasitoid of Oulema melanopus (cereal leaf beetle) recovered for first time in following counties: Bradford June 19, Schuylkill June 20, Tyoga June 20. Collected by R. Bingham. Determined by R. Dysart. (Dysart).

A BRACONID WASP (Lysiphlebus testaceipes) - KANSAS - Trace parasitism of Schizaphis graminum (greenbug) reported in Jewell County sorghum. (Bell).

AN ICHNEUMON WASP (Bathyplectes anurus)-SOUTH DAKOTA - This parasite of Hypera postica (alfalfa weevil) released in Lawrence County during 1971. First recovered from H. postica larvae collected one mile from release site during June 1973. Confirmation recently received. (Walstrom, Walgenbach).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Larvae ranged 1-2 per square foot June 7 in field border of native grass about 3 feet tall along State Route 14 near Dresdon, Ontario County; based on 30-square-foot sample. Egg and larval parasites released in same field in 1973. (Crowe). Larvae ranged 0-3 per stem June 20 in 25 oat fields throughout Genesee, Livingston, and Ontario Counties. Only few of these fields will require controls. Noticeable populations reported in Niagara, Wyoming, Orleans, and Schuyler Counties. (Muka). Larvae averaged 12 (range 8-20) per square foot June 20 at 10:30 a.m. in 48 acres of 12-inch oats on Allens Hill Road near Holcomb, Ontario County. Defoliation estimated at about 15 percent. (Lightfoote). PENNSYLVANIA - Survey results in Butler County June 14: Four eggs, 6 larvae, and 7 adults per 24-inch row in 12-inch oats with 10 percent damage; 3 eggs, 8 larvae, 12 adults per 24-inch row in 14-inch oats with 15 percent damage; 4 eggs, 7 larvae, and 13 adults per 24-inch row in 10-inch oats with 14 percent damage. (Lilley).

MARYLAND - O. melanopus larvae, 2-3 per sweep, found in most oatfields in Frederick and Carroll Counties week ending June 14. Feeding expected to continue 7 days before pupation. Spread of O. melanopus into uninfested areas expected to occur rapidly this summer. (U. Md., Ent. Dept.). OHIO - Counts per 50 stems in 2 Medina County oatfields yielded 3 and 5 larvae, respectively. (Thoburn). In Ross County, counts per square foot in 7-acre oatfield yielded 31 larvae, 7 eggs, and 5 adults; in adjacent cornfield, 5 larvae and 7 adults per 5-foot circle. (Reckner). Field in Holmes and Ross Counties "gray" due to larval feeding. (Fox).

A GRASS BUG (Labops hesperius) - ARIZONA - Heavy on about 2,000 acres of wheatgrass southwest of Jacobs Lake, Coconino County. (Ariz. Coop. Sur.). MONTANA - Heavy on rangeland in several townships of Yellowstone County; most grass yellow. (Pratt).

GRASSHOPPERS - MONTANA - Several species averaged about 150 per square yard on 4,480 acres of range in Sanders, Camas, and Prairie Counties. Averaged 100 per square yard in spots on 4,450 acres in area of Lake County. (Pratt). IDAHO - Small, localized economic populations of several species reported on range at Pass Creek, Butte County; Fish Creek, Blaine County; Paradise Valley, Boundary County; and in Cassia County. Infestation serious on 60,000 acres in Rising River and Springfield area of Bingham County. Camnula pellucida concentrations heavy south of Rockham, Power County. Third-instar nymphs of Melanoplus sanguinipes averaged about 8 per square yard on crested wheatgrass plantings in Heglar area of Power County. (Pollard, Schow). OREGON - Melanoplus spp., Oedaleonotus enigma, and range crickets (Anabrus spp., Apote spp. and Steiroxys spp.) continued at noneconomic levels as of June 10

in Morrow, Umatilla, Grant, Wheeler, Crook, Jefferson, Wasco, Sherman, and Gilliam Counties. No hatch evident at higher elevations. (Goeden).

NEVADA - Second to fourth-instar nymphs of Camnula pellucida ranged 40-250 per square yard on 60 acres of native hay at Hot Spring Ranch, Humboldt County; ranged 1-20 per square yard on another 200 acres in same area. C. pellucida (20 percent), Aulocara ellioti (60 percent), and mixed species (20 percent) averaged 5 per square yard on 800 acres of native hay at Montello, Elko County. A. ellioti (60 percent) adults and Melanoplus sanguinipes (40 percent) second to fourth-instar nymphs ranged 12-15 per square yard on 40 acres of abandoned cropland at Orovada, Humboldt County. Oedaleonotus enigma ranged 10-12 per square yard on 50 acres of rangeland in Kings River Valley, Humboldt County. M. bivittatus (75 percent) and M. sanguinipes (25 percent) averaged 9 per square yard on 50 acres of alfalfa at Montello. Second to fourth-instar nymphs of these species ranged 6-8 per square yard on 10 acres of alfalfa in Kings River Valley. (Bezanson, Rowe).

ARIZONA - Aeoloplides spp. heavy on 15,000 acres of grassland and greasewood along river bottoms on Navajo Indian Reservation from Rock Point to Chinle areas of Apache County. (Ariz. Coop. Sur.). UTAH - Grasshoppers moved from range to farm crops in Corinne area of Box Elder County. (Roberts, Lindsay). KANSAS - Melanoplus bivittatus and M. fumurrubrum nymphs caused moderate foliar damage in border rows of 3-inch sorghum in Osage County. Second and third-instar nymphs of various species averaged 5 per 10 sweeps in 14-inch alfalfa in Coffey County. Major species included M. femurrubrum, M. bivittatus and M. differentialis. Nymphs averaged 6 per square yard along some field borders in Cherokee County and up to 10 per square yard in southeast part of Marshall County. (Bell). OKLAHOMA - Rangeland counts ranged 5-20 per square yard in Jackson, Greer, Harmon, and Kiowa Counties, 5-10 per square yard in Tillman County. Heavy populations damaged pastures, cotton, gardens, and Sudan grass in west-central counties. Moderate in pastures and crops in Atoka and Canadian Counties. Dendrotettix quercus heavy on oaks in Lake Carl Blackwell area, Payne County. (Okla. Coop. Sur.).

MORMON CRICKET (Anabrus simplex) - IDAHO - Economic on rangeland near Midvale, Washington County; Sinker Creek, Owhyee County; Bennett Mountain, Elmore County; and Granjean, Boise County. Most crickets in adult stage and egg laying expected next 7 days. (Pollard). NEVADA - Averaged 2 per square yard on 240 acres of rangeland in McClusky Peak area, Eureka County, and 2 per square yard on 120 acres of rangeland at Majuba Mountain, Pershing County. (Holmes).

GYPSY MOTH (Porthetria dispar) - MAINE - Larvae, at least light populations, evident almost everywhere in southern and central area. Defoliation should become more noticeable. Potentially heavy infestation reported in Fryeburg and Brownfield areas of Oxford County. (Gall). CONNECTICUT - Feeding quite noticeable. Some larvae about full grown in Storrs area, Tolland County; many dead due to virus wilt disease. (Kersting).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - First adult of season found June 19 in Providence County. (King).
PENNSYLVANIA - First adults of season noted near Harrisburg, Dauphin County, June 18. (Simons). MARYLAND - First adults of season observed June 20 in Wicomico County. (U. Md., Ent. Dept.).
WEST VIRGINIA - First adults observed in Kanawha County June 20. (Cole). VIRGINIA - First adult of season found on rose June 12 at Roanoke. Adults infested 20 percent of plants in grape vineyard in Fluvanna County June 17; first adult in county found June 14. Adults ranged 3-4 per plant on 6 grapevines in Suffolk, Nansemond County, June 14. Adults light on roses and grapes in Pittsylvania County June 14. (Dominick et al.). TENNESSEE - First adults of season observed in Knox and Anderson Counties. (Hammett, VanLandingham).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Thirty-five larvae collected from wild cotton at Ft. Myers, Lee County; 6 larvae collected from wild cotton at Key Largo, Monroe County. (Fla. Coop. Sur.). ARIZONA - Few larvae found in cotton blooms at Yuma, Yuma County. None found in blooms checked at Bowie, Cochise County. (Ariz. Coop. Sur.).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - Adult weevil found feeding in citrus tree 6 feet from ornamental nursery of canned plants at Apopka, Orange County; adult found on leaf of crapemyrtle (Lagerstroemia indica) at Apopka. (Fla. Coop. Sur.).

WHITEFRINGED BEETLES (Graphognathus spp.) - VIRGINIA - Adults found damaging 2 acres of wild aster in City of Hampton June 17. First detection of emerging adults of season. (Darden, Drewey).

DETECTION

New State Records - CHALCID WASPS - NORTH DAKOTA - Trigonura tarsata - McHenry County. T. ulmi - Bottineau County. (p. 488).
CROSS-STRIPED CABBAGEWORM (Evergestis rimosalis) - DELAWARE - Kent County. (p. 484). A PLANT BUG (Tropidosteptes pacificus) - PENNSYLVANIA - Erie County. (p. 486). A PTEROMALID WASP (Habrocytus piercei) - NORTH DAKOTA - Dunn County. (p. 488).

New County and Island Records - ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) PENNSYLVANIA - Centre (p. 481). ALFALFA WEEVIL (Hypera postica) MINNESOTA - Lyon, Pipestone, Yellow Medicine, Lincoln (p. 480). SOUTH DAKOTA - Beadle, Kingsbury, Campbell, Hughes (p. 479). AZALEA LACE BUG (Stephanitis pyriodes) SOUTH CAROLINA - Lee (p. 486). BANANA SKIPPER (Erionota thrax) HAWAII - Kauai (p. 492). A CHALCID WASP (Trigonura ulmi) NORTH DAKOTA - Richland (p. 488). FACE FLY (Musca autumnalis) MISSISSIPPI - Noxubee, Lowndes (p. 486). A MUSCID FLY (Atherigona reversura) HAWAII - Kauai (p. 492). NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) SOUTH CAROLINA - Florence (p. 486). SQUASH VINE BORER (Metittia cucurbitae) SOUTH CAROLINA - Greenville (p. 484).

CORRECTIONS

CEIR 23(20):287 - A THRIPS (Taeniothrips hawaiiensis) - GEORGIA - "... during 1970 ..." should read "... during 1969 ..."

HAWAII INSECT REPORT

General Vegetables - Light infestations of LEAFMINER FLIES (Liriomyza spp.) found in total of 2 acres of tomato at Kula and Omaopio, Maui, and small snap bean planting at Kula. Less than 10 percent of leaves in these crops infested; mines generally 1-4 per infested leaf. Damage by TOMATO PINWORM (Keiferia lycopersicella) light on tomato fruits in small abandoned field at Kula. Eggs and young larvae observed in about 15 percent of fruit; no damage to leaves observed. GREEN PEACH APHID (Myzus persicae) and POTATO APHID (Macrosiphum euphorbiae) light in several acres of head lettuce and Chinese cabbage, respectively, at Kula. Less than 10 aphids found on each infested leaf. Infestation of lettuce leaves at ground level makes control of outbreaks difficult. (Mau).

Turf and Pasture - A MUSCID FLY (Atherigona reversura) heavy in lawn and golf turf at Lihue and Wailua, Kauai. Adults easily taken in sweep net; estimated 50-100 per sweep. This is first record of this muscid on an island other than Oahu. Probably been on Kauai for some time. Determined by D. Sugawa; confirmed by G.Y. Funasaki. (Melendes, Sugawa).

Fruits and Nuts - Two last-instar larvae and 2 empty pupal cases of BANANA SKIPPER (Erionota thrax) found in rolled banana leaves at Wailua, Kauai. Larvae and pupae found at locations about 2 miles apart. Many other larvae reportedly found at one of infestation sites were killed. Survey of banana plantings at different locations on Kauai planned to delimit infestation. This is first record of E. thrax being established anywhere in State than on Oahu. (Sugawa, Melendes).

Man and Animals - Ground nest of a VESPID WASP (Vespula vulgaris) found at Olinda, Maui, June 13. Nest close to site of recent adult sightings. Adults killed and nest removed for study. Nest badly damaged, but measured about 6 inches in diameter and appeared to contain 5 combs. Nine hundred workers and queen removed with nest; colony size estimated at 1,000+ workers. Many eggs, larvae, and pupae removed with nest, but there appeared to be no queen or male cells. Another queen caught in same area few days prior to discovery of nest; it is likely V. vulgaris is established at Olinda, Maui. Many suitable nesting locations found. (Miyahira et al.).

LIGHT TRAP COLLECTIONS

	Temperature of air	Precipitation	Type of trap	Males		Females		Total		Spiders		Other	
				9L	9M	9L	9M	9L	9M	9L	9M	9L	9M
ARIZONA Mesa 6/10-16	BL	191		100	20	8							
FLORIDA Gainesville 6/14-20	BL				1	1							
KANSAS Great Bend 6/12-18 Tribune 6/13, 18	BL BL	64 18		32 41	61 31	6 2							
ILLINOIS (County) Ogle 6/11-17	BL												
INDIANA (Districts) South West 6/7-13 West Central 6/7-13	BL 3BL	9 1											
KENTUCKY Fort Knox 6/17 Lexington 6/14-21	BL BL	10 4											
MICHIGAN (Counties) Lenawee 6/11-17 Oceana 6/8-17	BL 2BL	1 17											
MINNESOTA Fergus Falls 6/12-18 Worthington 6/12-18	BL BL												
MISSISSIPPI Stoneville 6/14-20	2BL	32	2		13	6	78						
NEW HAMPSHIRE Lee 6/16	BL												
NEW JERSEY Seabrook 6/12-18 Vineland 6/12-18	7BL 5BL	12 2											

WEATHER OF THE WEEK ENDING JUNE 24

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

HIGHLIGHTS: Severe thunderstorms drenched Minnesota, Iowa, Illinois, Indian, and Ohio with rains averaging 2 to 7 inches last week. Hot and dry conditions continued for the second consecutive week from the central Plains westward to the Pacific coast. Both Havre and Glasgow, Montana, received 2 inches of rain, only significant amounts in the West. Temperatures again remained above normal from the central Plains westward while in the East temperatures were below normal for the week. Boise, Idaho, averaged as much as 14 degrees above normal for the week while Grand Rapids, Michigan, averaged 7 degrees below normal.

PRECIPITATION: Isolated showers dampened many sections of the Nation's eastern half last week. Rains averaging up to 2 inches were reported throughout the New England, mid-Atlantic, and Gulf Coast States. East-central Iowa and central Illinois received over 5 inches. Early in the week severe weather erupted across Florida and the Midwest. A tornado swept through Lakeland and near Tampa, Florida. Golf-ball size hail struck Albert Lea, Minnesota; Ainsworth, Nebraska; and Milbank, South Dakota. A midweek storm with 50 m.p.h. winds hit Des Moines, Iowa, killing three persons and causing considerable property damage. Nearby Ames reported baseball size hail with up to 3 feet of water in the streets. Charles City, Iowa, received 2.50 inches of rain in only one-half hour. Thursday, a frontal system extending from the New England coast into South Dakota and Montana triggered thunderstorms that produced winds over 60 m.p.h. and tornadoes. Tornadoes were reported in Illinois, Iowa, and Indiana. During the storm, Great Falls, Montana, got over 1.50 inches of rain. Holland, Michigan, received 1.40 inches of rain in one hour. Saturday, severe thunderstorms again hit the north-central U.S. Hail, damaging winds, and tornadoes accompanied heavy storms in South Dakota, Nebraska, Iowa, and northern Illinois. By afternoon, thunderstorms had left heavy amounts of rain from the middle Mississippi Valley to the central Appalachians. Local amounts over 4 inches caused flooding of some rivers in Iowa and northern Illinois. Wind gusts from 60 to 70 m.p.h. accompanied rains in several parts of northwest Illinois. By afternoon, thunderstorms continued from the lower Mississippi Valley to the mid-Atlantic coast. Sunday afternoon, severe thunderstorms hit the southern Atlantic coast. The Newport News and Hampton Roads areas of Virginia received 2.25 inches of rain and hail 2 inches in diameter with gusts up to 60 m.p.h.

TEMPERATURE: Above-normal temperatures dominated the Nation from the central Plains westward last week. Temperatures averaged as much as 14 degrees above normal at Boise, Idaho; 13 degrees at Kalispell, Montana; and 12 degrees at Salt Lake City, Utah. Meanwhile the eastern half of the Nation reported temperatures averaging as much as 5 degrees to 7 degrees below normal. Monday was hot over much of the Nation west of the Divide. A number of readings topped 110 degrees in the desert Southwest, Boise, Idaho, set a record of 105 degrees. In contrast, South Bend, Indiana, reached only 62 degrees, the lowest maximum temperature on record for June 17. Midweek temperatures again soared above the

100-degree mark from the central Plains through the southern Rockies, desert Southwest, and southern Idaho. Albuquerque, New Mexico, hit 103 degrees the hottest June 19 in 43 years. New daily records were set at Lincoln, Nebraska, with 103 degrees, and Colorado Springs, Colorado, with 101 degrees. Thursday, most parts of the country were sunny and warm. A heat wave in the northern and central Plateau region of the previous several days broke with most places only in the 70's and 80's. New Records were set in Rapid City and Sioux Falls, South Dakota, and Pueblo, Colorado. Friday, an unusual weather phenomenon occurred at Grand Island, Nebraska, when the temperature rose to 97 degrees at 2 a.m. Saturday, temperatures topped the 100-degree mark in southern portions of the Plateau and Rocky Mountain regions. The hottest spot was 117 degrees at Buckeye, Arizona. However, the Great Lakes region was unseasonably cool. Milwaukee, Wisconsin, recorded a high of only 57 degrees. Sunday, most points in the Northwest U.S. were in the 80's while the southwestern sections were in the 90's and 100's. The Pacific coast remained cool with temperatures in the 50's and 60's.

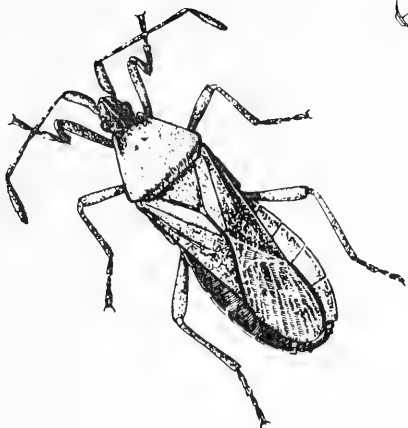
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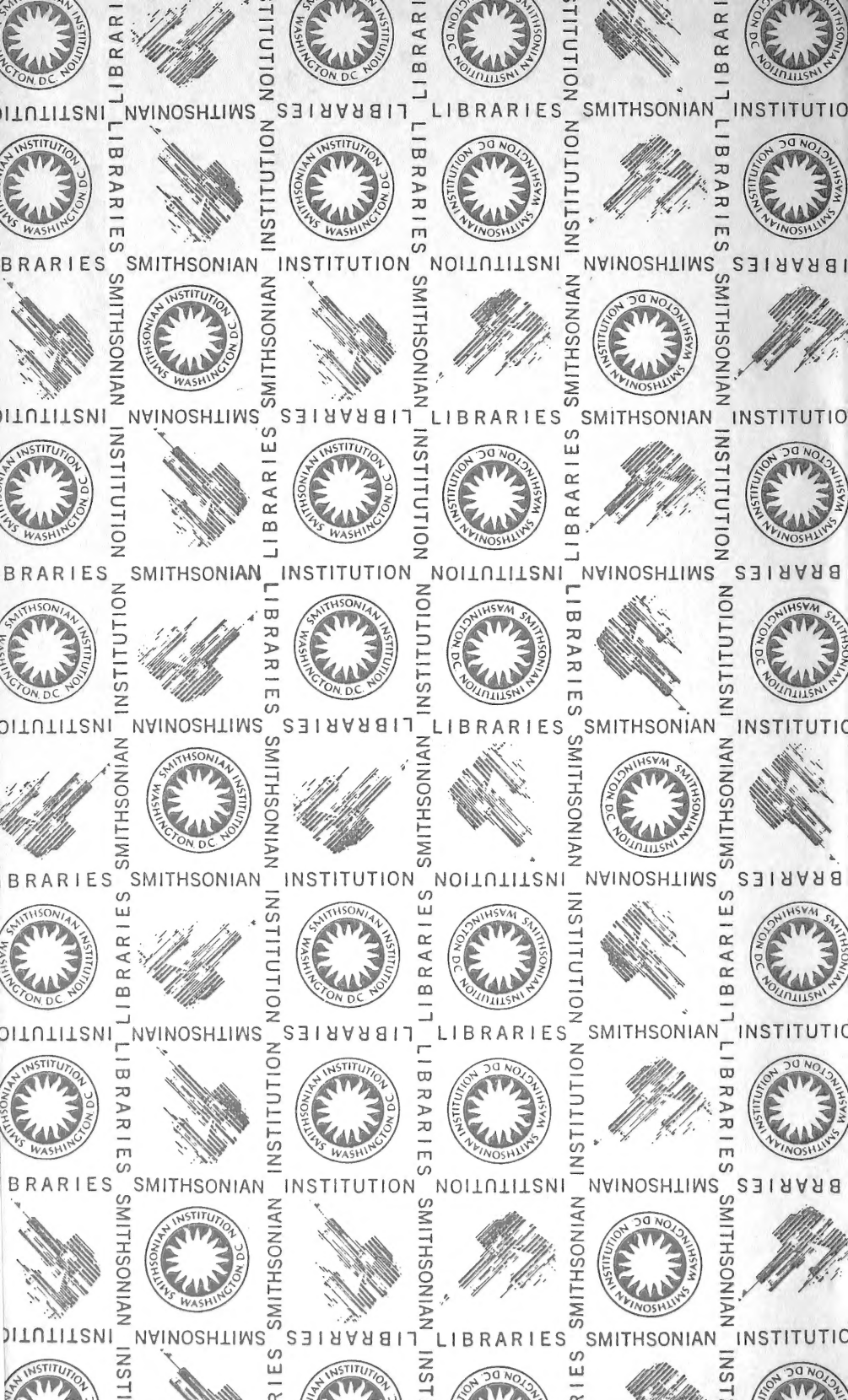
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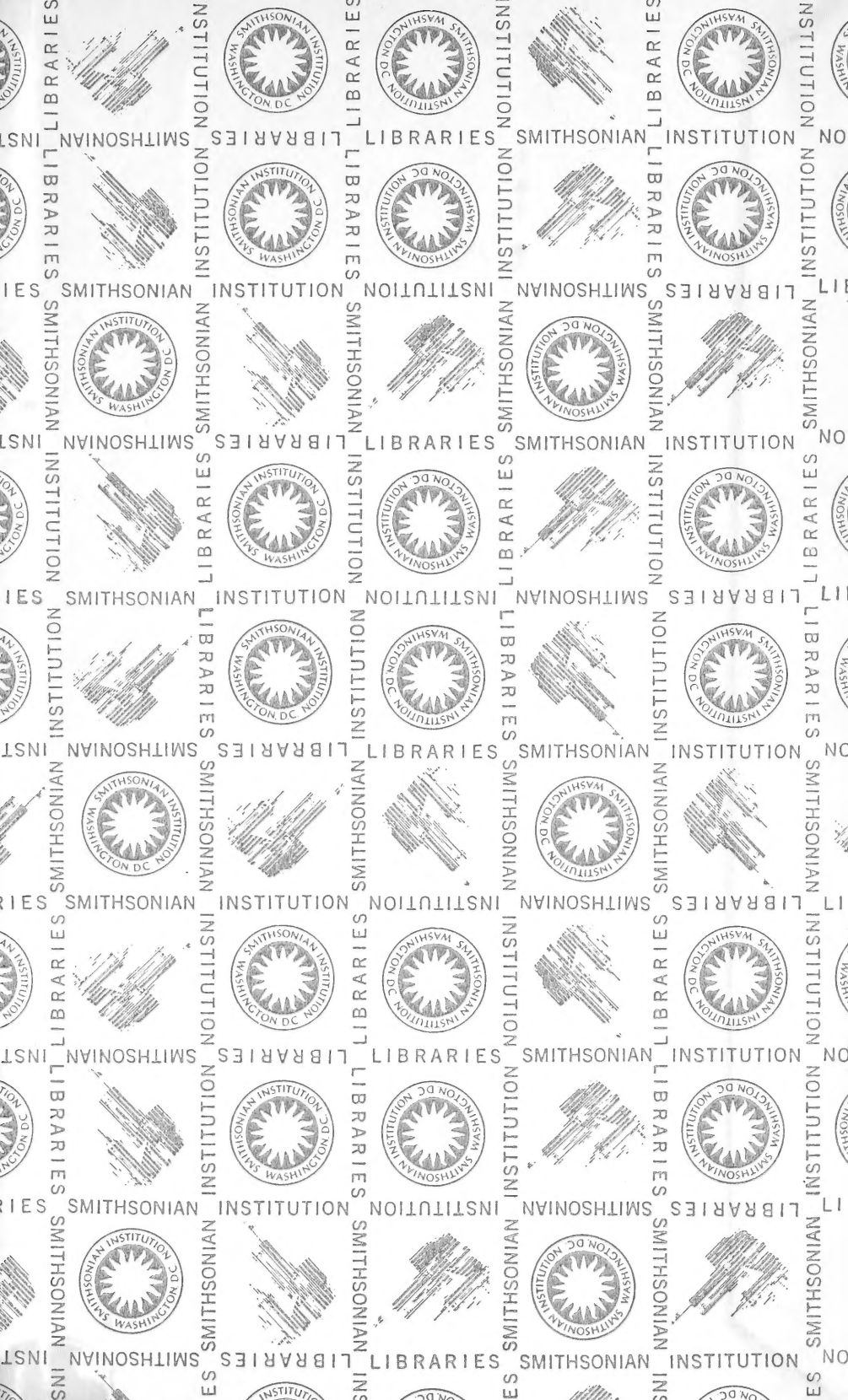


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